PROCEEDINGS

The 17th International Congress of Agricultural Medicine and Rural Health

Cartagena de Indias, Colombia

October 13 - 16, 2009
Greeting from President of The Cartagena International Congress

A successful experience strengthening Rural Medicine and Health in Latin America

Julietta Rodriguez Guzman, MD SOH MScA
ICOH National Secretary for Colombia and
President of the 17th International Congress on Agricultural Medicine and Rural Health

Dear Colleague,
Overall, 170 persons coming from 23 countries around the world met at the Convention Center of Cartagena de Indias, Colombia, for exchanging knowledge, research and experiences during the 17th International Congress on Agricultural Medicine and Rural Health. People from Argentina, Australia, Bolivia, Brazil, Chile, Colombia, Ecuador, Finland, Germany, Greece, India, Italy, Japan, Mexico, Panama, South Africa, South Korea, Spain, Sweden, Switzerland, Turkey, United States and Venezuela were warmly greeted and welcomed.

This congress was co-organized by the International Association of Agricultural Medicine and Rural Health, ICOH, the Colombian government and several public and private organizations, under the leadership of the ICOH National Secretariat of Colombia. More than sixty Colombians helped with the organization, logistics, press and commercial expo, making this a successful and unforgettable event.

Central theme was Health and safety for rural populations: from theory to practice for which the final program included pre-congress workshops, satellite courses, keynote conferences, round tables, forums and poster Sessions. Mainstream and key topics discussed included:

1) Social determinants of Rural Health and Development, with special emphasis on vulnerable rural populations: women, children, migrants and indigenous people;

2) Environmental and Climatic Factors highlighting climatic change impacts, food security and sustainable agriculture;
3) Work hazards and Risks in Agriculture focused on pesticide use and control, MSD, solar radiation, biological risk exposures (H1N1 management) and chemical risk assessments;

4) Health Service provision in rural areas raised discussions about primary healthcare and BOHS;

5) Health Education for Rural Populations with initiatives for youth insertion to agricultural practices;

and 6) International and regional approaches for health and safety in agriculture in which needs of strengthening rural health practices particularly in Africa and Latin America were made visible.

Latin American WONCA members and family physicians held a great special session on primary health care in rural areas. Also, members of rural, grassroots, community and indigenous movements from Colombia contributed significantly with their points of view.

Key final issues and results are summarized in:
1) the Cartagena Declaration on Rural Health in Latin America;
2) the Colombian Agricultural United Movement Declaration;
3) The drafted version of a memorandum of understanding between ICOH and IAAMRH;
and, 4) the Latin American Rural Health Network that was officially launched to promote Rural Health knowledge and practices in Latin America and other places. Countries present in Cartagena and others that had funding limitations or last minute sponsor cancellations like Costa Rica, Cuba, Dominican Republic, Honduras, Peru, Canada and United States also joined this effort.

ICOH’s presence was crucial for this success: a meeting with Latin Americans was held with Prof. Peter Westerholm discussing points of view about the practicality and needs for change of the ICOH Code of Ethics. Also, with ICOH President Prof. Kasukata Kogi and members from five ICOH Scientific Committees (Rural health, OH and development, Solar Radiation, MSD and Women, Health & Work), a business meeting was successfully held. Acknowledgements for this conference and near future plans for the coming ICOH Monterey Congress 2012 were the central topics of discussion and agreements.

THANK YOU ICOH FOR YOUR TRUST AND SUPPORT!!
Picture 1: Opening Session
From left to right: Dr. C. Rodriguez -President of the Colombian Society of Occupational Medicine; Dr. L. Rangel Sosa -Secretary of Health of the District of Cartagena-; Dr. A. Ramirez , Rector of UniAgraria; Dr. A. M. Cabrera Videla Worker’s Compensation System Director, on behalf of the Minister of Social Protection-; Prof. J. Rodriguez Guzman -Congress President & ICOH National secretary for Colombia-; Prof. K. Kogi -ICOH President-; Prof. C. Colosio, Congress Honorary President & Chair ICOH SC Rural health-; Dr. V. Forastieri SafeWork Program ILO, and Taita O. Gaitan, Carare Foundation.

Picture 2: Lecture of Dr. Claudio Colosio
Dr. Claudio Colosio gives a lecture during session 13: Evaluation and Management of Chemical Risk in Rural Areas
Picture 3: Participants from Japan and Greece
From left to right: Ms. Tazawa and Dr. Jun-ichi Tazawa, Tsuchiura Kyodo General Hospital; Prof. Kanae Hamano, Nagasaki University; Mr. Shinichiro Yoshimoto, Saku Central Hospital, Dr. Shusuke Natsukawa, Saku Central Hospital, Secretary General of International Association of Rural Health and Medicine (IARM); Dr. Hideomi Fujiwara, President of the Japanese Association of Rural Medicine, Treasurer of IARM; Dr. Isao Kawamura, Shimotsuga General Hospital, Vice President of IARM; Prof. Aristidis Tsatsaxis, President, Hellenic Society of Toxicology, Univ. of Crete (Greece), and Dr. Shuzo Shintani, Toride Kyodo General Hospital, the Editor-in-Chief of the Journal of Rural Medicine (JRM).

Picture 4: Presentation of Dr. Shuzo Shintani entitled “Polymyalgia Rheumatica (PMR): Clinical, laboratory, and immunofluorescence studies in 13 patients” at Session 2: Work Hazards & Risks in Agriculture.
Chair is Dr. Isao Kawamura, Vice President of IARM.
Picture 5: In the afternoon of the downtown of Cartagena

Picture 6: Downtown of Cartagena. The road is narrow.
Picture 7: Panoramic view of Cartagena from the hill top
Cliffs of castle (legacy of the world) are seen in the center of the picture.

Picture 8: Dancing of the natives in welcome cocktail party at the Congress
Picture 9: Dancing of the natives in welcome cocktail party at the Congress

Picture 10: Dancing of the natives in welcome cocktail party at the Congress
Cartagena Declaration on Rural Health in Latin America

Adopted by the 17th International Congress of Agricultural Medicine and Rural Health, Cartagena de Indias, Colombia, 13 – 26 October 2009

We, the participants in the 17th International Congress of Agricultural Medicine and Rural Health, are aware that a significant component of the global population, including the Latin American population lives and works in rural areas where they face evident gaps in access to health care delivery, occupational health care and safety, and basic living conditions and infrastructure, including access to drinking water and sanitation.

Among rural populations of Latin America, particular attention needs to be addressed to indigenous people, spread throughout the Region, and suffering one of the most disadvantaged conditions.

Taking into consideration the Declaration of the International Conference on Primary Health Care, Alma-Ata, USSR, 1978, the Global Strategy on Occupational Health for All adopted by the World Health Assembly with Resolution 49.12 from 1996 and the Global Strategy on Occupational Safety and health adopted by the international labour conference in 2003, recalling the outcomes of previous international deliberations on occupational health in agriculture and rural health, such as the Declaration of the First International Congress on Rural Health in the Mediterranean and Balkan Countries (Bari, Italy, 2002), the Agenda on Rural Health (Loni, India, 2002), the Declaration on Occupational and Environmental Rural Health (Belgrade, Serbia, 2004) and the Lodi Declaration on Healthy Villages (Lodi, Italy, 2006), the Aurangabad declaration on integrated approach to achieve Millennium Development Goals in Asia (Aurungabad, Marahastra, India, 2008), we discussed the challenges for providing adequate rural healthcare, occupational and environmental health services, food safety, health education and promotion, public health and other supportive services for development in villages and other rural settings,

WE DECLARE THAT:

1. We commit ourselves to the development of the global movement on Rural Health in the Region, that responds to specific rural occupational, environmental and public health problems and the inadequate access to health care and health promotion in the rural areas;

2. We call for concerted national and international efforts to improve the scope and coverage of primary health care to better address the needs of rural communities, as well as to providing
access to occupational and environmental health services in rural areas aiming to improve quality of service delivery;

3. We are determined to advocate and provide support for the elimination of the worst forms of child labour, to promote the legalization and the official recognition of informal and migrant agricultural workers as well as to contribute to a global decent work agenda in villages with particular attention for the culture and traditions of indigenous populations;

4. We recommend incorporating the rural dimension into international, national and local environmental, occupational, and health action plans to meet the special needs of people living in villages and other rural settings;

5. We urge for an increasing collaboration between the disciplines relevant for Rural Health, such as medicine, public health, occupational and environmental health, health promotion, food safety, chemical safety, agricultural and veterinary sciences, and social sciences for addressing the special health and development needs of rural populations;

6. We are fully committed to achieve the Millennium Development Goals since Health is the most important component of Human Development.

7. We are aware of the marginalized health status of Rural Women and Children, and thus, more efforts are required to improve the Gender Equality and the Health Status of these vulnerable groups.

8. We pledge our support to the international activities related to developing Healthy Villages of the World Health Organization and the International Labour Organization, acknowledging the importance of collaboration with the other relevant UN agencies, such as UNDP, UNEP, UNICEF, FAO, UNHABITAT, and other regional bodies, such as the European Union;

9. We encourage the International Association of Rural Health and Medicine (IARM), the International Commission on Occupational Health (ICOH), the World Association of General Practitioners (WONCA) as well as organizations of farmers, agricultural workers, agricultural industry, and the relevant non-governmental organizations and networks to take actions for supporting and promoting the development of Rural Health and Healthy Villages;

10. We believe that the Rural Health concept needs to be introduced in training and educational programmes, in order to build the necessary human resources able to provide good quality health services for rural populations and agricultural workers;
11. We realize the need for adequate and reliable data collection and analysis for needs assessment, monitoring and evaluation of Rural Health programmes; and thus, we will collaborate for the development of international models for rural health profiles and indicators;

12. We call upon the governmental agencies and local authorities to ensure equal and proper access to information on public and occupational health and the environment of rural people; stimulate social and environmental justice, as well as to provide means for empowerment of rural populations for protecting and promoting their human rights, their health, and improving their working and living conditions;

13. We recommend governmental agencies to build and issue public health policies aimed to strengthen Rural Health in benefit of all stakeholders involved in the sector, particularly farmers, their families and their communities.

We, hereby, authorize the Congress President, the Congress Honorary President, and the Presidents of the International Association of Rural Health and Medicine and International Commission on Occupational Health to sign this declaration on our behalf.

Cartagena de Indias, Colombia, 17th October 2009

Dr. Julietta Rodríguez Guzmán  
Congress President

Dr. Kasukata Kogi  
President  
International Commission on Occupational Health

Dr. Claudio Colosio  
Honorary Congress President

Dr. Ashok Vikhe Patil  
President  
International Association of Rural Health and Medicine
Scientific Program

English Version

XVII International Congress of Agricultural Medicine and Rural Health
Cartagena, October 13th to 16th, 2009
## PROGRAM OVERVIEW

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<th>DAY</th>
<th>Time</th>
<th>Tuesday October 13</th>
<th>Wednesday October 14</th>
<th>Thursday October 15</th>
<th>Friday October 16</th>
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<tr>
<td></td>
<td></td>
<td>7:30 – 9:45</td>
<td>OPENING SESSION1</td>
<td>OPENING SESSION2</td>
<td>OPENING SESSION1</td>
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<td></td>
<td></td>
<td>Room 1</td>
<td>Keynote Speakers # 1, 2, 3</td>
<td>Keynote Speakers # 4, 5, 6</td>
<td>Keynote Speakers # 7, 8, 9</td>
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<td></td>
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<td>Room 2</td>
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<td>9:45-10:00</td>
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<td>BREAK FOR COLOMBIAN COFFEE</td>
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<tr>
<td>10:00-12:30</td>
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<td>All morning Registration &amp; 1/IAAMRH Board Meeting</td>
<td>Pre-Congress Course/Workshop 1</td>
<td>Pre-Congress Course/Workshop 2</td>
<td>Room 1 Room 2 Room 3</td>
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<td>Session 1 Session 2 Session 3</td>
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<td>12:30-13:30</td>
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<td>LUNCH</td>
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<td>13:30-16:00</td>
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<td>General Registration throughout the afternoon</td>
<td>Pre-congress Course/Workshop 3</td>
<td>Pre-congress Course/Workshop 4</td>
<td>Session 4 Session 5 Session 6</td>
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<td>Session 13 Session 14 Session 15</td>
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<td>16:00-16:15</td>
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<td>BREAK FOR COLOMBIAN COFFEE</td>
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<td>16:15-18:30</td>
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<td>17:00 Opening Ceremony &amp; Keynote Opening Conference</td>
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<td>19.00-21.00</td>
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<td>WELCOME COCKTAIL PARTY</td>
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<td>21.00+++</td>
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<td>NIGHTLIFE IN CARTAGENA FOR CONGRESS PARTICIPANTS</td>
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### SATELLITE COURSES

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<th>PRE CONGRESS COURSES</th>
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<tr>
<td>Brief Course on Occupational Orthopedics and other Occupational Related Muscular-Skeletal Pathologies.</td>
<td>ATS-ERS Standards Spirometry Training</td>
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<tr>
<td>Dr. C. Taboadaela ARGENTINA</td>
<td>Dr. J. Morales MEXICO</td>
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<tr>
<td>October 9th and 10th, 2009</td>
<td>October 19th</td>
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<tr>
<td>Colombian Society of Occupational Medicine – Eje Cafetero Chapter</td>
<td>Colombian Society of Occupational Medicine</td>
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<tr>
<td>Bogotá, DC</td>
<td>Bogotá, DC</td>
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</tbody>
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1/ TIME AVAILABLE FOR IAAMRH REGIONAL BOARD MEETINGS, AND ICOH SCS MEETINGS
2/ FIELD VISITS TO (3) AGRO-INDUSTRIES LIMITED AVAILABILITY – MUST REGISTER UPON ARRIVAL TO CARTAGENA
3/ POSTER SESSION & ATTENDANCE TO PRESENTATIONS

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Final version October 10th 2009
**Course 1: Participatory Training Methods for Improving Working Life of Farmers**

Prof. Kasukata Kogi, ICOH President, Institute of Work Sciences, Kawasaki, Japan

Dr. Valentina Forastieri, Coordinator, Health Promotion and Training Cluster, International Programme on Safety and Health at work and the Environment, Safe Work, OIT, Geneva

**Course 2: Social Mobilization for Occupational & Rural Health as Human Rights**

Prof. Leslie London, Head of the Health and Human Rights Division; Associate Director of the Occupational and Environmental Health Unit; and, Professor and Director of the School of Public Health & Family Medicine, Faculty of Health Sciences, University of South Africa

Dr. Mauricio Torres, Latin American Social Medicine Association (ALAMES), Colombian Health Movement, Colombia

<table>
<thead>
<tr>
<th>TIME</th>
<th>Course 1: Participatory Training Methods for Improving Working Life of Farmers</th>
<th>Course 2: Social Mobilization for Occupational &amp; Rural Health as Human Rights</th>
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<tbody>
<tr>
<td>Registration</td>
<td>Orientation to participatory training methods (45 min)</td>
<td>Conceptual Orientation on Social Mobilization Towards The Promotion of Human Rights and Occupational Rural Health. (60 min)</td>
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<tr>
<td>8:00 – 8:15</td>
<td>Opening Words</td>
<td>Opening words</td>
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<td>8:15 – 9:00</td>
<td>Roles of low-cost improvements in agricultural working life (45 min)</td>
<td>Reflections and Discussion (30 min)</td>
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<td>9:00 – 9:45</td>
<td>Ways to select check items for a locally adjusted checklist (45 Min)</td>
<td>Latin American Experiences: AIS-BOLIVIA, FENSUAGRO-COLOMBIA and Others. (45 min)</td>
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<tr>
<td>10:00-10:45</td>
<td>Recommended group work steps to facilitate action by farmer (45 Min)</td>
<td>Exploring approaches towards human rights: which and how, guidelines. Work group. (45 Min)</td>
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<tr>
<td>11:00-11:45</td>
<td>Successful Experiences in Latin America &amp; Asia. (45 Min)</td>
<td>Plenary discussion (45 Min)</td>
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<tr>
<td>12:00-13:00</td>
<td>Closing (15 Min)</td>
<td>Closing remarks: creation of the Latin American Network (15 Min)</td>
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**Final version October 10th 2009**
## Tuesday, October 13th, 2009 - Afternoon Session

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<tr>
<th>TIME</th>
<th>Course 3: Innovations in Pesticides Application Methods</th>
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<tr>
<td>13:00-13:15</td>
<td>Installation</td>
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<tr>
<td>13:15-14:00</td>
<td>Pesticide Management Concepts</td>
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<td></td>
<td>Eng. Roberto Ramirez Caro</td>
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<tr>
<td>14:00-14:45</td>
<td>Basic Concepts in for Pesticide applications</td>
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<td>Eng. John Jairo Sendoya Cabrera</td>
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<td>14:45-15:00</td>
<td>15 min Coffee Break</td>
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<tr>
<td>15:00-15:45</td>
<td>Equipment Design and Application Techniques to Minimize Pesticide Exposures–</td>
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<td>Eng. John Jairo Sendoya Cabrera</td>
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<tr>
<td>15:45-16:30</td>
<td>Reducing Pesticide Exposures</td>
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<tr>
<td>16:30-16:45</td>
<td>Discussion and Final remarks</td>
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<td></td>
<td>Eng. Alfredo Ramos , COLOMBIA</td>
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<tr>
<th>TIME</th>
<th>Course 4: Occupational Hygiene in Agro-Instrumentation in the Farming Sector</th>
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<tr>
<td>13:00-13:15</td>
<td>Installation</td>
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<tr>
<td>13:15-14:00</td>
<td>Vibration Exposure Assessment in the Use of Farming Tools and Machinery.</td>
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<td></td>
<td>Eng. Jean Paul Becker, MEXICO High Tech</td>
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<tr>
<td>14:00-14:45</td>
<td>Engagement Exposures</td>
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<td>Eng. Jean Paul Becker, MEXICO High Tech</td>
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<tr>
<td>14:45-15:00</td>
<td>15 min Coffee Break</td>
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<td>15:00-15:45</td>
<td>Noise Exposure Assessment in Farming Machinery.</td>
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<td></td>
<td>Eng. Jean Paul Becker, MEXICO High Tech</td>
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<tr>
<td>15:45-16:30</td>
<td>Discussion and Final remarks</td>
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<td></td>
<td>Dr. MT Espinosa, Universidad El Bosque, COLOMBIA</td>
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## Tuesday, October 13th, 2009 – Inaugural Eve

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<td>17:00-21:00</td>
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<tr>
<td>1.</td>
<td>Hymn of the Republic of Colombia</td>
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<td>2.</td>
<td>Hymn of the City of Cartagena de Indias</td>
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<td>3.</td>
<td>Greeting Message from the Honorable President of the Republic of Colombia, Dr. Álvaro Uribe Velez (TBC)</td>
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<td>4.</td>
<td>Welcome words from the Mayor of Cartagena, Dr. Judith Pinedo Flórez</td>
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<td>5.</td>
<td>Welcome words from the President of the Congress, Dr. Julietta Rodríguez Guzman</td>
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<td>6.</td>
<td>Welcome address from the Principal (E) of the Agriculture University Foundation of Colombia, Dr. Alvaro Ramirez</td>
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<td>7.</td>
<td>Welcome words from the President of POSITIVA, Dr. Gilberto Quinche</td>
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<td>8.</td>
<td>Welcome Greeting from Dr. Ashok Patil, President of IAAMRH’s</td>
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<td>9.</td>
<td>Welcome Greeting from Prof. Kasukata Kogi, President of ICOH</td>
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<td>10.</td>
<td>Formal Opening in charge of the Ministry of Social Protection</td>
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<td>12.</td>
<td>WELCOME COCKTAIL PARTY, Patio de Armas, Centro de Convenciones Julio Cesar Turbay Ayala</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>8:00 – 8:35</td>
<td>Key Note Address T-2: Climate Change: Impact on Rural Populations</td>
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<tr>
<td>8:35 – 9:10</td>
<td>Key Note Address T-1: Human Rights &amp; Health: Opportunities to Advance Rural Occupational Health</td>
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<tr>
<td>9:10-9:45</td>
<td>Key Note Address T-3: Biomonitoring of Pesticides in Rural Population: Assessment of Recent and Chronic Exposure by Testing of Hair</td>
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<tr>
<td>9:45-10:00</td>
<td>Break for Colombian Coffee</td>
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<tr>
<td>10:00-12:30</td>
<td>T-1: Session 1: Social Determinants of Health and Rural Development</td>
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<td>1. Reflections and Contributions from the Academy- Dr. Jorge Gaitan, Principal Agriculture University Foundation of Colombia, Colombia (30 Min)</td>
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<td>2. Social Determinants of Health and Development in Rural Settings. Shoba Arole / Ashok Patil, PhD, India (30 Min)</td>
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<td>3. Improvement of Health Activities and the Concept of Health - Subsequent Discussion About the Perspective of Health- Prof. Kimiko Ikuta, Japan (30 Min)</td>
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<td>4. Agriculture Sector and Corporate Social Responsibility. The Asocolflores Case. Martha Carrera P., ASOCOLFLORES (30 Min)</td>
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<td>5. Nutritional Intake in Non-Institutionalized Elderly Population, Residents of Marginal Regions of the Ecuadorian Andes- Dr. ME Carrera P., ECUADOR(30 min)</td>
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<td>6. Diagnosis of Health &amp; Work Conditions of the Informal Work Population in the Department of Caldas, Dr. Berta Ines Franco Bedoya, Occupational Health Services, Manizales, COLOMBIA (30 Min)</td>
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<td>T-3: Session 2: Work Hazards &amp; Risks in Agriculture</td>
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<td>1. Work-Related Musculoskeletal Symptoms of Dairy Farmers in Gyeonggi Province, South Korea – Dr. Ji-Hyuk Park, SOUTH KOREA (20 Min)</td>
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<td>2. Polymyalgia Rheumatica (PMR): Clinical, Laboratory, and Immunofluorescence Studies in 13 patients. Dr. S. Shintani, JAPAN (20 min)</td>
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<td>3. Health Problems in Farmers due to Load Handling, postures, Repetitive Movements, Use of Hand Tools, and Heavy Machinery – Dr. Stefano Mattioli, University of Bologna, ITALY (20 min)</td>
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<td>4. Musculo-Skeletal Disorders: Occupational Orthopedics Perspective – Dr. Claudio Taboada, Argentinean Occupational Medicine Federation, FAMETRA, ARGENTINA (20 Min)</td>
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<td>5. Solar Radiation and Outdoor Work. Dr. Shangli Niu, ILO, SWITZERLAND (30 Min)</td>
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<td>T-2: Session 3: Effects of Climate Change and other Environmental Factors on Rural Populations</td>
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<td>1. Mortality Due to Heat Exposure in Agricultural Workers- Marc Schenker, University of California-USA (25 Min)</td>
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<td>2. Water Quality of Apulo River and its Environmental Impacts – Engineer Arturo Lievano, Faculty of Environmental Engineering – OH Graduate Program, El Bosque university – COLOMBIA (25 Min)</td>
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<td>3. Health Risk Assessment of Chlorination Byproducts in Drinking Water in Regions of Albania – Dr. L. Tafaj, institute of Public Health, ALBANIA (25 min)</td>
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<td>4. Experiences of the Food Safety Network ReSa, Dr. Angela Maria Zuluaga, Presidential Social Action Agency, COLOMBIA (25 Min)</td>
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<td>5. Building Rural Communities Capacities in Management and Restoration of Climate Change Induced Disasters and Food Insecurity: A Case Study of the Flood Problem in the Greater Nyando District, Nyanza Province, Kenya. Eunice Omanga, Great Lakes University of Kisumu &amp; Dr. Benard Abong, KENYA (25 min)</td>
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<td>12:30-13:30</td>
<td>Lunch Break</td>
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**SESSION A**

**PRESENTATION**

**PART I: Rural Health for Children and Women**

- **Chair:** Dr. Leonardo Brezalo, Director of the Occupational Health Center, University El Rosario, COLOMBIA

1. **Experience of ILO’s IPEC Program in Central America, Endangering the worst forms of child labor.** Dr. Valenti, Foresti, Consultant, for the Promotion and Cluster Training, for the Decent Work Program, OIT, GENEVA (45 min)

2. **Iodine Deficiency Status among Children and Women** - Dr. Ana Maria Jimenez, Director of Professional Risks, Ministry of Social Protection & Save the Children, Manizales Experience, Public Health – MANIZALES, COLOMBIA (20 min)


4. **Work Experience with Disabled Women and Children in Indigenous Communities of Guainía, María Lobo Casado, LN, Hospital ME FENSUAGRO, COLOMBIA (30 Min)**


6. **Growers – Yasmine de Palacio Martha Lucia Vásquez, President of the Republic of Colombia, COLOMBIA (30 Min)**

**PART II: Rural Workers, Vulnerable Rural Populations:**

- **Chair:** Dr. Leonardo Brezalo, Director of the Occupational Health Center, University El Rosario, COLOMBIA

1. **Vulnerable Rural Populations: Migrant Worker in Developed and Developing Countries**

   - **Chair:** Prof. Mark Schenker, Director, Western Center for Agricultural Health and Safety, University of California, USA

   1. **Mexico/USA Border Problems.** Dr. Herman Jacob, UC Davis, USA (45 Min)

   2. **Experiences of ILO’s IPEC Program in Central America, Endangering the worst forms of child labor.** Dr. Valenti, Foresti, Consultant, for the Promotion and Cluster Training, for the Decent Work Program, OIT, GENEVA (45 min)

   3. **Iodine Deficiency Status among Children and Women** - Dr. Ana Maria Jimenez, Director of Professional Risks, Ministry of Social Protection & Save the Children, Manizales Experience, Public Health – MANIZALES, COLOMBIA (20 min)


   5. **Work Experience with Disabled Women and Children in Indigenous Communities of Guainía, María Lobo Casado, LN, Hospital ME FENSUAGRO, COLOMBIA (30 Min)**


6. **Growers – Yasmine de Palacio Martha Lucia Vásquez, President of the Republic of Colombia, COLOMBIA (30 Min)**

**PART III: Rural Health for Children and Women**

- **Chair:** Dr. Leonardo Brezalo, Director of the Occupational Health Center, University El Rosario, COLOMBIA

1. **Overview from Public Policies.** Dr. Herman Jacob, UC Davis, USA

2. **Mexican/USA Border Problems.** Dr. Herman Jacob, UC Davis, USA (25 Min)

3. **Experiences of ILO’s IPEC Program in Central America, Endangering the worst forms of child labor.** Dr. Valenti, Foresti, Consultant, for the Promotion and Cluster Training, for the Decent Work Program, OIT, GENEVA (45 min)

4. **Iodine Deficiency Status among Children and Women** - Dr. Ana Maria Jimenez, Director of Professional Risks, Ministry of Social Protection & Save the Children, Manizales Experience, Public Health – MANIZALES, COLOMBIA (20 min)

5. **Protection Strategy for Children at Risk, Ministry of Social Protection & Save the Children, Manizales Experience, Public Health – MANIZALES, COLOMBIA (20 min)**

6. **Work Experience with Disabled Women and Children in Indigenous Communities of Guainía, María Lobo Casado, LN, Hospital ME FENSUAGRO, COLOMBIA (30 Min)**


6. **Growers – Yasmine de Palacio Martha Lucia Vásquez, President of the Republic of Colombia, COLOMBIA (30 Min)**
10. Health in Rural Children and Women Populations

PART II

Session 8: Conditions in Rural Areas Part II

1. Chronic Hepatitis B in Municipalities of the High Basin: Difficulties and Problems in Treatment, Follow-up, and Contact – Orlando Gaitán, Taita, Colombia (20 min)

2. Occupational Health in Rural Workers: Difficulties and Problems in the Hospital, Prayas, Colombia (20 min)

3. Acetylcholinesterase Activity in Fertile Exposed in Commercial, Tropical, and Indigenous Communities – Prof. Carlos Osorio, University of Colombia (10 min)

4. Premature Aging and Work Conditions in Rural Workers in Argentina – G. Ladino, University of Buenos Aires (10 min)

5. Testimonies and Experiences from Colombian Indigenous Organizations, CRIC, Colombia (20 min)

6. Presen of Urban and Indigenous Workers in Rural Activities and the Awareness of Zoonoses – Dr. Carlos Jaramillo, Virology Institute and Infectious Diseases, Colombia (20 Min)

7. Health Promotion, Health and Illness Prevention of Occupational Illnesses and Work-Related Accidents in the NAP Surroundings: Dr. Carlos Jaramillo, University of Columbia (20 Min)

8. Work Experience with Rural Women in the Agro-industry of the CA Region, Peru – Patricia Mejía, Director of the Ministry of Social Work, and Health Institute (15 min)

9. Topics of the Women's Program of Cartagena’s Mayor’s Office – Natalia Ríos, Lady Mayor of Cartagena (15 min)

10. Safety of the Tetanus Toxoid Vaccine for Pregnant Women. – Dr. Meríta Kucuku, Uzbekistan (15 Min)

11. Chronic Hepatitis B in Municipalities of the High Basin: Difficulties and Problems in Treatment, Follow-up, and Contact – Dr. Orlando Gaitán, Taita, Colombia (20 min)

12. Occupational Health in Rural Workers: Difficulties and Problems in the Hospital, Prayas, Colombia (20 min)

13. Acetylcholinesterase Activity in Fertile Exposed in Commercial, Tropical, and Indigenous Communities – Prof. Carlos Osorio, University of Colombia (10 min)

14. Premature Aging and Work Conditions in Rural Workers in Argentina – G. Ladino, University of Buenos Aires (10 min)

15. Testimonies and Experiences from Colombian Indigenous Organizations, CRIC, Colombia (20 min)

16. Presen of Urban and Indigenous Workers in Rural Activities and the Awareness of Zoonoses – Dr. Carlos Jaramillo, Virology Institute and Infectious Diseases, Colombia (20 Min)

17. Health Promotion, Health and Illness Prevention of Occupational Illnesses and Work-Related Accidents in the NAP Surroundings: Dr. Carlos Jaramillo, University of Columbia (20 Min)
### Thursday, October 15th, 2008

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<tr>
<td>8:00 – 8:35</td>
<td>Keynote Address T-3: Evaluation and Prevention of Chemical Risk: the Agro Specifications - Prof. Claudio Colosio, University of Milan, IAAMRH Vice-President, Honorary President of the Congress</td>
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<tr>
<td>8:35 – 9:10</td>
<td>Keynote Address T-3: Metabolic Syndrome in Japan: Japanese Rural Health Association Proposals - Hideomi Fujisawa, PhD, President of the Japanese Rural Health Association</td>
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<tr>
<td>9:45-10:00</td>
<td>Break for Colombian Coffee /POSTERS / PRESENTATION</td>
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#### T-2: Session 10: Agriculture: Eco-friendly & Sustainable
Chair: Lic. Miguel Angel Bobadilla Prada, Agriculture Educator, National Secretary of Education, National United Agricultural Federation FENSAUAGRO, COLOMBIA.

1. Agricultural Eco-friendly Practices: Pesticide Integral Management Programs (IPM) & Integral Management of Nutrients (IPM) - Ashok Patil, IAAMRH President. (45 Min)
2. How Do We Look After those Who Look After Our Water? Descriptive Results - Dr. Bernardo Hernandez Castillo, Water and sewer Services of Bogotá AAB, COLOMBIA (30 Min)
3. Accident Prevention Programs in the Sugar Cane Sector, POSITIVA & ASOCAÑA - Dr. Diego Morales, COLOMBIA. (30 Min)
4. Impact of Biodiversity on human health: Adjusting public research and policies. - Dr. Eugenia Ponce de León, Humboldt Institute, COLOMBIA. (30 Min)
5. Effects of Dioxins and Furans in Agricultural Health. -Ing. Jorge Luis Barreto Sanchez, PERU. (30 Min)

#### T-2: Session 11: Food Security: Policies, Programs and Regulations
Chair: Dr. Carlos Becerra Verdugo, Zone Association of Medical General practitioners, President of the Chilean Society of Rural Health, CHILE.

1. Public policy Guidelines for food supplies, Agronomist James Arias, Rural Development Manager of Manizales. (30 min)
3. Food Safety Challenges and Advances Worldwide. Dr. Jairo Enrique Romero Torres, President, Colombian Association for Food Technology and Science. (ACTA)
4. Geography of the Basic Family Basket in Caldas. Prof. Elmer Castaño, Department of Rural Development, University of Caldas (30 Min)
5. Food Safety for the Colombian Rural Sector. Prof. Jesus Antonio Galvis, PhD Food Faculty, Colombian Agriculture University Foundation. (30 Min)

#### T-4: Session 12: Basic Occupational Health Services & Legislation for Rural Workers
Chair: Prof. Claudio Colosio MD. PhD Chair of the ICOH SC of Rural Health and Vice President of IAAMRH.

1. Round Table: Participants from various institutions, experiences from around the world:
   1. Grapping with All Villagers-Inclusive Health Control Scheme in Last 50 Years - Syusuke Natsukawa, JAPAN (20 Min)
   2. Basic Health and Occupational Health Services & Regulations for Rural Workers - Prof. K. V. Somasundaram, INDIA (20 Min)
   3. Basic Occupational and Agricultural Health Services, an Urgent Goal: the Campaign for Healthy Villages – C. Coloso, ITALY (20 Min)
   4. Outpatient Provision of Psychiatric Patients in a Rural Area in Germany. An analysis of Routine Data – Dr. W. Hannoever Institute for Medical Psychology, University of Greifswald, GERMANY (20 Min)
   5. Occupational Health Services to Rural Population in Malaysia - Prof. Titi Rahmawati Hamedon, University Putra of MALAYSIA (20 Min)
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<tr>
<td>12:30-13:30</td>
<td>T-2: Introduction</td>
<td>T-3: Chair: Dr. Marcela Giraldo Suarez, Director of Health Quality Services, Ministry of Social Protection COLOMBIA</td>
<td>T-3: Chair: Dr. Castulo Rodriguez Correa, President, Colombian Society of Occupational Medicine COLOMBIA</td>
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<tr>
<td>13:30-16:00</td>
<td>1. Introduction- Prof. C. Colosio, ITALY (5 Min)</td>
<td>1. Application of IT in rural health care delivery and empowerment of people. Dr. Ashok Patil, President of IAAMRH</td>
<td>1. Results on Research on Occupational Asthma, Farmer’s Lung and Other Exposures that Cause Intrinsic Allergic Alveolitis - Prof. Marc Schenker, USA (30 Min)</td>
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<td>2. Rural Workers Protection: Regulatory Aspects of Pesticides and Public Health –Prof. Angelo Moretto, ITALY (30 Min)</td>
<td>2. Related Factors and Medical Students’ Willingness to Work Rural Areas in South Korea - Prof. Baeg Ju Na, Konyang University South KOREA (15 Min)</td>
<td>2. Chronic Coughers in an Andean Community, with High Prevalence of Pulmonary Tuberculosis – Dr. Carlos A. Alomia &amp; Dr. FD Ibarra Camacho, ECUADOR (20 Min)</td>
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<td>4. European Union: Standards of Exposure and in Operators and Accumulative - Silvà Bechara, BASF COLOMBIA (30 Min)</td>
<td>4. Forum: Rural Health Services Delivery in - First Level - IPS in COLOMBIA: Moderator: Dr. M. Giraldo Suarez MPS COLOMBIA</td>
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<td>5. Post-marketing Surveillance. Prof. C. Colosio, ITALY (15 min)</td>
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<td>4. Round Table: Awareness, Impact and Management of the AH1N1 Epidemic in Rural and Urban Populations</td>
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<td>6. Equipment Design &amp; Application Techniques to Reduce Pesticide Exposure - Alfredo Ramos, Engineer, COLOMBIA</td>
<td>Participants:</td>
<td>- European Content for Public Health Awareness of the Rural Population on Avian and Influenza Pandemic (ECORAIP) - Moretto, A. University of Milan, ITALY (20 Min)</td>
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<td>7. Disposal of Agro-chemical Residues under a Sustainable Development Perspective: A Shared Responsibility, Dr. Maritza Rojas, Director of MRM Consulto VENEZUELA (30 Min)</td>
<td>- Dr. Gilberto Rodríguez, Manager of the Hospital de Sumapaz, Bogotá (15 Min)</td>
<td>- Control of H1A1 in Colombia Dr. Sandra Gallegos Ministry of Social Protection, COLOMBIA (20 Min)</td>
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<td>8. Conclusions, A. Moretto, PhD, ITALY (30 Min)</td>
<td>- DR. Luis Ramiro Uribe, Director of the Hospital Nazareth de la Guajira (15 Min)</td>
<td>- Control of H1A1 in Argentina Dr. Claudio Taboadael ICOH ARGENTINA (20 Min)</td>
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<td>- Dr. Willington Moisés Quiñones Director of the Hospital Cubará, de Boyacá (15 Min)</td>
<td>- Control of H1A1 in Mexico. Dr. Jorge Morales ICOH MEXICO (20 Min)</td>
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<td>- Dr. Geney Patricia Borja Manager of the Hospital Ismael Roldan del Chocó</td>
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<td>- Experience with Health Care in Rural Areas of Manizales – Dr. Jesus Bernardo Gallego, ESE ASSBASALUD</td>
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<td>16:00-16:15</td>
<td>T-3: Biologic Monitoring as a Tool to Evaluate Chemical Risks in Rural Work Areas</td>
<td>T-3: Session 17A: Muscular – Skeletal Ailments Session 17B: Radiation &amp; Work</td>
<td>T-4: Health Care Delivery in Rural Areas of South America: Prevention and Care through the Primary Assistance System</td>
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<td>Chair: Profesor Hyun-Sul-Lim, President, Korean Association of Agricultural Medicine and Rural Health, South Korea.</td>
<td>Chair: Eng. Lelys Archila Escorsia, Director, Graduate Program of Industrial Safety, Hygiene and Environmental Management, Colombian Agriculture University Foundation, Colombia.</td>
<td>Chair: José M. López-Abuin, Director, Institute of Rural Health; EURIPA and WONCA World Rural Group’s Executive Committee, Spain.</td>
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<td>Exposure Factors of Organophosphates and Carbamates Pesticides in the Department of Putumayo, 2006 Dr. Marcela Varona, National Institute of Health INS, Colombia (30 min).</td>
<td>Dialog About Educational Experiences in rural health in Different Universities (Open dialog).</td>
<td>1. Family Health Experience in Minas de Gerais, Brazil. Dr. Hercules de Pinho, Regional Council of Family Medicine of Minas de Gerais, Brazil.</td>
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<td>1. Achievements and Solutions for pesticide problems in Bolivia – Dr. Guido Condorco, Plagbol Foundation, Bolivia (30 min).</td>
<td>1. Education experiences in rural health at the University of California. Prof. Marc Shenker (20 min)</td>
<td>2. Training in APS for the Construction of the Social Fiber in Health - Dr. Dora P. Bernal Ocampo, University of Valle, Vice-president of the Colombian Society of Family Medicine, Colombia.</td>
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<td>2. Chemical Risk Assessment and Preventive Procedure among Cotton Growers in Togo. Longitudinal Survey between 2003 and 2008 - K. Kara-Peketi, S. Assisime, H. KemkoÅ, H. Robin, P. Frimat (30 min).</td>
<td>2. Education Experiences in Argentina, Dr. Ana Cristina Amador, Graduate Program in Health and Safety at Agricultural Work, University of Buenos Aires, Argentina (20 min)</td>
<td>3. Health and the Rural in Ecuador. Dr. Natalia Romero, Faculty of Medicine, Pontific Catholic University of Ecuador, Ecuadorian Society of Family Medicine, ECUADOR.</td>
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<td>3. Agro Toxics in the Coffee Corridor of Colombia Prof. Elmer Castañó, Department of Development, Rural University of Caldas, Colombia (30 min).</td>
<td>3. Lights and Shadows in Rural Health Education in Colombia, Comments: - Dr. Elizabet Villamil, Principal of Agricultural University of Santa Rosa de Cabal, Colombia - Colombian Agriculture University Foundation, Colombia (15 min)</td>
<td>4. Inequity in Rural Health in Chile - Dr Carlos Becerra Verdugo, President of the Chilean Rural Health Society, Chile.</td>
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<td>4. Research and Activity for Prevention of Pesticide Poisoning In Asia - Prof. Nagami Hiroshi, Saku Central Hospital, Japan (30 min).</td>
<td>- Dr. John Benavides, National University of Colombia, Colombia.</td>
<td>5. Rural Medicine and Rural Health Indicators in the Amazon - Nilson Massakazu Ando, Ricardo César Garcia Amaral Filho, Municipal Secretary of Health of Manaus, Brazilian Society of Family Medicine, Brazil.</td>
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<td>5. Health and Working conditions of the Coffee collectors in the city of Manizales. Teo. Claudia Estrada Rueda, Public Health Secretariat of Manizales, Colombia (30 min).</td>
<td>4. Round Table: Education and Training Experiences for Young High School Students in Colombia. (45 min) - SEMBRAR PAZ Program, Zootec Olber Arturo Ayala, Uni. Agraria (20 min) - ARCANO Project, Dr. German Zuluaga Secretary of Agriculture of Caldas (20 min) - ALL-TO-THE-COMPUTER Program, Caldas Department Government (20 min)</td>
<td>6. New Contributions to the Models of Sanitary Rural Practices: the Case of Tuberculosis in Andean Communities in Ecuador, ECUADOR.</td>
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<td>1. Family Health Experience in Minas de Gerais, Brazil. Dr. Hercules de Pinho, Regional Council of Family Medicine of Minas de Gerais, Brazil.</td>
<td>7. Training the Family Physician in the Rural Amazon Aeras - Dr. Nilson M. Ando &amp; Ricardo César Garcia Amaral Filho. Manaus, Amazonas, Brazilian Society of Family Medicine, Brazil.</td>
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<tr>
<td>16:15-18:30</td>
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<td>2. Training in APS for the Construction of the Social Fiber in Health - Dr. Dora P. Bernal Ocampo, University of Valle, Vice-President of the Colombian Society of Family Medicine, Colombia.</td>
<td>8. Closing: The Quality in Rural Health and Primary Health Care: A matter of Access? - Dr. José M. López-Abuin, Director of the Rural Health Institute, Spain.</td>
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### Friday 16th, October, 2008

**8:00 – 8:35**
**Key Note Address T-6: Global Health Policies for Rural Populations**
Dr. Luz Maritza Tenassee, Regional Assessor for Worker’s Health, OPS/OMS

**8:35 – 9:10**
**Key Note Address T-4: Management of Patients with Neurological Ailments in Rural Areas of Japan: What’s the Long-Term Survival Factor?**
Dr. Shuzo Shintani, Department of Neurology, Toride yiodo General Hospital, JAPAN.

**9:10-9:45**
**Key Note Address T-5: OH Education for Rural Populations**
Dr. Shyam Pingle, Chair of the ICOH Scientific Comity of OH in development of Mumbai, INDIA.

**9:45-10:00**
**T-5: Session 19:**
**Education and Research in Health Care for Rural Populations**
Chair: Pr. Yoo-Hyang Cho, Vice President Korean Association of Agricultural Medicine and Rural Health, SOUTH KOREA.

1. Educational and Training Experiences in Agricultural Fields at the National Service of Apprenticeship SENA, Mr. Hernan Lopez Giraldo, Farmers Organization Representatif at the SENAS’ Directive Board, COLOMBIA (20 min)
2. Health Promotion School Initiatives At Pravara, India - Nandini Charles, Director of Schools Program Dr. Vikhe Patil Foundation, Pune, INDIA (20 Min)
3. The Second Option for Education and Training by means of Tele-Health as an Instrument of Rural Medicine in the Amazon. – DR. N.M. Ando and Dr. N.C. Garcia Amaral Filho, Manaus, Amazon, BRAZIL (20 min)
4. Training Program to Reduce Drainage Flow of Pesticides into the Colombian Caribbean Sea Dr. Delsa Moreno, Colombian Society of Farm Workers SAC, COLOMBIA (30 Min)
5. Forum: Research in Rural Health: Priorities and Challenges. Moderator Dr. M.T. Espinosa, El Bosque University, COLOMBIA Participants: Dr. Nilson Ando, BRAZIL., Dr. Nandini Charles, INDIA, Eng. Lelys Archila, UniAgraria, Dr. Elisabeth Villamil UNISARC., Dr. Delsa Moreno SAC, Sr. Hernan Lopez Giraldo SENA

**10:00-12:30**
**T-5: Session 20:**
**Communication, Information, Training, and Education for Rural Workers, As Strategy to Improve Work Practice and Prevent Accidents**
Chair: Dr. Jorge Morales Camino, ICOH Board Member, President of the ICOH’ 2012 Monterrey Congress, MEXICO.

1. Guides for the Safe Use and Management of Pesticides in Ornamental Crops - Jaime Cardozo, Programa Florverde. ASOCOLFLORES (30 min)
2. Education and Training Experiences in Pesticide Use in Latin America. Prof. Marta E. Palacios UNAM, Mexico (30 Min)
3. School for Banana Industry Jobs - Oscar D. Elorza Toro, Colombia (30 min)
4. The Protection to Health and the Environment, CuidAgro y Campo Limpio Commitments Dr. Maria Helena Latorre ANDI (30 Min)
Dr. Ximena Franco Villegas FLORVERDE - ASOCOLFLORES, COLOMBIA (30 Min).

**10:00-12:30**
**T-5: Session 21:**
**Workshop to Revise ICOH’s International Ethics Code from a Latin-American Perspective**
Chair: Peter Westerholm, PhD, ICOH Board Member, ICOH Ethics Y Transparency Committee, Sweden

1. Opening Comments (5 min JRG)
2. Introduction: International Code of Ethics for ICOH Professionals in Occupational Health (15 min PW)
3. Applicable Criticism to Instruments of Professional Ethics (15 min PW)
4. Results of inquests realized in Latin America (15 min JRG)
5. Ergonomic Pause (5 min)
6. Re-thinking ICOH’s International Code of Ethics: Reviewed Objectives (15 min PW)
7. Work in Groups: Specific Work-Related Emergent Aspects for Occupational Health Professionals Discussion (45 Min)
   a. Review and Analysis of Fundamental Ethics Principles
   b. Ethics and Market Economies, and Health Services
   c. Professional Independence, Professionalism, and Multiple Loyalties
   d. Research Ethics
   e. OHP & Globalization
8. Sharing Conclusions and Recommendations from the Work Groups (20 min)
9. Final Comments (15 min PW)
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<tr>
<td>13:30-15:00</td>
<td>Part I: SAFETY AND HEALTH CHALLENGES IN WORK RELATED ACTIVITIES AND RURAL POPULATIONS BY REGIONS AROUND THE GLOBE</td>
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<td>15:00-16:00</td>
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**Part I: SAFETY AND HEALTH CHALLENGES IN WORK RELATED ACTIVITIES AND RURAL POPULATIONS BY REGIONS AROUND THE GLOBE**

2. Africa: Perspectives of Rural Health Prof. Leslie London, University of South Africa, SOUTH AFRICA (25 Min)
3. Asia: Increase in Numbers of Obese People and Rural Health. Prof. Hideomi Kawamura, JAPAN (25 Min)
4. North America: Annotations facing a complex future. Prof. Marc Schenker, University of California USA (25 Min)
5. Europe: A Spotlight on Rural Health Dr. Wolfgang Hannoever, GERMANY (25 Min)

**Part II: CLOSING CEREMONY SPECIAL PROGRAM**

1. Hymn of the Republic of Colombia
2. Hymn of the City of Cartagena de Indias
3. Presentation of the 30th ICOH International Congress in Occupational Health, Dr. Jorge Morales Camino President of the ICOH 2012 Monterrey Congress, MEXICO.
5. Farewell Greeting from IAAMRH Elected President.
6. Farewell Greeting from the National Government’s Representative.
7. Farewell Words from the Principal of University El Bosque, Dr. Jaime Escobar Triana.
8. Final Greetings by the President of the XXVII IAAMRH Congress, Dr. Julietta Rodriguez Guzman

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<td>IAAMRH GENERAL ASSEMBLY AND MEETING OF THE NEW BOARD OF DIRECTORS</td>
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<td>16:15-18:30</td>
<td>ICOH SCIENTIFIC COMMITTEE MEETING</td>
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<td>Farewell Party</td>
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### POSTER Session No. A: WEDNESDAY October 14th 2009

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<td>Prof. Sangsoo Bae, SOUTH KOREA</td>
<td>RHPF</td>
<td>The Influence of Personal Characteristics and Social Environment on Adolescent’s Smoking</td>
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<td>2</td>
<td>Prof. Kyung Mi Cha, SOUTH KOREA</td>
<td>KNCU</td>
<td>The Effect of Healthy Village Project for Residents in Kyungbuk Province’s Rural Areas</td>
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<td>3</td>
<td>Dr. Marian Salvatierra</td>
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<td>Factors &amp; Environmental Aspects In Rural Areas</td>
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<td>4</td>
<td>Prof. Kanae Hamano</td>
<td>PHQF</td>
<td>Loneliness and Relating Factors in Remote Island Residents Aged 40 and Over</td>
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<td>5</td>
<td>Y. H. Cho, and Y. C. Park, SOUTH KOREA</td>
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<td>Nutrition Assessment and Recommendations for Grandparents in Grandparent - Grandchildren Families in Rural Areas</td>
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<td>Pashaj, Valentina, ALBANIA</td>
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<td>Methods of Determining Free Chlorine and Ph in Potable Water</td>
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<td>Prof. Joon Sakiong, SOUTH KOREA</td>
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<td>Health Risk Assessment for Residents of Vicinity of Abandoned Mines In Gyeongsangbuk-Do, Korea</td>
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### POSTER Session No. B: THURSDAY October 15th 2009

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<td>Prof. Hyun-Sul Lim, SOUTH KOREA</td>
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<td>Seroprevalence of Q Fever Among Workers Related to Cattle Slaughter Industry in Korea</td>
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Final version October 10th 2009
1. Keynote Lectures

Keynote Lecture of Prof. Claudio Colosio

Assessment and Prevention of Chemical Risk: The Agro Specificity

Claudio Colosio\(^1,2\) and Angelo Moretto\(^2,3\)

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Introduction

Performing risk assessment and management in agriculture is very complicated, due to the characteristics of agricultural activities, which make the sector significantly different from industry: industry workers are usually exposed to chemicals for well defined periods, the substances source of exposure can be easily identified, and exposure levels are quite stable over time. On the other hand, pesticide exposure patterns in agriculture are significantly different: an agricultural worker typically does several different activities, and uses complex mixtures of pesticides, whose composition varies over time, depending on season and the pests to be controlled. Pesticide exposure levels may vary because of environmental and climatic conditions, type of crops and machineries used. Other variables that affect the levels of exposure to pesticides of the agricultural workers are the variability of the tasks performed by a single worker during the year, but also during the same season and even the single working day, and the intermittence of the applications: apart for professional applicators, agricultural workers usually are engaged in crop treatments for no more than 20-30 days per year. In this situation, environmental as well as biological measurements very often are representative only of the specific situation under evaluation and reproducibility and extrapolation to homologous situations are very complicated (Maroni et al, 2000). Moreover, specific structural conditions contribute to increase the difficulties for risk assessment and management in the sector, such as the dispersion of the enterprises in the territory, which bring about difficulty in access, and the type of property, in particular for what concerns small size and family based enterprises, often characterized by small numbers, or even absence of employers, and lack of infrastructures adequate to carry out preventive activities. Finally, high costs, analytical and practical difficulties, and lack of reference values deeply affect the possibility of carrying out environmental and biological monitoring in the sector.

For these reasons, only very seldom in agriculture, sound pesticide risk assessment and management activities are carried out.

Based on these considerations, it appears evident that risk assessment in agriculture has characteristics and peculiarities that make a specifically addressed approach at the sector necessary, together with specific tools, adequate to overcome the difficulties intrinsic to environmental and biological determinations. In this line, some specific experiences are running in the world in order to produce acceptable risk estimates using models, based on specific algorithms, adequate to predict the levels of exposure and risk in selected agricultural scenarios. A major limit of these models is that, since very often they have been created in the frame of the authorization processes addressed at the evaluation of agrochemicals in a pre-marketing phase (BBA, 1988), they hardly find a practical use in the risk assessment activities carried out in real working conditions, where the variables affecting the levels
of exposure are more than those considered in an “ideal” scenario. These include, for example, the use, misuse or wrong use of personal protective equipment; the level of training and education, and the level of maintenance of the machineries. Apart for the authorization processes, other approaches addressed at producing reliable pesticide exposure estimate to be used both in retrospective epidemiological studies and for risk assessment in the field, have been pointed out (Arbukle, 2002; Dosemeci et al, 2002) and validated (Coble et al, 2005).

These studies suggest a new and original track, based on 1. Definition of typical exposure scenarios; 2. Creation of specific algorithms adequate to consider the whole set of variables affecting the operator exposure levels in the exposure/risk scenarios considered; 3. Validation of the algorithms through the conduction of studies in which the levels of concordance of the exposure and risk estimates provided by the model are compared with the results of environmental as well as biological measures.

In this presentation the Authors describe an experience of development of specific exposure and risk profiles, user friendly and reliable tools for pesticide risk assessment and management in agriculture.

**Materials and methods**

1. **The modelling approach**

   This study has been carried out in the Region of Lombardy (Northern Italy), in four typical regional crops that is vineyards, rice and maize crops, and floriculture in greenhouse. Based on the results of workplace inspections, data collection, interviews to the agricultural workers, and collection of published literature data, the main phases of the agricultural activities have been identified and, for each of the main phases of the work (mixing and loading; application; equipment maintenance; re-entry) the main variables affecting exposure levels have been selected. According to scientific and agronomic data, different conditions for each variable have been ranked through the attribution of scores, on a semiquantitative basis. Exposure estimates have been obtained including these variables in specific algorithms. The application of the algorithm produces an exposure index (EI) which, multiplied for a “Toxicity Index” (TI), produces a “Risk Index” (RI). Based on RI, the situation under study can be allocated in one of the following groups: 1. No evidence of risk (green); 2. Risk probably slight (yellow); 3. Action level (red); 4. Risk significantly high (dark violet).

2. **The validation**

   The validation of the model estimates has been carried out through the conduction of field studies in which the levels of exposure (environmental and biological monitoring) of groups of workers engaged in the typical scenarios considered have been measured (environmental and biological determinations) and, at the same time, estimated through the use of the models.

   The levels of concordance between models and measured has been defined.

   A further validation has been obtained through the comparison of the risk estimates obtained from adequate and selected published papers.

   Dermal exposure has been measured through the application of pads to the workers’ skin, according to methods previously described, in some cases partially modified (OECD, 1997). The absorbed dose has been estimated multiplying the actual dermal dose by the coefficient of skin absorption of the compound being used. Based on the worker’s weight, the daily dose in mg/kg/bw/day has been calculated. Biological monitoring data (the 24-hr urine excretion of the compound used or its metabolites) have been used to confirm dermal absorption estimates.

   Risk assessment has been performed calculating the ratio between the estimated daily intake and the acceptable operator exposure level (AOEL) established for the compound in the frame of the authorization process.

   The allocation in risk groups has been done as followings: 1. No evidence of risk (green): absorption of no
more than 9% AOEL; 2. Risk probably slight (yellow): absorption of 10-79% of AOEL; 3. Action level (red) absorption of 80-120% of AOEL; 4. Risk significantly high (dark violet): absorption of 120% of AOEL or more.

**Results**

Based on the workplace inspections and the published literature, we have identified the following working phases as the most important in determining pesticide exposure operator exposure:

- Mixing and loading
- Application
- Re-entry
- Machinery cleaning and maintenance

For each of these phases, we have pointed out, based on literature, the main variables significantly associated with the levels of exposure of the agricultural workers, as follows:

**Mixing and loading**: tank capacity, number of loadings/day, active ingredient concentration in the product, frequency of use and type of formulation (powder, liquid, wettable granules, soluble packages).

**Application**: Crop height, use rate (quantity of product per surface), daily treated surface, working time (hours spent for the task), concentration of the active ingredient in the product, application modalities and Type of tractor used.

**Re-entry** (that is: any kind of activity done on the crops after application): crop density, crop height, working time, use rate and time elapsed from application.

**Maintenance**: durance and frequency of interventions.

This study has also pointed out specific reducing factors, i.e. factors which may reduce exposure, in some cases up to negligible levels: operator’s skills, use of personal protective devices (including an evaluation of the type of devices and their conditions), condition of the machineries (age and status of maintenance), type of tractor used.

Based on the above consideration, the simple algorithm pointed out is the following:

\[
I_{exp} = [(MIX \%t + APPL \%t + REPAIR\%t) \times FREQ \times PPD \times Operator \ Skills \times Machineries] + [RE-ENTRY\%t \times PPD \times Operator \ Skills \times FREQ]
\]

Where:

- **MIX** = (tank capacity + number of loadings/day + a.i. concentration in the product + daily treated surface) × type of formulation
- **APPL** = (crop height + use rate + concentration of the a.i. in the product + worked time + application modalities) × (type of tractor used + extemporaneous interventions on nozzles and equipments during the treatment).
- **RE-ENTRY** = (use rate + crop density + crop height) × time elapsed from application × frequency/duration of the activity.
- **REPAIR** = Frequency + duration of the interventions

The validation has been carried out in conditions of use of chlorpiryfos in greenhouses, terbutylazine in maze crops, propanil in rice crops and ethylene bis dithiocarbamates fungicides in vineyards.
The study has pointed out a very good concordance between the model estimates and the exposure measurements.

Conclusions

Exposure and risk profiles are promising tools for pesticide risk assessment and management in the very specific field of agriculture. In particular, they allow occupational and environmental health personnel, occupational hygiene experts from both public bodies and enterprises to carry out risk assessment, even in absence of measurements. The aim of the process is reaching in any case the “Green Area”. Were this not the case, it will be necessary to go back to the model, identifying the variables able to reduce the risk. If after this iterative process, results do not indicate an acceptable risk, in-field interventions will be needed.

Selected references

In Japan, the appellation of Metabolic Syndrome (MS) has been abbreviated to “Metabo” and is so common that it has been selected for a prize in the “Buzzwords of the Year” contest. However, despite a fair permeation of the points of awareness in the health of the people, it is difficult to say that there is sufficient understanding of the reality of the situation. The concept of multiple conditions like MS have been advocated one after the other since the latter half of the 80s such as “Syndrome X” and “The Deadly Quartet” as clinical conditions that have multiple risk factors for arteriosclerotic disease. The collective term for the concept of these clinical conditions is “Multiple Risk Factor Syndrome” and MS is the representative clinical condition concept of this. The diagnostic standard in Japan was created jointly in 2004 by 8 academic societies centered around the Japanese Society of Internal Medicine incorporating the 1999 WHO diagnostic standard with insulin resistance as the focus condition and the creation of the US NCEP standard in 2001 that focused on abdominal obesity.

The characteristics of MS in Japan list the required conditions for patients to be diagnosed with MS as the accumulation of visceral fat (visceral obesity) as the central basis of this clinical condition and those who fulfill 2 or more of the 3 metabolic abnormality categories of lipid abnormality, blood-pressure abnormality and sugar metabolism abnormality. The standard for visceral obesity is set at visceral fat area of 100 cm$^2$ or more on a CT of the abdomen, however, waist measurement is used for screening and the standards for this were set at 85 cm or more for men and 90 cm or more for women. As this waist measurement standard is higher for women than for men, it is known internationally as a unique standard and, following its introduction, a string of reports that call for reexamination have been published both in Japan and internationally. In 2006, the International Diabetes Foundation (IDF) also criticized this standard by stating that standard values for Japanese people of 90cm or more for men and 80cm or more for women should be recommended.

According to a 2004 national nutrition survey, it is estimated that 9,400,000 people already have MS and that 10,200,000 people are susceptible to MS, giving a total of 19,600,000 (Fig-1). According to the particularity of Japanese standards, half of all men of age 40 and over have MS or are regarded as susceptible to it in comparison to only 20% among women (Fig-2). Further, the relative risk of arteriosclerotic diseases (rate of cardiovascular disease and mortality rate) in MS were roughly 1.5–2.5 but there are also reports that the degree of risk is lower in the short term than was originally thought. It is thought that the problem of lifestyle habits produces visceral obesity and with the addition of 1 risk factor this becomes obesity and with the addition of 2 or more risk factors it becomes more than MS and it goes as far as the occurrence of arteriosclerotic disease. MS should be perceived as an early target for preventative intervention as the stage before reaching life-style related diseases such as diabetes and high blood pressure.

The Japanese Association of Rural Medicine has enforced epidemiological investigative research of “Lifestyle habits and Adult-onset Diseases in Rural Districts” as a special research project since 2007. A cohort study (7 year
plan) centered on patients who receive health checks in over 20 medical institutions affiliated with the Association of Rural Medicine was begun and approximately 5,000 people were registered as a baseline (Fig-3). From a separate viewpoint than research focusing on urban areas, detailed study of lifestyle habits targeting adults in rural districts surrounding the small and medium cities that make up most of Japan is being conducted and forward-looking investigative research into the risk factors linked with the occurrence of adult-onset diseases is being enforced. This time we will give an outline of this research.
Keynote Lecture of Prof. Tsatsakis Aristidis Michail

Biomonitoring of Pesticides in Rural Population: Assessment of Recent and Chronic Exposure by Testing of Hair

Tsatsakis Aristidis Michail, PhD, DSc, ERT
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Introduction

Biomonitoring of pesticides and their metabolites is usually effected by monitoring of recent exposure by use of blood and urine and by use of hair to assess chronic exposure. Epidemiological studies have been conducted during the last years using hair as a biomarker of exposure to organophosphorus and organochlorine pesticides and persistent organic pollutants (POPs).

Materials and methods

Analytical methods for the determination and quantitation of the parent compounds and/or their specific and non-specific metabolites include various sample preparation procedures including liquid-liquid or solid phase extraction followed by gas chromatography- mass spectrometry techniques. Recently new and sensitive analytical methods have been developed for the determination and quantification of the non-specific metabolites of organophosphates the dialkylphosphates (DAPs), aiming to assess the chronic exposure to organophosphorous pesticides in hair, meconium, amniotic fluid and urine. The DAP metabolites investigated were dimethyl phosphate (DMP), dimethyl thiophosphate (DMTP), diethyl phosphate (DEP), diethyl thiophosphate (DETP) and diethyl dithiophosphate (DEDTP). Sampling of hair was performed among rural and urban population groups and among hospitalised and outdoor patients.

Results and discussion

Recent studies showed that the levels of the incorporated in hair pesticides or their metabolites are deposited in a dose-dependent manner. Additionally a relation between the duration of exposure and the hair color was identified. Many of the examined samples were found positive for HCHs and DDTs despite the fact the use of DDT is banned for over 30 years. Hair samples were found positive in very low levels for various pesticides (e.g. diazinon, malathion, chloropyrifos, dimethoate, methyl parathion, fenthion). The low detect ability of the referred organophosphates was attributed to the fast and effective metabolism of these organophosphorous pesticides in the human organism and/or to the low levels of exposure of the studied population. Differences in head hair levels of most of the dialkyl phosphates tested were observed between the examined population groups. The sum concentration level of DAPs in head hair samples differed significantly between the general population the occupationally exposed population group and in cases of acute intoxications. High frequencies of detection were observed in all biological samples ranging from 20.0 to 98 % for hair, 36 to 92 % for meconium, 51 to 94 % for urine and 55 to 93 % for amniotic fluid.
Conclusion

Hair testing for pesticides can be considered as a valuable tool for the assessment of chronic exposure. DAP metabolites are a suitable biomarker of cumulative exposure for a great number of OP pesticides and can be detected in biological samples at exposure levels below those levels which affect cholinesterase activity. Recent investigations and group population studies relate pesticide professional exposure to a number of health problems and will be a crucial issue of future projects.

Keywords: biomonitoring, pesticide exposure, rural population, hair testing, mass-spectrometry, patients

References


Introduction

With Japanese becoming the longest-lived population in the world, the number of elderly persons requiring long-term care because of a bedridden state or dementia has been increasing remarkably. In 2025, the number of physically weak elderly who require medical, nursing, and social care support is expected to be 2.6 million, while the number of bedridden elderly with and without dementia will be 2.3 million. At home, difficulties of long-term care for bedridden elderly by family members have resulted in a “care-worn” state while undermining relationships between family members.

Patients and Methods

We initiated medical and nursing home health care support in our hospital in 1992. The total number of patients with neurologic disease served by this program reached 180 as of 2001. Our hospital is a 414-bed community teaching general hospital founded by Japan Agricultural Co-operatives (JA), and is located in the center of Toride City in Ibaraki Prefecture (Fig. 1). About half of the work force is employed by companies and industries located in Tokyo, while most others work in agriculture. The number of farmers in Ibaraki Prefecture is second among all prefectures in Japan. In 2009, the percentage of individuals 65 years of age and over is somewhat higher in Toride City (23.2%) than it is nationwide (20.1%). Almost of the patients in this study lived in rural area, and were older than 65-year-old. After discharge, a team consisting of a doctor, a visiting nurse, a home-helper, a rehabilitation specialist, and a medical social worker has followed them up. Services provided at home to patients include management of health care at home by the visiting doctor, dentist, pharmacist, dietitian, and hygiene specialist; nursing care by the visiting nurse team; home chore assistance by a visiting home-helper; rehabilitation at home by a visiting rehabilitation specialist; and bathing by a visiting bathing team. Services provided at a nursing institution near the home include functional training and prepared meals. Bathing is offered at a day care center. A limited stay for up to several weeks is available at a nursing institution.

We retrospectively evaluated 180 patients receiving home health care through our hospital with respect to age; gender; illnesses; prognosis; follow-up period; activities of daily living (ADL); behavioral, cognitive, and communicative functions; swallowing...
function; feeding method; serum nutritional values (total protein, albumin, and total cholesterol); hemoglobin concentration; and social care services provided at home. No patients had received mechanical ventilations when the respiratory functions were deteriorated at the end of their illnesses including patients with motor neuron disease.

Assessments for ADL, dementia, swallowing function, and feeding methods are described in outline below. These variables of each patient were evaluated respectively when their home health care started except for feeding methods. Feeding methods were evaluated throughout the period of home care services.

**Swallowing function**

**Level 1**: No detectable abnormalities in swallowing.

**Level 2**: Delay, disorder, and/or weakness of one or more of the components of swallowing (oral preparatory, oral, pharyngeal, and laryngeal) that adversely affects bolus management and delivery to result in **mildly** increased risk of swallowing impairment and aspiration.

**Level 3**: Delay, disorder, and/or weakness of several components of swallowing, resulting in **moderately** increased risk of swallowing impairment and aspiration.

**Level 4**: Delay, disorder, and/or weakness of several components of swallowing, resulting in **substantially** increased risk of swallowing impairment and aspiration (may include observation of respiratory distress, choking, coughing, color change, wet/hoarse vocal quality, or delayed oral or pharyngeal transit times).

**Level 5**: No response to food stimulus; no initiation of a swallowing sequence by several trials.

**Activities of daily living (ADL)**

**Level 1**: Independent in ADL, and able to go outside the home without any assistance.

**Level 2**: Almost independent in ADL at home, but unable to go outside the home without assistance.

**Level 3**: Partially independent in ADL at home, requiring some help with bed-to-wheelchair transfer, eating, dressing, toileting, and bathing.

**Level 4**: Completely dependent in ADL at home, but out of bed in the wheelchair during daytime.

**Level 5**: Completely dependent in ADL at home. Bedridden all day with feeding and toileting in bed.

**Behavioral, cognitive, and communicative functions**

**Level 1**: Independent despite subtle dementia.

**Level 2**: Almost independent, requiring some support. Usually makes mistakes in writing, communicating, shopping, and monetary calculations without support.

**Level 3**: Dependent in dressing, eating, and toileting. Abnormal behaviors sometimes occur, such as incontinence, excitement with hallucinations, crying, purposeless wandering, sexual abnormalities, and non-hygienic behaviors.

**Level 4**: The abnormal behaviors above usually are apparent.

**Level 5**: Akinetic mutism (vegetative state).

**Feeding methods**

**Level 1**: Oral intake only.

**Level 2**: Home parenteral nutrition (HPN) with and without oral intake.

**Level 3**: Percutaneous endoscopic gastrostomy (PEG) with and without oral intake.

**Level 4**: PEG and HPN with and without oral intake.
Results

We divided the 180 patients with neurologic disease participating in our home health program into five subgroups: group 1, cerebrovascular disease group (n=103, 57.2%), including cerebral infarction, cerebral hemorrhage, subarachnoid hemorrhage, and moyamoya disease; group 2, Parkinsonism group (n=20, 11.1%), including Parkinson’s disease, progressive supranuclear palsy (PSP), and striatonigral degeneration (SND); group 3, senile dementia of Alzheimer type (SDAT) group (n=18, 10.0%); group 4, motor neuron disease group (n=11, 6.1%), including amyotrophic lateral sclerosis (ALS), spinal progressive muscular atrophy (SPMA), and progressive bulbar palsy (PBP); and group 5, other neurologic disease group (n=28, 15.6%), including spinal cord disease, spinocerebellar degeneration (SCD), and others.

Characteristics of the 180 patients are described in Table 1. Age and gender distribution, and mean level of ADL did not significantly differ between these five groups, but mean level of dementia was significantly worse in the SDAT group (P<0.01). Mean level of dysphagia (P<0.01) and feeding method (P<0.05 except for versus motor neuron disease group) were significantly lighter in the other disease group. The concentrations of serum albumin (P<0.01) and total cholesterol (P<0.05 except for versus Alzheimer and other disease groups) were significantly higher in the motor neuron disease group.

Outcomes of the 180 patients receiving home health care include death (47.8%), ongoing home health care (25.0%), admission to nursing institution or another hospital (21.1%), and independent in ADL (6.1%). Survival probability is compared between the five groups by Kaplan-Meier method (P<0.05 by log-rank test) in Figure 2.

Factors determining in survival in 180 neurologic disease patients receiving home health care were investigated including ten variables (age, gender, dysphagia level, ADL level, dementia level, and feeding method; serum concentrations of total protein, albumin, and total cholesterol, and hemoglobin). Age (P<0.0002) and dysphagia (P<0.04) were significant survival determinants by Cox’s proportional hazard test. Figure 3.
Kaplan-Meier curves indicated that survival was significantly shorter in the Parkinsonism group, and the mean level of dysphagia of this group was worst in the five subgroups. Cox's proportional hazard test identified age and level of dysphagia as factors determining survival in patients with neurologic disease receiving home care. Other variables (gender distribution, ADL and dementia levels, feeding method, serum nutritional values, and hemoglobin) were not identified as significant survival-determining factors. According to the serum concentrations of total protein, albumin, and total cholesterol, and hemoglobin as the values of objective measurement, they had no significances in this study.

**Discussion**

Kaplan-Meier curves indicated that survival was significantly shorter in the Parkinsonism group, and the mean level of dysphagia of this group was worst in the five subgroups. Cox's proportional hazard test identified age and level of dysphagia as factors determining survival in patients with neurologic disease receiving home care. Other variables (gender distribution, ADL and dementia levels, feeding method, serum nutritional values, and hemoglobin) were not identified as significant survival-determining factors. According to the serum concentrations of total protein, albumin, and total cholesterol, and hemoglobin as the values of objective measurement, they had no significances in this study.
Despite the importance of eating and swallowing for bedridden patients, most patients in home health care have long-term problems with dysphagia. We have provided swallowing training for patients with dysphagia, indicating which foods in which form are most easily swallowed. Visiting nurses have educated family members, how to prepare food to make it more easily swallowed by patients with dysphagia.

I think it is very important for bedridden patients to eat and swallow food by themselves, even if the amount is extremely small. Patients with oral intake with PEG or HPN fall in depressive state and lose human dignity after cessation of oral intake. In the elderly, dementia level is sometimes progressing after stopping oral intake. The meaning of oral intake by themselves is remarkable in home health care patients [1, 2].

When the amount of food by oral intake is not sufficient for their life support after swallowing training, additional feeding by PEG or HPN is necessary. Since its introduction in 1980 as an alternative to open surgery for creating a gastrocutaneous fistula, PEG has revolutionized the approach to enteral alimentation [3, 4]. Patients with dysphagia induced by neurologic disorders have been fed by PEG in nursing home and in community home [5]. Importantly, in monitoring nutrition, the widely used finding of hypoalbuminemia has been shown to be a poor predictor of survival in elderly patients with dementia [6]. Malnutrition induced by dysphagia results in immune dysfunction and aspiration pneumonia, and produces decubitus of the skin. Substantial nutrition support by PEG and HPN will reduce these serious conditions [5]. Sufficient nutrition using a variety of feeding methods is the most important single goal in caring for patients in home health care. We believe that the home health care system, including its efforts to ensure adequate feeding, contributes to high life expectancy in Japan and should accomplish the same worldwide.

We think that it is clinically important to evaluate survival-determining factors in home health care patients. In our home health care service, nursing staffs visit the patient’s home twice or third times per week, and examine condition of the patient. They pick up various physical and mental problems about the patient; such as fever, general fatigue, appetite loss, body weight loss, chest or abdominal pain, dysphagia, dyspnea, and bladder dysfunction. These clinical problems are discussed by the home health care team consisting of a doctor, a visiting nurse, a home-helper, and a rehabilitation specialist, and they plan the consequent treatment, immediately.

We mostly take care of fever induced by aspiration pneumonia due to dysphagia. When patients suffer from dysphagia-induced pneumonia, we initially provide swallowing training for patients and educate family members how to prepare food which is easily swallowed by patients. When the swallowing function is severely impaired, PEG/HPN may be recommended if the patient and family members agree.

We state in this study that the most important value for long-term survival is swallowing function in home health care patients. However, this theory is universal? Can we equalize the survival-predicting theory? Inadequate intake of food and water is often thought to lead hunger, thirst, and early death. Tube feeding is believed to prevent aspiration pneumonia and other infections, improve functional status, promote quality of care, and prolong life [7].

Finally, whether all these patients actually wanted artificial nutrition for prolongation of life, I am not sure because almost patients could not decide whether they would receive artificial nutrition (PEG/HPN) or reject these procedures when their home health cares started due to dementia or poor cognizable condition, but it is an important issue. The attitudes towards life-prolonging measures are known to vary greatly between countries. In Japan, it has been usually decided by family members, especially by a key person. Japanese family members usually choose artificial nutrition for the patients. In economical aspect, the users’ contribution of bedridden patients with PEG/HPN in home health care is not so expensive in Japan. Now, the amount is about $ 300–400 per month in Japanese medical and care insurance system. This condition might encourage the choice of the family members.
Conclusion

The Japanese have become the longest-lived nation population in the world, and numbers of elderly who require medical and nursing care are increasing. The capacity of nursing homes and nursing institutions is sharply limited in Japan; further, as a group, elderly Japanese patients prefer home care to institutional care, especially in rural area. For these reasons, the home health care system in Japan has been increasingly important. We sought to identify factors determining long-term survival in Japanese patients who received home health care for neurologic disorders in rural area. We retrospectively evaluated 180 patients with neurologic disease, who received home health care conducted by our hospital between 1992 and 2001. Factors considered were age; gender; illnesses; prognosis; follow-up period; activities of daily living (ADL); behavioral, cognitive, and communicative functions; swallowing function; feeding method; serum nutritional values (total protein, albumin, and total cholesterol); hemoglobin concentration; and social care services provided at home. Variables affecting long-term survival in 180 patients with neurologic disease were age (P<0.0002) and severity of dysphagia (P<0.04) by Cox’s proportional hazard test. Maintenance of swallowing function and adequate nutrition through a variety of feeding methods that can be provided by a home health care program are important for long-term survival of patients with stroke and also that of patients with other neurologic diseases [8].

References

Human Rights and Health: Opportunities to Advance Rural Occupational Health

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The burden of disease from occupational injuries and illness remain a major global challenge, particularly in developing countries. Estimate of work related burden of disease suggest that there are over 300 000 fatal occupational accidents and close to 2 million fatal work-related diseases annually (Hämäläinen et al, 2009). Not only are there large inequalities in the distribution of work-related morbidity and mortality across countries, but there is also a serious lack of access to preventive and curative services for work-related health problems. Estimates of the percentage of workers globally with access to occupational health services range from 10 to 20% (Rantanan 2005; Muchiri 2005) and Ladou (2003) has estimated that only 10% of developing country populations are covered by occupational health and safety laws (Ladou, 2003). A report on occupational health in Southern Africa in the period 2004 to 2008 found that even with the overall availability of occupational health professionals well below ILO norms, between-country differences in the availability of doctors and nurses trained in occupational health was of the order of 50- to 100-fold (Work and Health in Southern Africa, 2008).

These kinds of inequalities have been exacerbated under globalization, which has encouraged uneven economic benefits to some developing countries, whilst increasing the marginalization of working populations in others (Loewenson, 2001; Labonte and Schreker, 2007). The adverse impacts on occupational health have occurred through various mechanisms such as deregulatory measures which have weakened legal protections to limit occupational hazards, promotion of labour flexibility, a shift toward informal sector employment and outsourced production to settings where safety measures are more difficult to implement (London and Kisting, 2002; London, 2008a).

Not surprisingly, this state of affairs has prompted efforts to identify novel approaches to reducing the burden from workplace hazards, such as the focus by ICOH on basic occupational health services as a human right (Rantanan 2005). However, until recently (International Labour Office, 2009) the explicit use of human rights discourse in occupational health research and policy development is relatively uncommon. More typically, efforts to promote better standards for occupational health practice have focused on developing and applying ethical guidelines for occupational health professionals to secure improved care for workers. For example, the both the ICOH and IOHA list ethical practice amongst their objectives and the ICOH cites its Code of Ethics amongst its core documents yet neither international organization refers explicitly to the rights of working people to safety and health, or to what implications such rights imply for professional practice. Indeed, a PubMed search conducted in March 2009 yielded approximately 8 times the number of published articles on ethics in occupational health than articles where human rights were key words in articles dealing with occupational health (1255 for Occupational AND Health AND ethics and 142 for Occupational AND Health AND human rights) reflecting the relative invisibility of rights in current debates on how best professionals’ practice can protect workers’ health and safety.

However, such a disjuncture may be historical rather than conceptual. The complementarity of rights approaches and ethical standards in addressing problems of third party obligations in occupational health has been pointed out elsewhere (London, 2005). This paper seeks to explore the potential synergy between the application of human rights approaches to workplace health and safety and ethical standards for health professionals. To do
so, it first examines what are human rights and explores their relationship to professional ethics; then, it reviews international human rights law with reference to OHS protections; then it applies these human rights elements to a case study of risks to small farmers in developing countries from pesticide exposure to illustrate the links between human rights, occupational health practice and professional ethics; lastly, it concludes with recommendations for how integrating human rights approaches into policy development and programming will strengthen the likelihood of success in the prevention of work-related disease and disability, and complement current reliance on ethical codes to govern professional practice in occupational health.

What are human rights and what is their relationship to professional ethical codes?

Human rights may be described as entitlements that people can claim because of their inherent humanity. Typically, they take the form of social or material claims from society that are universal across cultures and settings and are codified in national and international law. Human rights address fundamental needs and originated in concerns to protect people from an abusive state by limiting state power over individuals. The ‘modern’ human rights institutional framework evolved primarily in response to the atrocities practiced by the Nazi regime during World War II, and guarantees for all of us, irrespective of the countries we live in, some measure of protection against states violating our fundamental freedoms and dignity. While respect for human dignity and freedoms are civil and political rights that lie at the heart of a rights framework, entitlements to social and economic goods and services (so-called socio-economic rights) are equally important and are indivisible from and interdependent with civil and political freedoms. In the occupational health setting, for example, the socio-economic right to a safe environment (reflected in measures to control workplace hazards) cannot be fulfilled without essential freedoms such as rights to independent worker organization and the right to information, both key civil and political rights.

Having a human right implies a third party must have a duty to deliver on that entitlement. Typically it is the state who is the duty bearer though increasingly there are moves to extend the purview of rights obligations to non-state actors such as transnational corporations (Skogly and Gibney, 2002; Weissbrodt and Kruger, 2003). Human rights obligations on a state will take different forms: a) Firstly, to respect people’s human rights, it must desist from passing laws that, for example, discriminate against certain categories of work-seekers such as HIV+ve persons. The obligation placed on the state is a negative one – to refrain from actions which would violate rights; b) Secondly, states must take actions to protect people from violations perpetrated by third parties, such as it does with many environmental health regulations to protect citizens from the effect of industrial pollutants by preventing hazardous emissions from industrial plants; Lastly, c) states must fulfill rights by taking active steps – such as budgeting, providing services and infrastructure to meet its obligations. Active steps imply positive obligations on the State to take specific actions such as providing access to health services. Some constitutions, such as the South African constitution, frame a fourth state obligation – that of promotion, imply that the State must take measures to enable its population to be able to access their rights – such as, for example, providing human rights education and awareness raising, or structures to promote a human rights culture in society.

Rights contained in international conventions become applicable at national level when governments ratify a particular human rights convention, which imposes on a state the obligation to ensure its domestic legislation and programmes put expression to the rights contained in the international convention. Further, most socio-economic rights are qualified by the concept of progressive realization, which recognizes that states may have limited resources to implement all socio-economic rights to the fullest extent immediately, but should aim to progressively provide such entitlements within a defined period and, in doing so, should prioritize the needs of the most vulnerable in the population.

Rights often need to balanced, since rights can conflict, either with each other, or in the way different parties
may have conflicting rights. In the former case, a state action might violate someone’s rights in the interest of meeting the state’s obligation to protect, promote or fulfill other rights. For example, a particular workers’ rights to privacy may be violated in the interest of providing the collective of workers with an environment that is not harmful to their health when allowing biological monitoring data to be shared with third parties in order to improve occupational hygiene control measures. Similarly, excluding workers with active pulmonary TB from child care work may violate workers’ rights to economic activity in the interest of protecting children’s rights to a safe environment. Although the expression of human rights may differ across cultures, there is broad international consensus on the nature of core human rights and the role of a human rights regime in mediating citizen-state relationships and managing potential conflicts.

**Human rights and ethical codes**

Professional ethical codes seek to ensure the highest ethical standards in the behavior of occupational health professionals delivering services to workers and populations exposed to occupational hazards (Harling et al, 2004). Although patients’ rights constitute a key element to ethical deliberation, particularly when considering risks of exploitation of research participants or respect for patient autonomy in clinical decision making, rights have generally not been regarded as central to ethical reasoning. Indeed, arguments have been voiced in the bioethical literature that human rights are only but one of a number of competing important ethical concepts and should not be given priority in resolving moral dilemmas in medicine (Benatar, 2006)

However, to a degree, a human rights approach offers a more clearly defined normative framework for addressing questions of standards than does a bioethical framework guided frequently by application of high-level principles (Nilstun and Øvretveit, 2004). What is defined as unacceptable practice within a human rights framework lies in the realm of human rights violations and is proscribed by adherence to national or international human rights law rather than being the end product of a process of ethical reasoning (Rubenstein and London, 1998). To some extent, human rights represent a kind of shorthand, encapsulating societal values around what is acceptable or not in which “human rights can be seen as primarily ethical demands.” (Sen, 2004).

However, despite the seeming synergy and potential for overlap between human rights approaches and ethical oversight (London, 2005) and the impact of meeting human rights and development challenges for professional practice (Westerholm, 2004), it is relatively unusual for human rights discourse to be used to shape professional standards for occupational health and safety. Rather, the emphasis in practice is to rely on ethical frameworks to provide such guidance.

**A review of international human rights treaties and implications for occupational health practices**

Yet, surprisingly, international human rights law has a great deal to say about occupational health and the prevention of occupational illness and injury and in ways that are fairly explicit in posing challenges to professional practice.

Firstly, the International Covenant on Economic, Cultural and Social Rights (Office of the High Commissioner on Human Rights, 1966) recognizes health and safety both in the work context (i.e. as a labour right) and in the health context (as part of the right to health). Thus, in article 7, it recognizes “the right of everyone to the enjoyment of just and favorable conditions of work which ensure…safe and healthy working conditions” and in article 12, it names both the “improvement of all aspects of environmental and industrial hygiene” and the “prevention, treatment and control of epidemic, endemic, occupational and other diseases” as instrumental to the realization of the “right of everyone to the enjoyment of the highest attainable standard of physical and mental health.” What this means is that global standards for what constitutes the right to health have included occupational health and
safety alongside classic public health priorities reflected in the Millennium Development Goals (MDG’s) such as provision for the reduction of stillbirth and infant mortality rates and measures for healthy child development.

Secondly, the United Nations Committee on Economic, Social and Cultural Rights has provided an interpretation of the right to health in its General Comment number 14 (United Nations Committee on Economic, Social and Cultural Rights, 2000). In discussing the normative content of the right to health, the committee describes the right to health as including “not only … timely and appropriate health care but also … the underlying determinants of health” in which the Convention includes items such as access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, but also “healthy occupational and environmental conditions, and access to health-related education and information…”

The Committee also elaborated on the "The improvement of all aspects of environmental and industrial hygiene" (art. 12.2 (b)) as comprising measures to prevent occupational accidents and diseases, and to prevent and/or reduce the population's exposure to harmful substances such as … “harmful chemicals or other detrimental environmental conditions that … impact upon human health. Furthermore, industrial hygiene was seen to refer to the minimization, so far as is reasonably practicable, of the causes of health hazards inherent in the working environment.”

A further less well recognized element of the ICESCR relevant to our context is the recognition of people “… to enjoy the benefits of scientific progress and its applications” and a corollary obligation on states to ensure the “diffusion of science” as instrumental to realizing this right. Thus, international human rights law is remarkably replete with standards to which states are expected to adhere in meeting human rights obligations relating to occupational health.

To date, the Convention has seen 149 ratifications involving countries from all continents.

In addition to the ICESCR, a number of other international conventions make indirect reference to health at the workplace (Table 1), principally around issues of child labour, freedom from slavery and vulnerable migrants, in which unsafe and unhealthy conditions are addressed in general and not specific.

What treaty ratification implies is that, upon ratification, a government is legally obliged to ensure its domestic legislation and programmes put expression to the rights contained in the international convention, through actions to respect, protect and fulfill these rights, as explained above.

In regard to pesticide safety, for example, a state would be in breach of its obligation to respect rights, if it adopted laws that denied rural workers rights to organize collectively to protect their health and safety; it would violate the obligation to protect, if it failed to regulate the import or use of pesticides known to be hazardous, or if it failed to mandate employers to adopt safety measures at the workplace; it would violate the obligation to fulfill if it failed to provide inspection services to limit workplace hazards; and it would violate the obligation to promote if it failed to provide rural workers and populations with information about mechanisms for redress and opportunities for workers to protect themselves.

In addition to the UN-based conventions, there are a range of regional human rights instruments, with their own systems of enforcement that also speak to occupational health and safety (Table 2). Lastly, the International Labour Office, as the holder of a mandate to ensure the “protection of the worker against sickness, disease and injury arising out of his employment” (ILO Constitution) has a wide range of Conventions and Declarations pertaining to workplace health and safety (Table 3). Of the 23 Conventions adopted since 1921 that have anything to do with occupational health, about a quarter focus on specific chemicals, agents or hazards; and slightly less than a quarter on safety and accident prevention. Noticeable is the fact that the language of human rights, specifically the right to a safe working environment, appears only in those conventions and declarations introduced in the last decade, reflecting a more recent recognition of rights as relevant for occupational health. Even then, human rights
claims in the occupational health literature, are largely confined to debates around compensation or cases involving the right-to-know, and are rarely fought over issues of socio-economic entitlements. Nonetheless, the fact that the WHO Global Strategy for Occupational Health for All 1994-2000 (1995) could speak of people enjoying ‘a right to healthy and safe work and to a work environment that enables him or her to live a socially and economically productive life’ opens the door to claims to services and conditions that are the social determinants of health.

Civil society and the right to health

However, it should also be noted that a human rights framework relies not just upon state beneficence but also on conferring agency by those most affected by human rights violations (London, 2007). By reframing a hazard of lack of access to a service as a violation, it establishes the problem as ‘something that need not and should not be tolerated’ (Jochnik, cited in Chapman, 2009). Thus, working populations who are most at risk to violations of their rights to a safe environment, or their right to health, should not only be passive recipients of state protection, but should be active in making their rights real. Rights regimens that recognize and strengthen the capacity of vulner-

Table 1. Occupational Health and Safety provisions in International Human Rights Conventions and Declarations

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<tr>
<th>Convention</th>
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<tr>
<td>ICESCR</td>
<td>Article 7</td>
<td>“…the enjoyment of just and favourable conditions of work which ensure…safe and healthy working conditions …”</td>
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<tr>
<td>Conventions on the Elimination of All Forms of Discrimination Against Women (CEDAW)</td>
<td>Article 11</td>
<td>“The right to protection of health and to safety in working conditions, including the safeguarding of the function of reproduction.”</td>
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<tr>
<td>Conventions on the Elimination of All Forms of Racial Discrimination (ICERD)</td>
<td>Article 15</td>
<td>To benefit from scientific progress</td>
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<tr>
<td>International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families</td>
<td>Article 5</td>
<td>“just and favourable conditions of work”</td>
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<tr>
<td>International Convention on the Basis of Disability with Regard to All Matters Concerning All Forms of Employment, Including … Safe and Healthy Working Conditions</td>
<td>Article 70</td>
<td>“…measures not less favourable than those applied to nationals to ensure that working and living conditions of migrant workers and members of their families in a regular situation are in keeping with the standards of fitness, safety, health and principles of human dignity…”</td>
</tr>
<tr>
<td>Convention on the Rights of Persons with Disabilities</td>
<td>Article 27</td>
<td>“Prohibit discrimination on the basis of disability with regard to all matters concerning all forms of employment, including … safe and healthy working condition”</td>
</tr>
<tr>
<td>Convention on the Rights of Persons with Disabilities</td>
<td>Article 27</td>
<td>“Protect the rights of persons with disabilities, on an equal basis with others, to just and favourable conditions of work, including … safe and healthy working conditions …”</td>
</tr>
<tr>
<td>International Covenant on Civil and Political Rights (ICCPR)</td>
<td>Article 8.3(a)</td>
<td>No one shall be required to perform forced or compulsory labour</td>
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<tr>
<td>United Nations Conference on Environment and Development (Rio Declaration)</td>
<td>Principle 1</td>
<td>entitled to a healthy and productive life in harmony with nature</td>
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able groups to take action to change the conditions of their vulnerability are most likely to reduce health inequities (London, 2007; Chapman, 2009).

Without such recognition, rights to safety and health at the workplace will remain paper rights and unlikely to make a difference to protecting the health of exposed populations. In that sense, there is a broad overlap between the environmental justice movement, with its focus on social justice and inequality, and a human rights frame-work, that prioritises the needs of the most vulnerable.

If one recognizes the key role of agency in making human rights a force for positive change, it is logical to consider how such agency is exercised. Experience in different settings confirms the key role of civil society organizations in turning individual action into collective agency (London, 2007). Cornwall and Shankland (2008) highlight how mechanisms for citizen participation in Brazil’s health services break with the idea of health service users as passive recipients or even as empowered clients, but rather frame their interactions with the health serv-

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**Table 2. Regional Human Rights Instruments and Occupational Health and Safety**

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<tr>
<th>Convention</th>
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<tr>
<td>African Charter on Human and Peoples’ Rights [<a href="http://hrlibrary.ngo.ru/instree/z1afchar.htm">http://hrlibrary.ngo.ru/instree/z1afchar.htm</a>]</td>
<td>Article 15</td>
<td>Every individual shall have the right to work under equitable and satisfactory conditions, and shall receive equal pay for equal work.</td>
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<td>Article 29</td>
<td>The individual shall also have the duty … 6. To work to the best of his abilities and competence, and to pay taxes imposed by law in the interest of the society;…</td>
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<tr>
<td>African Charter on the Rights and Welfare of the Child [<a href="http://www.chr.up.ac.za/hr_docs/african/docs/oau/oau2.doc">http://www.chr.up.ac.za/hr_docs/african/docs/oau/oau2.doc</a>]</td>
<td>Article XV: Child Labour</td>
<td>1. Every child shall be protected from all forms of economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child’s physical, mental, spiritual, moral, or social development;…</td>
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<td>Article 13</td>
<td>… guarantee women equal opportunities in work and career advancement …(c) … combat and punish sexual harassment in the workplace; … (f) minimum age for work and prohibit the employment of children below that age, and prohibit, combat and punish all forms of exploitation of children, especially the girl-child; … f) establish a system of protection and social insurance for women working in the informal sector.</td>
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<td>Article 18</td>
<td>Women shall have the right to live in a healthy and sustainable environment</td>
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<tr>
<td>American Convention on Human Rights</td>
<td>Article 10</td>
<td>provision for the prevention and treatment of endemic, occupational and other diseases</td>
</tr>
<tr>
<td>European Social Charter</td>
<td>Articles 1–10.</td>
<td>Safe and healthy working conditions Special protections for young workers right of employed women to protection of maternity right to take part in the determination and improvement of the working conditions and working environment Accident prevention</td>
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<tr>
<td>SADC Social Rights Charter</td>
<td>Articles 11 and 12</td>
<td>Harmonization of equitable basic working conditions, OHS protection, health + safety at work, safe environment that sustains human development, employer obligations, risk control at source, tripartite OHS provision and oversight; compensation, polluter pays</td>
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<tr>
<td>ILO Instrument</td>
<td>Provision</td>
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<tr>
<td>C13 White Lead (Painting) Convention, 1921</td>
<td>Prohibition of the use of white lead in painting</td>
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<td>C17 Workmen’s Compensation (Accidents) Convention, 1925</td>
<td>Compensation for workers and dependents for industrial accidents</td>
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<tr>
<td>C32 Protection against Accidents (Dockers) Convention (Revised), 1932</td>
<td>Article 2 Safe work processes in dock, wharf or quay</td>
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<tr>
<td>C42 Workmen’s Compensation (Occupational Diseases) Convention (Revised), 1934</td>
<td>Article 1 Compensation for workers and dependents for occupational diseases</td>
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<tr>
<td>C62 Safety Provisions (Building) Convention, 1937</td>
<td>Article 4 Health and safety inspection function in the building industry</td>
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<tr>
<td>C115 Radiation Protection Convention, 1960</td>
<td>Article 2 Protection for workers whose activities involve exposure to ionising radiation</td>
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<tr>
<td>C191 Guarding of Machinery Convention, 1963</td>
<td>Protection for workers whose activities involve exposure to power-driven machinery</td>
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<tr>
<td>C120 Hygiene (Commerce and Offices) Convention, 1964</td>
<td>Article 4 Put in place laws or regulations to promote and protect hygiene in commercial and office premises</td>
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<tr>
<td>C134 Prevention of Accidents (Seafarers) Convention, 1970</td>
<td>Article 1 Measures to prevent occupational accidents affecting seafarers</td>
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<td>C136 Benzene Convention, 1971</td>
<td>Protection of workers exposed to benzene</td>
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<td>C139 Occupational Cancer Convention, 1974</td>
<td>Article 1 Obligation on state to identify chemicals for prohibition or regulatory control</td>
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<td>C148 Working Environment (Air Pollution, Noise and Vibration) Convention, 1977</td>
<td>Article 2 Obligations to reduce exposure to (a) air pollution; (b) noise; and (c) vibration</td>
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<tr>
<td>C152 Occupational Safety and Health (Dock Work) Convention, 1979</td>
<td>Article 4 Measures to provide safe workplaces, equipment and methods of work; safe means of access; information, training and supervision; personal protective equipment and protective clothing; suitable and adequate first-aid and rescue facilities; emergency procedures</td>
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<tr>
<td>C155 Occupational Safety and Health Convention, 1981</td>
<td>Article 4 A coherent national policy on occupational safety, occupational health and the working environment in consultation with employers and workers; The aim of the policy shall be to prevent occupational accidents and injury, by minimising, so far as is reasonably practicable, the causes of hazards in the working environment</td>
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<tr>
<td>C161 Occupational Health Services Convention, 1985</td>
<td>Articles 2 &amp; 3 A coherent national policy on occupational health services in consultation with employers and workers; The aim of the policy shall be to progressively realise OSHs for all workers; subject to periodic reporting</td>
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<tr>
<td>C162 Asbestos Convention, 1986</td>
<td>Article 3 &amp; 4 National laws or regulations for the prevention and control of health hazards due to occupational exposure to asbestos; periodically reviewed in the light of advances in scientific knowledge; temporary derogations permitted after consultation with employers and workers</td>
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<tr>
<td>C164 Health Protection and Medical Care (Seafarers) Convention, 1987</td>
<td>Article 3 &amp; 4 Shipowners are responsible for keeping ships in proper sanitary and hygienic conditions; general OHS provisions should apply to seafarers, as well as health protection and medical care free of charge when in ports of call; health promotion and preventive measures</td>
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<tr>
<td>C167 Safety and Health in Construction Convention, 1988</td>
<td>Article 4 Adopt and maintain laws or regulations to ensure safety and health in construction</td>
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<tr>
<td>C170 Chemicals Convention, 1990</td>
<td>Article 4 A coherent national policy on safety in the use of chemicals at work in consultation with employers and workers; periodically reviewed</td>
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<tr>
<td>C174 Prevention of Major Industrial Accidents Convention, 1993</td>
<td>Article 1 Prevention of major accidents involving hazardous substances; limitation of the consequences of such accidents; applies to major hazard installations</td>
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<tr>
<td>C176 Safety and Health in Mines Convention, 1995</td>
<td>Article 3 &amp; 4 A coherent national policy on safety in mines in consultation with employers and workers; periodically reviewed; Supplement laws and regulations with technical standards, guidelines or codes of practice</td>
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<tr>
<td>C184 Safety and Health in Agriculture Convention, 2001</td>
<td>Article 4 A coherent national policy on safety and health in agriculture in consultation with employers and workers; periodically reviewed; This policy aims to prevent accidents and injury to health arising out of, linked with, or occurring in the course of work, by eliminating, minimizing or controlling hazards in the agricultural working environment; Involves designation of (a) a competent authority responsible for the implementation of the policy, including penalties and corrective measures; (b) specifying rights and duties of employers and workers with respect to occupational safety and health in agriculture; and (c) establish mechanisms of inter-sectoral coordination among relevant authorities and bodies for the agricultural sector with defined functions and responsibilities</td>
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<tr>
<td>C187 Promotional Framework Convention for Occupational Safety and Health, 2006</td>
<td>PART II Article 2 Commitment to promote continuous improvement of occupational safety and health, in consultation with employers and workers; a national policy, national system and national programme; Active steps towards achieving progressively a safe and healthy working environment and to promote and advance the rights of workers to a safe and healthy working environment</td>
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<tr>
<td>World Congress Summit on Safety and Health at Work – Seoul Declaration on Safety and Health at Work, 2008</td>
<td>“… the right to a safe and healthy working environment should be recognised as a fundamental human right …”</td>
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<tr>
<td>ILO Declaration on Social Justice for a Fair Globalization, 2008</td>
<td>Members expressed commitments to “… measures of social protection … which are sustainable, including healthy and safe working conditions …”</td>
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ices as based on users being rights-holding citizens engaging with a state that is obligated to establish mechanisms for citizen participation by the constitution. These community participatory processes have led to significant gains in prioritising attention to gender and to women’s health needs in the Brazilian context (Corrêa et al, 2005), reflecting the potential of human rights approaches to ensure “that the needs and rights of poor and marginalised citizens are not relegated to the periphery of a segmented health system.” (Cornwall and Shankland, 2008: 2174).

Indeed, an ecological study suggested that the status of treaty ratification alone was a poor indicator of the realization of the right to health based on social and health outcomes (Palmer et al, 2009). Rather, it is the democratic context, particularly the extent of citizen participation in democratic governance that is likely to improve respect for and realization of human rights (Neumayer, 2005). As Nobel Prize winner Amartya Sen (2004) has observed, “public recognition and agitation can be part of the obligations . . . generated by the acknowledgement of human rights” providing a key pathway to realizing the potential of human rights to protect the most vulnerable in society.

**Pesticide exposure for small farmers in developing countries: A case study of farm workers in the Western Cape Province of South Africa**

Agricultural work comprises the largest component of workers in many, if not most, developing countries (Stringer et al, 2004; International Labour Office, 2007). In agriculture, exposure to hazardous chemicals remains an ongoing occupational and environmental health problem. Estimates of acute poisoning due to pesticides in rural communities are difficult to ascertain but are at minimum around 1 million unintentional and 2 million intentional cases annually with over 300 000 deaths (Henao and Arbelaez, 1992; Litchfield, 2005; Konradsen, 2007).

In South Africa, employment in agriculture has been declining in the last decade with structural changes to the economy linked to the impact of global economic and trade developments, but remains at close to 1 million workers (Rother et al, 2008). Under apartheid, commercial farming in South Africa was historically characterized by high levels of worker exploitation with concomitant poor social and working conditions and exclusion from the purview of labour regulations (London et al, 1998; London, 2003). Even though legal protections have been extended to farm workers under a post-apartheid constitutional dispensation, the legacy of decades of economic and social marginalization persists (South African Human Rights Commission, 2003). For example, farm workers in the Western Cape province experience high rates of trauma associated with physical injury (London et al, 1988) partly driven by high levels of alcohol abuse, which, in turn, is itself a legacy of a system of payment in kind with alcohol introduced by colonialists to control indigenous labour (London, 1999). As a result of widespread alcohol abuse and dependence, the area has the highest rate of foetal alcohol syndrome reported in the world (May and Gossage, 2001).

Poor health and safety conditions and practices in agriculture (London, 1994) therefore co-exist with a substantial burden of contextual factors driving increased vulnerability to poor health generally. Exposures to pesticides, may therefore aggravate and be aggravated by high rates of psychological illness, under-nutrition, infectious diseases and alcohol- and tobacco-related diseases. Most importantly, this takes place in a context where workers have very little control over the social determinants of their health, surviving in very vulnerable employment circumstances, where their housing is dependent on their employment on the farm and where movement on and off the farms is entirely contingent on the farm owner’s permission. This may often have particularly gendered effects, since women farm workers are regarded as second class employees, whose presence is only justified by the their spouse’s employment contract with the farm owner and who are expected to contribute casual labour to the farm’s production when required.
“If I do not do the work, then I must get off the farm … my children will suffer because of it – my wife [as well]…”

“The farmer only needs me from January to April… but we struggle financially the rest of the time, so I decided to get a job in town. The farmer said it was OK but then when the season started he wanted me back. I had to give up my other work. If I refuse, he’ll probably ban us from the farm. And maybe my parents [who worked here for 27 years].”
Source: Farm worker Julie Davids, quoted in ‘Farm women in work trap’ Cape Times 22nd February 1999.

Efforts to combat this vulnerability through unionization have not been very successful, given the difficulties of organizing in the agricultural sector. Health and safety legislation, though nominally applicable to the agricultural sector, has proven to be poorly suited to agricultural production that does not conform to large agribusiness arrangements. Notwithstanding the increasing concentration in the agricultural economy in South Africa (Oosthuizen, 2006), there remain many farm workers employed on small to medium-sized farms for which the model of risk assessment contained in South Africa’s regulations is not implementable without state support, nor enforced by an understaffed labour inspectorate. For example, the idea of health and safety representatives who actively engage employers around issues of hazard identification and risk assessment at agricultural workplaces, central to the Occupational Health and Safety Act in South Africa (Ehrlich, 1995) is hardly practical when average education levels of workers are of the order of 8 years of schooling (London, 1998) and where there remains profound power imbalances between farm owners and their employees and a deep rooted culture of paternalism and violence in employer-employee relationships (London, 1999; South African Human Rights Commission, 2003).

A key policy response to the dispossession of black rural communities by apartheid and their forced removal from land has been a systematic programme of land restitution, returning persons displaced from ancestral land and/or their families (Ntsebeza and Hal, 2007). This has been coupled with efforts at economic redress throughout the economy, including the agricultural sector, to increase the participation of black people in ownership and production, so-called Black Economic Empowerment (BEE). Under these dual policy processes, South Africa has created a category of emergent farmers, many of whom are former farm workers who have been given land for production, with a view to enabling them to become commercially viable farming units over time (Rother et al, 2008).

However, although this programme has eminently desirable intent, participants have lacked technical and institutional support to effectively transform from subsistence into commercial farmers. Moreover, under pressures to use inputs to improve the efficiency of production, many emergent farmers find themselves making use of pesticides and fertilizers without adequate information to use them either safely or effectively. The Department of Agriculture does not provide sufficient extension support to small farmers to enable them to make informed decisions about the use of pesticides in general, or to identify the correct agent to use for a particular pest problem, and inspectorates from the Departments of Labour and Health inspectors have virtually no contact with small farmers except when a fatality arises as a result of a catastrophic exposure or accident. Emergent farmers are left to depend on representatives of the companies distributing pesticides for information, which creates a perverse incentive for overuse of pesticides in ways that are hazardous to human health and the environment. This retreat from state intervention, whether in the form of regulatory inaction or declining extension support, is reflective of global trends under neoliberal policies, and has also been shown in other African countries, where small farmers in Tanzania appear dependent on pesticide companies for their risk information (Ngowi et al, 2007) and where trade liberaliza-
tion in pesticides has led to massive proliferation of unsafe distribution outlets, often employing children (Mununa and Lekei, 2000) and in West Africa where a proliferation of informal traders has occurred with trade liberalization (Williamson et al, 2008).

Faced with an ‘absent’ state in the regulatory context, protections for farm employees and small farmers may often be located in systems of private regulation contained in fair trade or ethical trade arrangements, in terms of which developing country producers are given access to markets in developed countries if they adhere to particular codes of conduct and guidelines. Such systems are frequently present in developing countries; but they may offer only partial protections for workers and producers. For example, they may emphasize the control of pesticide residues in exported products to the benefit of first world consumers over reductions in occupational exposures in the course of production, or may overlook and even entrench gender inequalities in farming production systems (Barrientos et al, 2003). More so, reliance on fair trade-based controls may undermine state commitment to proper regulation and enforcement through displacement, overlaps, duplication and attraction of skilled personnel away from public agencies.

Moreover, fair trade systems remain a small part of the overall market, estimated at about 0.1% of world agricultural trade (Farnworth and Goodman, 2008), dominated as it is by large chains for whom developing country production may be an important source of low-wage agricultural production for developed country consumption. With liberalization of agricultural markets the number of small scale farmers in horticulture in developing countries for both domestic and export markets has increased substantially. Yet it is in this agricultural sector that high rates of pesticide application occur, often involving acutely toxic insecticides (Dinham, 2003; Williamson et al, 2008).

A human rights approach to occupational health and safety for rural agricultural workers in South Africa

How then would a rights approach help to resolve some of these difficulties faced by rural agricultural workers? Table 4 summarizes state obligations towards realizing the right to health and its occupational and environmental components, as enumerated in international conventions. For example, to realize its obligation to respect the right to safe and healthy working conditions, the state would need to address security of tenure for rural workers vulnerable to eviction, secure labour rights for workers such as rights to organise and establish mechanisms to mandate minimum standards, such as sectoral determinations. To protect this right (from third parties), the state is obliged to develop, adopt and enforce health and safety regulations for rural agricultural workers which would, for example, secure rights to refuse hazardous work and to health and safety training. To fulfil the right, the state would be expected to facilitate provision of occupational health services, either directly or by establishing the environment for third party provision through an insurance or other mechanism. Such OHS provision would, for example, make biological monitoring for hazardous substances a reality. In similar vein, the provision of child care services, either directly by the state or indirectly through subsidy, would represent a component of realising safety for family members potentially exposed in agricultural settings, as much as direct OHS services would be. Then, to promote the right to safe and healthy working conditions, the state would be obliged to promote not only training and awareness about occupational health and safety rights but programmes to promote general literacy and human rights awareness, extending, where appropriate to public hearings and media programmes. Protection of the right-to-know for workers is an essential element of the obligation to promote rights.

Extending the spectrum across other aspects of the right to occupational health and safety, such as the improvement of environmental and industrial hygiene, the treatment and control of occupational disease and an entitlement to benefit from scientific progress would raise a range of further obligations for the state (Table 4).
Moreover, recognition that a human rights approach is characterized by a focus on vulnerability requires states to ensure that the conditions that create vulnerability are addressed; more so, that they are addressed through empowering rural agricultural populations to become agents of changing their own conditions of vulnerability rather than as passive recipients of state largesse. This means strengthening opportunities for civil society organization and collective action of rural communities. It also reminds us that rights interventions focus on upstream interventions and may as much demand state action to limit the impact of trade and economic policies on rural livelihoods as it would directly mandate safety practices at individual rural workplaces. Moreover, by recognizing claims to socio-economic entitlements as equally important and operationalisable as civil freedoms, and both claims as interdependent, a human rights approach provides tools for rural populations to address the fundamental social determinants of their health and to advance equity.

Most recently, work identifying human rights approaches to health systems has added an understanding that a national plan, based on disaggregated data, is integral to realizing the right to health in a health systems context and that participation is key to sound health systems (Hunt and Backman, 2009). For occupational health services, this implies national consensus on extending OHSs into rural areas, the establishment of a national system of surveillance for occupational illness and injury that captures data for the agricultural sector, typically marginalized in surveillance systems and active participation by worker organizations in decision making around occupational health and safety (International Labour Office, 2009).

For occupational health professionals, this poses different kinds of challenges – not only technical challenges of limiting exposures to hazardous substances but also questions relating to professional obligations to advocate on behalf of individual worker patients and for collectives of workers and their family to have the power to change the conditions of their vulnerability. In this sense, human rights obligations on states lead to courses of action imposed on health professionals that strengthen professional ethical obligations.

**Conclusions**

The right to a safe working environment is contained not only in International Labour Office conventions but in a number of international human rights agreements. These provisions place obligations on states to respect, protect, promote and fulfil the right to health and safety. OHPs can become instruments for the violation of rights
to health if they are not aware or fail to assist in the realisation of workers’ rights, reflecting the generic problem of dual loyalty in health professional practice. Moreover, for the full realisation of rights to health and safety, strengthening of collective civil society action is necessary, which means that OHPs must promote meaningful participation of organisations of workers and affected communities in decisions around the control of hazardous exposures.

Introducing human rights approaches into policy development and programming will strengthen the likelihood of success in the prevention of work-related disease and disability, and can complement current reliance on ethical codes to govern professional practice in occupational health. Important opportunities for advancing the health of rural agricultural populations are provided by use of human rights frameworks.

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References

2. Scientific Sessions

T1: Social Determinants of Rural Health

Session 1: Social Determinants

Consumo Alimentario En Adultos Mayores No Institucionalizados Residentes En Zonas Marginales De Los Andes Ecuatorianos

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En Ecuador los adultos mayores (AM) representan el 7% de la población, la mayoría se encuentra habitando las zonas urbanas y urbano marginales. En esta etapa de la vida una alimentación saludable cobra mayor importancia. Este trabajo busca describir el patrón de consumo alimentario y contrastarlo con el consumo ideal de alimentos según requerimientos establecidos en base a guías como la pirámide de los alimentos.

Estudio transversal desarrollado con AM de grupos organizados en zonas marginales de Quito en 2007. Se registró el consumo alimentario por recordatorio de 24 horas y determinantes sociales como vivir solo, escolarización y recibir compensación económica. Se utilizó la pirámide de alimentos del Ministerio de Salud Pública, específica para personas mayores de 50 años como parámetro de comparación del cumplimiento del consumo ideal. La asociación se realizó con OR y la significancia estadística con IC95%, en el programa SPSS 12.

Participaron 320 AM, 52.8% menores de 70 años, 83.4% mujeres. Cinco (1.6%) AM, todas mujeres, con mejores condiciones sociales cumplieron el consumo alimentario ideal. La menor ingesta de lácteos OR 2.27 IC95%1.04-4.80 y cárnicos OR 1.07 IC95%0.98-1.94 tuvieron las mujeres. Viven solos 28%, reciben compensación económica estatal 12% y escolarización bajo 6 años 73%, siendo éstos últimos los que menos consumen lácteos OR 2.23 IC95%1.32-3.77.

Uno de cada cien AM cumplió el consumo ideal de raciones alimentarias y tener menor de seis años de escolarización fue factor de riesgo para no consumir lácteos. Este riesgo también lo presentan las mujeres sumado al menor consumo de cárnicos. Se presentan datos muchas veces sospechados, pero poco intervenidos y discutidos tanto en la esfera académica como política.

Adulto mayor, consumo alimentario ideal, determinantes sociales, pobreza, Ecuador.
The effect of healthy village project for residents in kyungbuk province’s rural areas

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Introduction
For people's getting healthier in a community, family, neighborhood, and community itself should be healthy. So we need to have a healthy village project based on community to guarantee all residents' health in the community.

Materials
Preliminary research operated by 13 public health service centers investigated 1,488 local residents in June, 2008. Post research operated by 12 public health service centers investigated 1,216 local residents in October, 2008 because of a public health nurse's maternity leave. The nurses at public health service center visited residents' home and researched with questionnaire about health behaviors and condition. When residents were not able to read the paper, investigators read and got answers.

Results
89% of the respondents at preliminary research was over 50 years old, and 94% at post research. Distribution of sex was 25.4% of male and 74.6% of female at preliminary research, and 24.5% of male and 75.5% of female at post research. High blood pressure (over 140/90 mmHg) decreased from 31.2% to 16.7%, Diabetes (over 126) did from 35.4% to 23.7%, and Obesity (over BMI25) did from 51.9% to 46.3%. Smoking rate decreased from 26.4% of male and 2.0% of female to 24.1% and 1.2%. Drinking rate (over 5 cups of soju at once) decreased from 9.4% to 6.2%. Exercise rate (over 30min and 5 times in a week) highly increased from 9.5% of male and 3.6% of female to 24.1% and 22.8%. Participant of walking exercise also increased from 32.3% of male and 19.5% of female to 41.3% and 44.6%. Rate of regular breakfast eating habit was 94.2% of male and 92.3% of female at preliminary research and 94.2% and 97.6% at post research.

Conclusions
Result of this study should be confirmed by further longitudinal study. It is a need to share more information about model and effect of other city project in the long view.

Keywords: healthy village project, nutrition, exercise and smoking cessation
Improvement of health activities and the concept of health
- Subsequent discussion about perspective of health -

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The WHO definition of health
When discussing health, the WHO definition of health is always referred to. It indicates a revolutionary concept of health. But today’s circumstances, it is too ideal to hold up as an achievable goal. According to it, a great number of people are far from healthy. Especially people with disease or disability are far from healthy in spite of necessity.

Is there a better concept of health for all persons? I suppose that we need to find a new concept of health which is useful to improve health activities nowadays.

Toward a new concept of health
The Japanese Ministry of Health and Welfare (currently, the Ministry of Health, Labour and Welfare) conducted a survey of the general Japanese population in 1995, and asked what “health” meant to them. The following responses were given: 33.3% answered health means not suffering from any disease; 45.3% answered that it means not suffering from any disease that requires treatment by medical facilities; and 21.0% answered that even people with a chronic disease such as high blood pressure who receive continuous treatment in a medical facility could be regarded as healthy if they experience no occupational or daily life problems.

Health activities and the concept of health
The existence of a concept of health that can be defined as an absence of disease or infirmity has contributed to improvements in medical services. The WHO definition of health has raised people’s expectations of a high quality of life (complete well-being) without disease or infirmity. Health activities such as fitness, health check-up and so on are held for the people without disease or infirmity.

There are many health concepts. Those with bodily strength are defined as in good health. It has been discussed that living a life in which one can adapt to one’s environment can be considered healthy. People defined as unhealthy according to the WHO definition of health, could be considered in good health if they keep making efforts in their life. Maslow defined the degree of satisfaction as the degree of psychological health. They have contributed to improvement of health activities.

Extending health activities
The most important nature of my new concept of health is that it can be applied to any individual, whether they are suffering from a serious disease, very elderly and in the terminal phase of life, or even undernourished due to poverty. This is because such people have a much stronger desire for health than those who are well. In addition, the new concept should be one that can contribute to improvement of health activities.

I have established a 4-dimensional concept shown by figure 1. I define “health” as a solid harmonization of (I) mental and physical functions, (II) harmonization with natural and social environment, (III) pursuit of happiness (satisfaction as a human being) and (IV) effort for health. Although there is no single ideal vision to be shared by
every individual, a common foundation should be provided so that we can construct individual ideal images.

It is important to prepare a foundation for health that can be shared by everyone equally. They are health activities. They might include:

(I) For mental and physical functions: Improvement of health care in the narrow sense
(II) For harmonization with natural and social environment: Preservation of the natural environment, normalization, and respect for cultural diversity etc.
(III) For pursuit of happiness (satisfaction as a human being): Democracy, appropriate competition, and neighborly love etc.
(IV) For effort for health: Health education, and public participation in health programs, etc.

We must extend health activities.

Concept of health, Definition of health, Health activities
Introducción

La floricultura es una de las principales fuentes de empleo en nuestro país, y desde los inicios de la Asociación se ha pensado en la forma de contribuir al mejoramiento de la calidad de vida de los empleados directos, sus familias, las comunidades y municipios de influencia, nuestros programas cumplen con todos los requisitos que un programa de responsabilidad social empresarial debe tener: trabajo con la comunidad, alianzas con el estado, desarrollo social, certificación por terceros, etc. Y están basados en principios de equidad de género, protección al trabajador, la familia como núcleo esencial del bienestar, y la erradicación del trabajo infantil.

Se han agrupado en áreas estratégicas, y los más importantes son:

1. Bienestar de la familia
   1.1. Cultivemos la Paz en Familia: busca la creación de una cultura de paz y la adopción de formas no violentas para manejo del conflicto.
   1.1.1. Asocolflores es hogar: programa de vivienda que busca contribuir a solucionar el déficit de vivienda de nuestros empleados.
   1.1.2. Formación de Comunidad: busca generar en la comunidad un aprendizaje para la convivencia en armonía.
   1.2. Hogares comunitarios.
   1.3. Apoyo a los niños: programas de salud oral, recreación y refuerzo escolar.

2. Formación y desarrollo
   2.1. Alfabetización y nivelación de la primaria y el bachillerato.
   2.2. Convenio con el Sena: se creó la mesa sectorial para el desarrollo de competencias laborales, realizamos programas de capacitación permanentes a todos los niveles ocupacionales.

3. Apoyo a las áreas de gestión humana:
   3.1. Plan de empleo:
   3.1.1. Escuela de floricultura.
   3.1.2. Generación de empleo por solidaridad
   3.1.3. Reporte GRI/Encuesta de salarios

   3.2. Recreación
   3.2.1. Parque de las Flores.
   3.2.2. Olimpiadas y Encuentro Cultural.

   3.3. Comunidad e imagen
   3.3.1. Apoyo a municipios.
   3.3.2. Educación para la Democracia.
3.3.3. Proyecto de pulpa con desecho de clavel  
3.3.4. Construyendo municipios

**Materiales y métodos**

La presentación de la temática se hará por medio de las imágenes en power point y la entrega de un folleto resumen de los programas adelantados por Asocolflores en materia de responsabilidad social empresarial.

**Resultados y discusión**

Para Asocolflores los programas de responsabilidad social empresarial deben contribuir eficientemente al mejoramiento de la calidad de vida de las personas y el cuidado del medio ambiente, por esto cada uno de estos programas se maneja mediante la estrategia de cascada: llegamos primero a los gerentes, estos a sus recursos humanos y de ahí a los operarios. Estos a su vez a su comunidad y ésta a nosotros por medio de las administraciones municipales.

**Conclusiones**

El sector floricultor ha sido pionero en la ejecución de acciones de responsabilidad social que nos han permitido llegar a cada uno de nuestros empleados y sus familias a través de los años, contribuyendo al mejoramiento de su calidad de vida y siendo testigos en el tiempo del mejoramiento de las comunidades donde el sector hace presencia.

**Palabras claves**

Asocolflores, empleados, comunidades, municipios, influencia, mejoramiento, calidad, vida, ambiente, alianza.

Session 4: Interventions Development And Rural health

**Farming Struggles and Triumphs: The effects of a unique working environment**

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The number of farming families in Australia has been declining for the last 20 years. Climate change, government legislation and policies are adding to the challenges. This study investigated the impact of work-family role conflict on farming family well-being, effective coping strategies and positive aspects of lifestyle. As available assessment tools aren’t culturally relevant, an additional aim was to develop measures of work-family conflict, stressors, and coping strategies for Australia. Findings will be reported on the first stage of measure development.

The first stage involved semi-structured interviews of farming families (N=30) from across Queensland and South-Eastern Australia. Interviews were audio-recorded and qualitatively analyzed to identify items relevant to the following areas: lifestyle, work-home interface, stressors, coping.
Preliminary results from interviews indicate lifestyle and good relationships are strong buffers for stress. Role ambiguity and property partnerships contributed to family conflict and dissatisfaction. Coping strategies included spending time with family, friends, and social drinking. Families perceive themselves as socially isolated from the Australian public and government due to their chosen occupation. There is a perception changes in the industry have had a negative impact on community connectedness, support, and gatherings, which has impacted negatively on satisfaction and lifestyle.

The number of farming families is decreasing and the industry is becoming increasingly difficult for farms to remain sustainable, yet some remain though primarily for lifestyle and children. The development of measures to assess stress and coping can help identify good and poor practices for farming families of Australia, giving guidance for those struggling and those considering entering the industry.

Work-family conflict; farming families; lifestyle; stress; well-being; coping

Session 5: Vulnerable Rural Population

Evolution Historica del Derecho del Trabajador Rural

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Los derechos del trabajador rural han ido evolucionando, desde la Época de la Colonia hasta la actualidad. Comienza con el encuentro de dos mundos: el aborigen y el de los Conquistadores, y el cambio que este último trajo aparejado en la estructura familiar, las costumbres, la religión, el sistema político y el económico.

Se toma como base el Derecho Español Indiano, la Ley de Indias, la Costumbre Jurídica, el Derecho Agrario, Derecho Civil y Derecho Laboral y su evolución a lo largo de los años en diferentes países de Norteamérica, Centroamérica y Sudamérica. Se realiza un cuadro comparativo entre los mismos, y se ponen de relevancia sus progresos hasta la actualidad.

Esta comparación nos demuestra como el trabajador ha ido adquiriendo derechos legales a lo largo de los años, independientemente del país donde viva, aunque los mismos estén teñidos de la cultura imperante en el mismo. En aquellos países con alto porcentaje de población autóctona, la evolución ha sido más lenta que en aquellos que tienen mayor cantidad de ascendencia europea, debido a que las inmigraciones de estos países, aceleraron la introducción de las mejoras en el ámbito civil y laboral.

La conquista de América trajo grandes cambios en las comunidades rurales, que pasaron de tener sus propias costumbres a la esclavitud, para luego ir conquistando los derechos legales que goza actualmente. Esto dentro de un marco de usos y costumbres que debe cambiar para concientizar al trabajador de sus derechos en de un marco de salud, seguridad y condiciones ambientales.

Trabajador Rural - Derechos - Mejoras en Condiciones de Trabajo
Integración de la mujer al trabajo de faena
de ovinos-elaboración de Kosher

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Conferencia: el trabajo e integración de la mujer patagónica en la faena de ovinos.

Se demuestra la integración de la mujer en el trabajo de faena de ovinos en un frigorífico de exportación; los diferentes puestos de trabajo, a la par de los hombres y se destaca el beneficio de la mujer en determinados sectores que hacen a la calidad de la presentación del producto elaborado listo para exportar.

Se ilustran con una serie de slides del los diferentes sectores de faena, como descarnado, secado, registro, tripitería, vísceras, charqueado, selección, pesado, embolsado, destacando los puestos ocupados por la mujer.

El resultado es la integración igualitaria de la mujer a la par del hombre en esta actividad, sin un régimen especial, y el beneficio obtenido por su cualidad, quedendu en una mejor presentación del producto terminado, listo para exportar.

Numerosos puestos de la faena de ovinos para exportación pueden ser cubiertos por la mujer a la par del hombre. 2) la delicadeza de la mujer favorece la calidad de la presentación final del producto.

La mujer rural, faena de ovinos, elaboración de kosher

Obesity Prevention among Young Latino Families in Rural Alabama

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Kathleen S. Tajeu, Donna R. Shanklin, Alma Chavarria, and Eunice A. Bonsi

Given globalizing economies and international relocations of people, it is not surprising that Alabama has a growing Latino population. Alabama Cooperative Extension System welcomes all families to our health education programs. Specifically we are assisting young Latino families prevent obesity, which is disproportionately experienced by pre-school Latino children. Our presentation shares results of local, obesity-related assessments of community and parental factors in rural communities and consequent health promotion programs.

We collected obesity-related attitudinal and behavior data from Latino parents in 7 different rural early childhood education centers (including 2 migrant centers). The 35-item questionnaire was available in Spanish and English. Seeking understanding of ecological influences, a questionnaire was also administered to school staff. In one community with large demographic shifts, community members were invited to a focus group. Data collection
was step one in co-developing school and community-based interventions, using culturally appropriate materials and employing local Community Health Advisors.

The mixed-methods data collection portrayed a variety of factors influencing obesity in participating families. Some behaviors, such as limited vegetable consumption, were shared by parents and school staff. Some beliefs, such as “big is better” for babies, differed between parents and staff. Parents felt affected by contextual factors such as economics and community prejudices. Our presentation will highlight our most significant assessment findings and briefly describe consequent programs such as healthy cooking classes, community garden, exercise group, and cross-generational activities.

To better support rural Latino immigrant/migrant family’s health, educators need to address obesity contributing factors. Some are unique to Latino families, but many reflect general dynamics in the rural southeastern U.S. Our assessments suggest that, in addition to family attitudes and behaviors, a range of factors including access to healthy foods, community attitudes, role-modeling and attitudes of teachers are important.

Obesity, young families, rural, Latino, community assessment, health education programs

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**Socioeconomic Characterization in a Poor Displaced and Vulnerable Population**

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The following program was made to mitigate the bad socioeconomic conditions of vulnerable and forced displaced families, characterizing 13000 forced displaced families nationwide: “Programa de acompañamiento y tutoría a familias desplazadas y vulnerables con enfoque en salud familiar”. The objective of this study is to characterize socioeconomically a poor displaced and vulnerably population; and compare the two populations of study.

This is a descriptive, observational, transversal study; based in a database made for the program from ASCOFAME and the University of Cartagena in Cartagena, Colombia. In “Villa Hermosa”, a poor neighborhood in Cartagena between 2006 and June, 2008. Association with displacement (D) and non-displacement or vulnerable population (V) was obtained with Chi-Square; with determination of p-value (significance < 0.01). None of them had potable water, or sewage system. The only public system available to them is electricity. Applying the UBN (Unsatisfied Basic Needs), all of them are in misery level.

59% (3359/5693) of people were displaced. 74.2% (V:75.9%; D: 73.1%; p<0.001) had mud floor, the rest: cement or wood. Most roofs were made of zinc, 78.5% (V:76.4%; D:80.0%;p=0.001). Roofs made of waste material were 7.7% (V:8.2% ;D:7.5%;p >0.1). Walls made of wood: 81.7% (V:79.7%;D=83.1%;p=0.001). 14.2% of the people had brick walls (V:16.2%; D:12.9% p=0.001). The mean of the number of families per house is 1.09 (V:1.08; D:1.09; p>0.05). Mean persons per room: 3.3 people (V: 3.29;D: 3.30;p>0.05).

The conditions of the displaced population were slightly better than the non-displaced group. As a hypothesis, this can be due to the displacement itself, because the sell of possessions and posterior investment in living. De-
spite that, the misery level in this community is 100%. These results are close to other studies in Colombia where poverty is 99% in displaced population.

forced displacement, poverty, socioeconomic

Shape Your Life: a Program to Improve Health Literacy in Rural Alabama

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Health literacy is the ability to obtain, process, and understand health information and services to make appropriate health decisions. The costs of poor health literacy are high, for both patients and providers. In the United States, health literacy challenges are disproportionately high among the elderly, the poor, minorities, limited literacy and English is a second language individuals. Rural Alabama, U.S.A., has high rates of limited health literacy.

Shape Your Life: Healthy Living and the Health Care Systems is an empowerment focused, health literacy curriculum. Addressing a variety of learning styles the curriculum incorporates DVD, role plays, physical activities, and group discussion, along with written materials. Through participatory co-learning participants discover ways they can adopt 10 keys to good health, improve the quality of their health care encounters, and build teamwork with pharmacists. Selections have been translated into Spanish and adapted to be more culturally appropriate.

After pilot testing the adapted English curriculum is now being implemented in several counties across Alabama, USA. Quantitative post-then evaluation data and comments by program participants, as well as observations of the health educators and community health advisors implementing the curriculum, are being collected. Further assessment work to determine the most needed information by local, newly arrived Latinos and how to ensure the information is culturally appropriate and inclusive of traditional health beliefs is a supplemental effort for the summer.

Struggling with limited health literacy is very disempowering; establishing the participants as empowered individuals is a larger goal of this curriculum, along with the development of specific health literacy knowledge, skills, and self-efficacy. The poster will highlight parts of the curriculum, share preliminary evaluation information, and highlight developments for a Spanish version addressing particular challenges faced by newly arrived Latinos.

Health literacy, rural, participatory co-learning, cultural appropriateness, assessment and evaluation
Session 6: Women and Children

**Iodine deficiency status among children and pregnant women living in rural area in Albania, Europe.**

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Albania is a country with limited environmental resources of iodine. Since years IDD has been a great problem of public health with a higher severity in the rural zones. In 1994, TGR, determined by ultrasound, was 28.9% among 241 children in 4 villages in the north. A survey among 2395 children 8-10 years old in 1993 found median Urinary Iodine Excretion between 2-49 mcg/l; 63% severe, 30% moderate, 5% mild.

This is a transversal study used for the evaluation of the IDD prevalence in Albania. Sampling method is “probability proportionate to size” cluster method recommended by WHO, ICCIDD. Children aged 6-13 years and pregnant women living in the same area are the target groups. Four territorial zones in Albania are designed: cities and village of the coastal zone, cities and village of internal zone. Indicators used are Urinary iodine concentration, thyroid size, use of adequately iodized salt.

This study showed that 46.1% of the children and 39.6% of women living in the internal region/village and 37.6% of the children and 26.4% of the women living in the coastal region/village had urinary iodine concentration < 50 µg/L. From the results is observed that the prevalence of the grade 2 is higher in Internal region/village 44.5% than in Costal region/village 23.3%. The percentage of the adequately iodized salt was 53 % in the costal region/village and 52.49% in the internal region/village.

Albania result with a mild Iodine deficiency in the rural zones. The internal region/village is significantly worse (use of inadequately iodized salt was 47.51%, median urinary iodine 60.8 µg/l and the higher prevalence of goiter/grade 2 (44.5%). Although there aren’t comparable data on the IDD for the pregnant women in the past, this study shows a mild prevalence of IDD.

Iodine Deficiency Disorders, iodized salt, urinary iodine concentration, thyroid size

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**Women and water for development a practical journey to food security and poverty reduction in Africa**

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Agriculture is the main source of Africa’s food supply and prime source of livelihood for millions of people
in rural areas in Africa. Irrigation for agriculture consumes large quantities of freshwater but very many countries in Africa still depend on rainfed agriculture. Poor management of Africa’s natural resources has led to pressure by the growing population leading to land and water degradation. The International Decade for Action: Water for Life 2005-2015 presents an opportunity for all stakeholders including Members of Parliament (MPs) to promote sustainable management of water in agriculture and to contribute to meeting the goals of food security, poverty eradication and environmental sustainability in the continent.

Global food production will have to increase by 60% from 2000 to 2030, to meet growing demands resulting from population growth. This requires a 14% increase in water used for irrigated agriculture. Irrigated land, which represents only about 20% of the world’s farmland (even less of Africa’s farmland), produces around 40% of the world’s food supply and 60% of cereals. Though more productive than rainfed agriculture which is common in Africa, irrigation is coming under close scrutiny for the relatively poor yields, considering the resources used. Growing water scarcity in many regions including Africa calls for a much more productive use of water in agriculture and for the transparent water allocation mechanism between sectors, giving special attention to the needs of the environment. Worldwide, 1 in 5 people depend on fish as their primary source of protein, and fisheries provide direct or indirect livelihoods for 400 million people. This sector needs more development in Africa. Over 70% of the world’s fish stocks are either fully exploited or depleted, according to the Food and Agriculture Organization (FAO) study, posing a serious challenge to food sources and employment in Africa even today. Poor natural resources management in Africa also pose a threat to the sustainability of agricultural systems in many parts of Africa.

Shallow ground water in some parts has become important source of irrigation leading to over-pumping of aquifers and pollution from agro-chemicals. The inappropriate use of fertilizers and pesticides has also led to pollution of drinking water, rivers and lakes. In some parts of Africa, wastewater is widely used for irrigation and can be invaluable where water is scarce. However, it must be properly treated. In some parts of the continent, sewage is often applied directly to land, exposing farmers and food consumers to parasites, organic and chemical contaminants.

During the Water for Life Decade and beyond, a greater effort to help farmers across Africa produce food of better quality with less water and less stress on the environment. The role of women farmers can not be over emphasized as women in Africa produces about 80% of the food though mostly in the informal sector. Only then can we expect to meet the goals of food security, poverty eradication and environmental sustainability.

Put the right policies in place: The need to employ policies that provide farmers with the right incentives to allow them to contribute to Africa’s economy through sustainable agriculture practices that make productive use of water, in both rainfed and irrigated agriculture. Ensure the women have equal access to resources: The need for women to have access to land, appropriate technology, water and research, and involve them equally in decision-making. Investments: The need to support individual farmers/ farmers co-operative and the private sector to develop efficient agriculture from public investments. Improve governance and radically change the way water is managed with Africa’s agricultural sector: Water users at levels in Africa must be involved in the planning and management of irrigation and empowered to make decisions through appropriate mechanisms such as water users associations. Water services must become much more flexible, reliable and equitable to ensure productivity gains in agricultural water use. Continued research and capacity building of key stakeholders: The need for continuous research and capacity building of key stakeholders in sustainable agriculture techniques, appropriate technologies and efficient water usage and sustainable farming

Women, irrigation agricultural, fish farming, food security
Introducción.
El VHB se replica por RNA- transcriptasa y comete errores que generan heterogeneidad (9 subtipos, varios genotipos). Además, mutaciones por varios mecanismos, la mayoría sin relevancia. Pero la mutante pre-core o core (HBeAg-) aumenta virulencia y resistencia a antivirales. Causa problemas en laboratorio y Banco de Sangre, por falsos negativos del HBsAg y hepatopatía crónica. Esta mutante se buscó y encontró en esos pacientes y los estudiados hasta 2009 informados.

Material y Métodos.
Se continuó el estudio iniciado en 2007 con nuevas capacitaciones y charlas a médicos y Comunidad. Se tomaron muestras a los nuevos casos entre 2008 y 2009. Se estudiaron 240 personas, entre casos de portadores HBsAg y sus contactos familiares, laborales y sexuales; a todos se les hizo examen clínico, serología para VHB (HBsAg/antiHBcAg/HBeAg/antiHBeAg) y carga viral VHB, además anti-VIH y función hepática, ecografía de hígado y vías biliares. Se trataron los casos de hepatitis crónica.

Resultados y Discusión.
Hubo 79 (32.9 %) varones y 161(67.1 %) mujeres, con edades entre 3 y 79 años. En 139 (57.9 %) antiHBcAg+, evidencia de infección por VHB. En 102 (42.5 %) HBsAg+, 36 (35.3 %) HBeAg+ y 66 HBeAg – (64.7 %), predominó mutación HBeAg-. El 80 % de Cargas Virales VHB, de mutante Pre – Core / VHB (HBeAg -) tenían < 1000 cps./ml, las de Cepa Salvaje VHB (HBeAg+) fueron muy altas (> 1.000.000) y la evolución fue diferente. Conclusiones: Las hepatitis crónicas VHB en Natagaima y municipios vecinos son predominantemente por Mutación Pre - core (HBeAg-) VHB; también circula la Cepa Salvaje en casos agudos. Ocurrieron en pacientes adultos >35 años, infectados años antes y sin haber recibido inmunomoduladores o antivirales, por eso lo más probable es que sean mutaciones espontáneas. Requieren tratamiento diferente a cepa salvaje.

Palabras claves.
Hepatitis B, Mutantes Pre – core, HBeAg-, Natagaima, cepa salvaje VHB.
En la actualidad, El Gobierno del Estado de Chiapas está llevando al cabo diversas obras y acciones para mejorar los servicios de agua potable, de alcantarillado sanitario y de saneamiento de las aguas residuales de que dispone la población que radica en el medio rural y en el medio urbano del Territorio Estatal.

Se han realizado 6 visitas a la localidad con el fin de obtener información respecto a las características socioeconómicas más relevantes de la población, así como la ubicación y el aforo de las fuentes de abastecimiento. Durante el periodo comprendido entre el día 3 de marzo y el día 12 de marzo del 2008, se realizó el levantamiento de una encuesta mediante la que se obtuvo la información de todas las familias asentadas en la comunidad.

Las aguas residuales generadas al realizar el aseo personal, la preparación de alimentos, el lavado de trastos y ropa y la limpieza de pisos, son descargadas a cielo abierto en los traspatios de las viviendas. Por lo que las principales causas por las que la población padece enfermedades gastrointestinales son las siguientes: falta de agua potable, falta del servicio de alcantarillado sanitario y de saneamiento de las aguas residuales, mala calidad del agua, inadecuadas prácticas de la población para la evacuación de las aguas residuales y los residuos sólidos que generan.

A partir del análisis y la evaluación de las variables y los conceptos condicionantes de cada obra y/o acción, se plantearon las opciones de solución como la construcción de obras de captación. Con el proyecto se pretende poder dotar a la población de la infraestructura necesaria y suficiente para que, en las condiciones de proyecto, tengan acceso al servicio de Agua Potable.

Pregnancy and childbirth in rural India: A study of indigenous practices

Pregnancy and childbirth are two arenas where cultural beliefs play an important role. Celebrating pregnancy and childbirth is common in many parts of India, wherein elaborate ceremonies are performed with foods selected to satisfy the capricious appetites of a pregnant woman. Alongside is the active negotiation between the indigenous knowledge on childbirth from the family, elders and traditional birth attendants and the medical and institutional
state mechanisms.

A qualitative study was done to study the rituals and practices in a village in rural Maharashtra, India. Ten women in the last trimester of pregnancy and 10 women who had delivered in the last two months were interviewed. Interviews with older women in the family, the traditional birth attendants in the village, and medical personnel were also carried out. Observations of the rituals and practices followed for the care of pregnant women and infants was done.

While there were culturally accepted rituals for pregnancy in the fourth and the eighth months; few families observe the ceremonies as they are increasingly becoming demonstrations of personal wealth and affluence. Families preferred to perform the ceremonies associated with infants. All families observed the cultural beliefs about foods that women should eat during pregnancy and for parturition. There was an increasing pressure from the State for women to have institutional rather than home-based deliveries assisted by the traditional birth attendants.

The traditional rituals of childbirth have become more dominant as compared to those associated with pregnancy. The experience of pregnancy and how families prepare themselves for the child birth differs according to social class and caste. Institutional delivery has become the dominant discourse of the State undermining the role of the traditional birth attendants in the village.

Rituals, practices, culture, pregnancy, childbirth, traditional birth attendant

Posters

The Influence of Personal Characteristics and Social Environment on Adolescent’s Smoking

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This study identified how personal characteristics, family environment, governmental policy for the prevention and cessation of smoking might influence on adolescent smoking.

This study used data from the 2006 Korea Youth Risk Behavior Web-based Survey of 71,404 middle school and high school students, giving a response rate of 90.9%. We selected 61,508 adolescents of the final analysis without missing data on independent variables and dependent variables which are used in this study. This study used chi-square test and logistic regression models. Variables were added to the regression model in three groups using a hierarchical approach.

Adolescents were significantly more likely to become current smokers if they were boys, were in a higher grade, and had lower academic achievement. Adolescents experiencing stress and depression were associated with increased risk of current smoking. Adolescents with single parents or students of non-living with parents comparing with students of living with parents showed the high possibility of smoking. Lower father’s education was associated with increased likelihood of current smoking. Adolescents who were exposed to smoking at home were more likely to smoke. Adolescents without contacting with the antismoking media campaign were associated with
increased likelihood of current smoking.

Promoting antismoking media campaigns targeted at adolescent is required, and the smoking prevention education which are proper for subjects are required. Proper plans which could decrease the exposure of secondhand smoking should be established.

Adolescent, Smoking, Social environment

An exploratory study to assess the service needs of elderly people living alone and community competence in a rural community of South Korea

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Introduction

The proportion of elderly people is 9.9% in Korea, and 7.58% of Korean elderly people live alone in rural area. For this reason, the issue of caring ELA (Elderly people Living Alone) in rural areas draws public attention. The purpose of this study is making the priority order of planning and providing community-based healthcare services for the ELA in rural areas through the exploratory study of the needs and competencies of community.

Method

The needs for healthcare service of ELA in three neighboring villages, Yongsan 1,2,3-ri located in Sinbuk-eup, Chuncheon-si, the north central part of S. Korea, were assessed by interview for elderly people based on RAI (Resident Assessment Instrument) manual and comprehensive assessment of PIE (Person In Environmental system). Qualitative research using focus group interview for opinion leader group, participant observation, in-depth interview for ELA individuals and their family was conducted to assess community competence to afford community-based healthcare services.

Result

Community relationships in the villages replaced and supplemented the majority of family roles. The priority of healthcare services differed a little because of the characteristics of each village such as socio-economic status (SES), geographical features or population size. Opinion leader group members were skeptical about feasibility of planning community-based healthcare services for the reason of financial vulnerability of rural areas according to the interview.

Discussion

The Korean health authority has given attention to the community-based long-term care services for ELA, since 2001. In order to plan and provide community-based healthcare services reflecting characteristics of community, it is necessary to establish more stable financial foundation of rural areas as well as comprehensive assess-
ment of the needs and competence of community.

South Korea, rural area, community-based, healthcare services

FACTORES Y ASPECTOS AMBIENTALES EN EL MEDIO RURAL

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En el presente trabajo describiremos los factores ambientales que serían afectados de acuerdo al manejo de los recursos que abastecen las materias primas. Estos pueden afectar de manera considerable el ecosistema del medio rural, en las diferentes actividades y procesos de la actividad agropecuaria. Determinaremos el impacto cuantitativo, de acuerdo a las actividades presentadas, dentro de la diversidad de nuestro país.

Utilizaremos un registro de marco legal que nos contextualice en las leyes que aplican y regularizan, y otro registro de los agroquímicos actualmente utilizados en nuestro país. Para cuantificar y calificar los aspectos e impactos utilizaremos la matriz de Leopold, que determina el valor del impacto, analizando las siguientes actividades: manipulación, almacenamiento, y disposición final de residuos de plaguicidas, herbicidas, fungicidas, hidrocarburos y abonos.

De acuerdo a los resultados en aquellas actividades en que se detecten impactos negativos propondremos acciones preventivas, basadas en el monitoreo, o reparadoras, para mitigar el daño ambiental y en la salud rural. Si el impacto es positivo, se recomendaran acciones de monitoreo planificado para mantener la situación controlada.

Creemos que el uso de la matriz de Leopold, que es de rápida interpretación, nos permite ver como las actividades impactan a los factores ambientales, y de acuerdo a los resultados podremos delinear estrategias preventivas y proactivas, para tomar las acciones que correspondan. en la planificación de un modelo de gestión ambiental en pro de la salud rural.

Matriz -Gestión ambiental- Salud Rural.

Loneliness and Relating Factors in Remote Island Residents Aged 40 and Over

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Introduction: Island history dates back to ancient times. Religions practiced are Buddhism and Catholicism, depending on the area. Boats are the only mode of transport, and it is easy for elderly residents to feel lonely. As
residents’ social environment influences loneliness levels, ascertaining relating factors will provide a very useful resource for health and welfare services. Aim: To determine factors relating to loneliness felt by residents of a remote island.

Materials and Methods: 223 subjects consented to take part. Interviews were carried out from June 2005 to December 2006, with constitutive questions on the subjects of gender, age, household situation, academic record, religion, physical condition, employment status, and satisfaction with income, number of friends, relationship with children, prayer, emotional support, psychological and instrumental support and loneliness. Subjects’ loneliness was measured by the UCLA Loneliness Scale (Condensed Version) from 1 to 16. Results were analyzed using an $x^2$ analysis, with a 5% significance.

Results: 101 men and 122 women aged from 40 to 95 (mean age 65.4) took part. 26.0% lived with their spouse; 62.8% lived with parents/children; 11.2% lived alone. Loneliness ranged from 4 to 14 (median 6.0). 47.1% were not lonely; 28.8% were in between; 19.3% were slightly lonely; 4.8% were very lonely. Age, academic record, praying, employment status and psychological support had a significant effect on loneliness. Strong family and religious ties provide residents with great psychological and emotional support.

Discussion: 47.1% of residents of Island A aged 40 and over were not lonely, 28.8% were in between, 19.3% were slightly lonely and 4.8% were very lonely. Island A has a strong informal support system, which contributes greatly to the low levels of loneliness among residents. It is clear that emotional stability and support is very important on remote islands.

Key words: Remote islands, Loneliness, Relating factors, Psychological support, Informal support system

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Nutrition assessment and Recommendation for the Grandparents in Grandparent and grandchildren Family of Rural area

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A focus on the nutrition of elderly at risk of developing malnutrition is of importance, especially grandparent-grandchildren families of rural area that have poverty problem are serious situation of food intakes. Purpose of this study was to assess nutritional status and to see the educational effect of dietary about grandparents through intervention service by electronic voucher per week a day of the GP-GC family.

The interview survey was performed in January 2008 with a structured questionnaire to 74 grandparents of GP-GC families who lived in rural area. The questionnaire was mini nutritional assessment (MNA) that was composed of anthropometric measurements (weight, height and weight loss), global assessment (6 questions related to lifestyle, medication and mobility), dietary questionnaire (8 questions, related to number of meals, food and fluid intake, and autonomy of feeding) and subjective assessment (self perception of health and nutrition). The research methods are used SPSS program with $\chi^2$-test and F/t-test.

The age and stature of the men (n=22) were 71.4 ± 7.76 years and 165.5 ± 5.0 cm, respectively. The age and stature of the women (n=52) were 69.6 ± 6.12 years and 154.1 ± 5.1 cm (F=77.618, p<.000). The average scoring for the grandparents was 21.0 ± 3.5 point, 37.8% of grandparents was normal (adequate nutrition); 56.8% of grand-
parents was border line (a risk of malnutrition); 5.4% of grandparents was under-nutrition ($\chi^2=7.955, p<.01$). After three months education of nutrition and food intakes for grandparents, the scoring for each part was improved by statistically significance.

These results indicate that nutritional state of grandparents is slightly bad condition in rural area. We suggest necessity for intervention programs with education service of food intakes and nutrition management about grandparents of GP-GC family. Intervention programs for GP-GC family should establish the political issue.

elderly, grandparents-grandchildren family, nutrition

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La vida, la salud y el trabajo en el agro tienen sus propias particularidades y sus riesgos asociados. La actividad petrolera puede influenciar los estilos y la calidad de vida de las poblaciones que viven en el sector rural en su área de acción y puede a la vez generar oportunidades de trabajo, el desarrollo técnico del trabajo y garantizar una sostenibilidad de las actividades productivas de este sector agropecuario.

La gestión y administración de los riesgos en la industria petrolera cuenta con herramientas y métodos que permiten mitigar las consecuencias de accidentes indeseables. Es un hecho que la heterogeneidad socio-económica alrededor del mundo, hace que persistan prácticas agrícolas y pecuarias insostenibles, insalubres e inseguras las cuales continúan causando un importante número de eventos con daños a la salud y pérdidas de productividad que perpetúan la pobreza en las zonas rurales. Aquí es donde la participación de la industria petrolera puede promover una mejora de calidad de vida de estas comunidades.

Del mismo modo la mayor participación de las comunidades y el entorno, especialmente en las zonas rurales con influencia petrolera, ha contribuido en las decisiones de las instituciones y crear consciencia en el colectivo sobre los riesgos existentes y su comportamiento proactivo al momento de ocurrir una emergencia de carácter petrolero en las zonas mencionadas.

La principal conclusión es la de comprender que los planes de emergencia hoy día, son el resultado de un proceso de planificación con altas dosis de actividades preventivas y una participación directa de las comunidades potencialmente afectables, apoyados con las modernas herramientas de la Gerencia de Riesgos.

Riesgos, gestión, petróleo, accidentes, planeamiento previo, participación comunitaria
Ing. Jesús Antonio Galvis V.

**Introducción**

Las frutas y hortalizas son una importante fuente de vitaminas, minerales, carbohidratos y otros compuestos indispensables en la dieta alimentaria; sin embargo debido a su alta perecibilidad y a la estacionalidad de la producción, se presentan épocas durante el año que dificultan su consumo. La osmodeshidratación permite obtener productos de humedad intermedia, para ser consumidos directamente o sometidos a deshidratación por aire caliente, disminuyendo los costos energéticos y manteniendo la calidad del producto por un tiempo mayor.

**Materiales**

Doce frutas fueron osmodeshidratadas en diversos jarabes naturales, empleando diferentes concentraciones, con el fin de establecer el mejor tratamiento. El criterio de selección se basó en parámetros físicoquímicos y sensoriales. Una vez seleccionado el mejor tratamiento en cada fruta, se procedió a deshidratarlas por el método de aire caliente, empleando diferentes temperaturas. Finalmente se empaquetaron en dos tipos de películas plásticas y se almacenaron en condiciones ambientales para determinar su estabilidad físicoquímica, microbiológica y sensorial durante un período de 2 meses.

**Resultados**

Se estableció para cada fruta osmodeshidratada el mejor jarabe, su concentración, tiempo de inmersión y la humedad intermedia, que garantiza la obtención de un producto osmodeshidratado de alta calidad. Durante la deshidratación por aire caliente, se identificaron las temperaturas y tiempos requeridos para que el producto alcance niveles de humedades por debajo del 12%, de esta manera se garantiza una alta aceptabilidad del producto final. En el almacenamiento fue establecida la vida útil del producto basándose en parámetros físicoquímicos, microbiológicos y sensoriales.

**Conclusiones**

La osmodeshidratación puede ser utilizada por las comunidades rurales para generar un aprovechamiento durante un tiempo mayor de las frutas, permitiendo disminuir su humedad hasta el 50%; además, permite utilizar temperaturas de deshidratación por aire caliente inferiores a 60°C, manteniendo la calidad del producto en aspectos nutricionales y sensoriales. Se estableció que el tiempo de vida útil de estos productos es mayor a 2 meses.

**Keywords:** Osmodeshidratación, Nutrición, Jarabes, Humedad, Perecibilidad y Economía rural.
Se lleva a cabo un estudio descriptivo de las condiciones de salud, seguridad y ambiente de los guardabosques que realizan la preservación y el cuidado de los predios y de las hoyas hidrográficas en una empresa de servicios públicos de agua y alcantarillado de la capital de Colombia. Son trabajadores con amplia experiencia en sus labores y quienes presentan diversa enfermedades profesionales, como patologías lúminicas e hipoacusia neurosensorial, así como presentan una importante incidencia de accidentalidad laboral. Lo anterior conlleva a mejorar la vigilancia médica en este grupo laboral.

El presente es un estudio descriptivo, transversal y retrospectivo, el cual se realiza teniendo en cuenta las historias clínicas ocupacionales, las inspecciones de seguridad, así como las evaluaciones de puestos de trabajo y las visitas al sitio de trabajo y de vivienda de los guardabosques que para el primer semestre de 2009 desarrollaban tareas inherentes a su cargo. Las variables escogidas se relacionaron con la determinación de las características generales socio demográficas definidas en sus historias, así como en las visitas realizadas a sus lugares de trabajo y de vivienda.

Los resultados en cuanto a detección de eventos de salud relacionados con el trabajo hasta ahora subdiagnosticados, como las patologías lúminicas o los frecuentes traumas en mano; plantea para quienes tenemos a cargo la Salud y la Seguridad de los trabajadores que realizan labores de preservación y el cuidado de los predios y de las hoyas hidrográficas, la imperiosa necesidad de desarrollar en forma temprana actividades de prevención primaria. Así mismo es necesario considerar que la mayoría de trabajadores que realizan este tipo de labores o similares en nuestro país, no se encuentran cobijados por un sistema de riesgos; por lo tanto se requiere de políticas gubernamentales específicas.

Es necesario plantear a los diferentes actores que hacemos parte del sistema de seguridad social el realizar estudios más detallados sobre este tipo de actividades, con el fin de orientar futuras políticas que mejoren las condiciones de este tipo de trabajadores, quienes desarrollan actividades de las que todos nos vemos beneficiados.

Guardabosques-Preservación-Hoyas, hidrográficas-Enfermedades profesionales-Agua-Alcantarillado
EFECTO DE LAS DIOXINAS Y FURANOS EN LA SALUD AGRÍCOLA

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Determinados Contaminantes Orgánicos Persistentes (COPs) tienen una presencia permanente en la gran mayoría de actividades productivas y en un sin número de actividades generadas por el ser humano. En particular las Dioxinas y Furanos son emisiones no intencionales generadas como producto de procesos fabriles y de acciones antropogénicas que causan una serie de efectos irreversibles y perniciosos sobre la seguridad y salud de los campos de cultivo.

Mediante ilustraciones se presentaran los efectos producidos así como la identificación de aquellas fuentes generadoras de Dioxinas y Furanos con la finalidad que los trabajadores puedan prever acciones de protección y control en los campos de cultivo.

El desarrollo de las estimaciones de las Dioxinas y Furanos se estableció en una revisión e identificación en cada una de las categorías y subcategorías actividades productivas y cotidianas que han sido consideradas como generadores de Dioxinas y Furanos, definiéndose así mismo las posibles vías de liberación para cada una de los compartimentos ambientales como atmósfera, agua, tierra, productos y residuos que inciden sobre los campos de cultivo.

Para entender la significancia del proyecto es de resaltar que sus objetivos son en el cuidado de los campos y su entorno reduciendo las fuentes de contaminación que lo constituyen las Dioxinas y Furanos.

DIOXINAS Y FURANOS

Geografía de la Canasta familiar alimentaria en Caldas Colombia

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Canasta familiar, abstracción estadística en que se basan decisiones económicas colombianas, promedio normalizado que excluye porciones importante de consumos en municipios pequeños y en lo rural. Para contribuir a precisar el concepto y llamar la atención sobre los requerimientos alimentarios de Caldas (Colombia), se recogen resultados de investigaciones y se analizan históricamente en perspectiva de seguridad alimentaria, contribuyendo a dar salidas a pobladores de la región alrededor de necesidades básicas nutricionales.

Estudio sustentado en fuentes primarias, con entrevistas en Cabeceras municipales, veredas y corregimientos, hogar como unidad de observación y vivienda como unidad muestral. Se utilizó el método de muestreo por conglomerado unietápico con sistema de barrio, soportado en estratificación de Municipios realizada por Central
Hidroeléctrica de Caldas en 2001. Se aplicaron 5775 entrevistas a personas compradoras de mercado en hogares. Se sondearon precios de productos alimenticios a detallistas y se censó el consumo de alimentos en restaurantes y agroindustrias alimentarias.

Contiene: reseña de estadísticas sociales, económicas y ambientales de Caldas (Colombia), presentación sintética de conceptos relacionados económicamente con canasta familiar, descripción detallada de canastas alimentarias por municipios y regiones, detección de municipios con deficiencias nutricionales y hambrunas y análisis de conjunto sobre las características comunes y diferentes en relación con el estado nutricional del mundo. Se demuestra que en algunas regiones nos acercamos peligrosamente a centenares de millones de personas subalimentadas cuyo crecimiento y desarrollo se retrasan debido a desnutrición.

Caldas presenta disponibilidad promedio suficiente de nutrientes (proteínas hierro, fósforo vitamina A), con deficiencias de calorías, calcio y hierro. Lo más deficitario es tiamina, riboflavina y niacina en toda la circunscripción. Los índices de necesidades básicas insatisfechas y miseria más altos están en el Oriente de Caldas, que se acerca peligrosamente a la situación promedio del África subsahariana.

Canasta familiar alimentaria, geografía alimentaria, hambre en Caldas Colombia

**Geography of the Family Breadbasket in Caldas, Colombia**

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The family breadbasket is the statistical abstraction that Colombia uses on which to base economic decisions. This is a standard average that excludes significant portions of small towns and rural consumption. In order to help clarify the concept and draw attention the food requirements of Caldas (region of Colombia), we have collected research results and provided a historical analysis of food safety in the region, contributing this information to inhabitants of the region around basic nutritional needs.

Methods: The primary methods for this study includes interviews in leading municipalities, small towns, and rural areas, using the home as observation unit and housing as sample unit. We used a single stage cluster sampling method with scanning system, supported by data provided by the Municipal Hydroelectric Power Company de Caldas in 2001. 5775 interviews with persons who purchase food were conducted. Food prices were investigated with retailers and we took a census of the food consumed in restaurants and used in agro-food industries.

This work contains: review of social, economic and environmental statistics of Caldas (Colombia), synthesis of concepts economically related to the family breadbasket, a detailed description of breadbaskets by municipalities and regions, identification of municipalities which have nutritional deficits and hunger, and a comparative analysis of these deficits as they relate to the world nutritional status. This paper demonstrates that some areas in Caldas we are dangerously approaching the levels of hundreds of millions of undernourished people whose growth and development are delayed due to malnutrition.

Nutritional levels in Caldas show average amounts of certain nutrients, such as proteins, iron, phosphorus, vitamin A, but deficits in calories, calcium and iron. The worst deficits in the district are in thiamine, riboflavin and ni-
The most critical evidence of unmet basic needs and poverty are evident in the eastern part of Caldas, where the nutritional status is dangerously close to that of sub-Saharan Africa.

Family food basket, food geography, hunger in Caldas Colombia

Session 13: Chemical Risk Rural Areas

Agricultural Workers Protection: regulatory and public health issues on pesticide

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This paper aims at describing the activities that are carried out to ensure a use of pesticides that entails no unacceptable risks for human health and for the environment. Pesticides, in fact, are a large and heterogeneous group of compounds that are deliberately spread in the environment to destroy or control non-economical forms of life, and as such they are intrinsically biologically active. For these reasons pesticides are among the most studied compounds and strict requirements regarding data on their toxicity, ecotoxicity and efficacy are mandatory in most countries, especially developed ones. What is described below is mainly based on the European Union situation, but the general principle expressed are applicable anywhere. It is customary, and helpful to subdivide the assessment of pesticides in a pre-marketing and a post-marketing phase. The first one aimed at obtaining the essential information that allow identify the scenarios in which the use of the pesticide are considered acceptable, whereas the second include activities related to verification that the use is really safe and to enforcement of use conditions and restrictions.

Pre marketing phase

The pre-marketing phase concerns all the activities which has to be carried out before a product is introduced into the market and its use authorized. In the developed countries, stringent requirements have to be satisfied before the authorization, and the cost of satisfying these requirements is very high and covered by the manufacturers. A key element in this phase, relevant for this paper, is the “toxicology and ecotoxicology testing” of the product, to characterise the toxicological and ecotoxicological profile of the substance to be marketed. A predefined set of toxicity test is performed and is required by all industrialized countries. It includes information on acute toxicity (oral, inhalation, dermal), skin and eye irritation, skin sensitisation, short term toxicity, mutagenicity, long term toxicity, carcinogenicity, effects on reproduction. Some specific effects, i.e., neurotoxicity or immunotoxicity, are studied only if suggested by the body of data collected on the substance or based on its chemical and physical properties. Different countries have different basic or minimum requirements, generally with minor differences, and in recent years efforts are being put into the development of an harmonised approach world-wide. Toxicologi-
cal tests are performed according to national or international guidelines that indicate the minimum requirements regarding e.g. dose levels, number of animals per dose-level, parameters to be measured. In addition, it is required that these studies must be carried out by accredited laboratories that perform the work under the Good Laboratory Practice (GLP) and Quality Assurance (QA) protocols. These have specific requirements on animal husbandry, data collection and storage, adherence to the protocols etc. Based on the toxicological data collected, and on the intended use of the compound, a risk assessment is carried out that leads to the establishment of exposure limits such as the Acceptable Daily Intake (ADI), the Acute Reference Dose (ARfD), the Acceptable Operator Exposure Level (AOEL). The ADI is “estimated maximum amount of an agent, expressed on a body mass basis, to which an individual in a (sub)population may be exposed daily over its lifetime without appreciable health risk”; the ARfD is “an estimate of the amount of a substance in food and/or drinking-water, normally expressed on a body-weight basis, that can be ingested in a period of 24 h or less, without appreciable health risk to the consumer, on the basis of all the known facts at the time of the evaluation”; the AOEL according to the European Union Directive 97/57/EC (establishing Annex VI to Directive 91/414/EEC) is “the maximum amount of active substance to which the operator may be exposed without any adverse health effects. The AOEL is expressed as milligrams of the chemical per kilogram body weight of the operator.”

The uses of the compounds should entail exposures via residues in food, for the operator and for the environment that are compatible with such limits in order to allow the registration and authorisation for use of the pesticide. In the European Union (EU), the Council Directive 91/414/EEC (now under revision) is mainly aimed at regulating the authorisation of plant protection products in EU. The final outcome of the procedure is the establishment of a positive list of active substances (“Annex I” to the Directive), that have been judged not to pose “unacceptable” effects to humans and environment. Authorisation of formulations, containing products included in Annex I, remains within the responsibility of individual Member States.

Besides toxicological and ecotoxicological evaluation, it is very important to develop suitable methods for exposure estimate of both the population with its subgroups (children, pregnant women etc) and those exposed professionally or because accidentally assisting the application in the field (bystander) or living near treated fields.

The evaluation of pesticide operator exposure, for example, is an integral part of risk assessment, either for regulatory assessment purposes and post registration surveillance (see below) of pesticide use. Risk assessment is performed through estimation of operator exposure by using generic exposure databases and associated predictive models or by ad hoc specific field studies. Taking into account these estimates or measurements related to the intended uses and comparing the results with the AOEL is the next step. If the AOEL is exceeded, authorization might not be granted to the compound. The models are a collection of field studies, performed in different conditions of use and the basic assumption is that exposure depends only on the characteristic of the formulated product (e.g. powder vs granules), on the equipment used, on the amount applied, on the duration of application etc. Therefore, the data of any compound can be applied to any other compound used in the same conditions. Through an elaboration according to mathematical algorithms, the application of selected parameters leads to estimated exposure outcomes. In the predictive models currently used, exposure reduction factors can be applied as a measure to reduce estimated exposures, mimicking the real conditions of use of personal protective equipments (PPE). The exposure reduction factors are derived from either field studies or laboratory measurements. Many uncertainties characterise this activity: the models are in many cases not representative of all scenarios, they do not cover all possible formulations present on the market, the default values currently used to represent the protection offered by PPE date back to ’90s. The same criteria apply to re-entry workers, although available models are somewhat less reliable. In the case of bystanders, the use of Personal Protective Equipment (PPE) is not considered in the refinement, since the bystander is considered to be exposed mainly by accident. Also in this case there less and less
reliable models. Both EPA and EU (via EFSA) are currently working on improving and optimizing the models to carry out a more reliable risk assessment.

With regard to the use of PPE, an important issue is their functionality and test criteria for PPE are not equal to levels of protection which can be achieved in the workplace, because actual workplace exposure scenarios, fit, maintenance and storage may differ substantially from the test conditions. In addition, education and training for and enforcement of proper use of PPE are relevant related to issues for adequate operator protection. It should also be noted that, regulatory authorities in North America, Europe and Australia use different approaches for the estimation of exposure reduction effectiveness of PPE in registration processes of agrochemical pesticides.

The manufacturer may participate in the preventive process by producing safer formulations (for example, granules of soluble packages), by withdrawal from the market of the most toxic compounds and by the preparation of easily understandable guidance to the adequate use of the product.

Exposure of the general population via residues in food (and possibly drinking water) is also performed. To calculate the dietary exposure to pesticide residues, data are needed both on consumption patterns for the population of interest, and on residue data. In the pre-marketing phase, residue levels are derived from the so-called supervised trials. Supervised trial are those that are performed to assess the efficacy of the pesticide, and to identify the residues, including metabolites, their concentration and time-course in food commodities. Typically, data from supervised trials are expected to overestimate the levels and particularly the occurrence of residues in market samples. This is because in supervised trials all the commodity sample will have been treated at the maximum dose, with the minimum time elapsing between treatments and sampling. Therefore, exposure estimations based on such methods are considered sufficiently conservative for the protection of the general population. Different criteria and methods are then used to assess chronic exposure, to be compared to the ADI, and the acute, one-day exposure, to be compared to the ARfD.

Work is currently being done to improve dietary information, data on effect of food processing (peeling, cooking etc) on residue levels, on the use of probabilistic rather that deterministic methods, evaluation of exposure to multiple pesticides (mixture).

Post-marketing phase

Once a pesticide is placed into the market, surveillance activities include workers, the general population and the environment.

As for the general population, monitoring of pesticides and their residues in food and drinks is the most relevant activity carried out in the post-marketing phase. Assessments of risk from actual exposure, either acute or chronic, are based on the distributions of residue levels that are present in food as eaten. These assessments provide a means to check whether the residues from pesticides as used are sufficiently ‘safe’ for human consumption. In actual use, not all of the commodity will have been treated and even when the commodity has been treated, lower doses may have been used, with longer intervals between treatment and sampling. Comparison of trials and monitoring data can reveal wide differences in the residue distributions.

A general overview of the results produced by the residue monitoring systems indicates that, at least in the countries were monitoring activities are carried out on a routine basis, the proportion of samples (food items) found to be “irregular” is generally rather low and decreasing over time: for example in the EU, from the frequency of detection of irregular samples of 5-6% typically observed in the mid ’90s, the actual frequency of detection has decreased to 2-3% and in some countries to 1%. Among the reasons for a sample to be defined “irregular”, two main situations may occur: a sample contains a pesticide residue permitted, but in a concentration exceeding the respective Maximum Residue Limit (MRL), or a food item contains the residue of a pesticide that is not author-
ised for that crop. However, toxicological assessment of such irregularities in pesticide residues suggests that the overall risk for the population is minimal if any.

Another source of exposure for the general population is represented by floor and other touchable surfaces; and this is particularly true for toddlers when they play on the floor and have frequent hand-to-mouth and object-to-mouth activity. For residential exposure there have been relatively few studies that have examined the exposure of occupants to pesticide. Most risk assessments are based on surrogate data and conservative assumptions. In the absence of measured exposure data or representative data on analogous substances, exposure is estimated using modelling approaches (EPA; 1997, 2000, 2001a, 2001b).

The epidemiological surveillance of acute pesticide poisonings is another fundamental tool in post-marketing prevention, and provides the basis for setting priorities and defining the need for further actions, including withdrawal from the market or restriction of uses of the compounds showing unacceptable risks for humans or for the environment.

Post-marketing prevention at the workplace is made by exposure assessment and health surveillance, that includes medical surveillance and biological monitoring. Health surveillance includes the pre-employment (or pre-placement) medical examination, before the subject is placed to a work involving pesticide handling; the periodical medical examination, related to the specific exposure/work conditions, and the medical consultation or examination when a worker returns to his/her productive settlement after a significant absence for disease. Basically, the pre employment medical examination is carried out in order to determine the physical ability of a worker to do the job for which is recruited, to identify any medical condition which can be worsened by pesticide exposure, and to set up a baseline for comparison in any further evaluation. At the periodical medical examination, main objectives are:

- to detect, as early as possible, any specific adverse health effect that might be attributable to the occupational exposures taken into account;
- To detect any significant change in the health status which may compromise the ability to continue the assigned job, further deteriorate worker’s health if continued, and reveal any increased susceptibility for work related exposure conditions.

It is necessary to have clear in mind that, in particular in developing countries, where pesticide pose the highest levels of risk to human beings, animals and living environment, fundamental aspects of risk prevention are information, training, and education. These activities should be preferably carried out in the agricultural settings but, unfortunately, at present health care structures in agriculture are lacking either in the developing or in the developed world.

La Prevención de los Riesgos Químicos en el Cultivo de la Cebolla

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A partir del proyecto de investigación e identificación de las condiciones de trabajo y evaluación de los fac-
tores de riesgo presentes en la población rural del municipio de Chipaque Cundinamarca, se verificó que no hay elementos de protección personal y los que usan para protegerse no son adecuados. Igualmente, de acuerdo con los niveles de accidentalidad, el factor de riesgo químico se presenta en cuarto lugar, antecedido de cortaduras, golpes y caídas. Sin embargo, este factor de riesgo tiene como consecuencia la aparición de sintomatología aguda o crónica, que puede llevar al desarrollo de enfermedades neurológicas, relacionadas con la exposición a las sustancias químicas, utilizadas en el cultivo de las cebollas. También es importante tener en cuenta que la exposición a estas sustancias químicas, afecta económica y socialmente a los agricultores.


Evaluación de los Riesgos químicos asociados con las etapas de cultivo de cebolla. Se determinó el porcentaje de trabajadores por padecimiento de enfermedad, con un 53.7% de la población encuestada. Igualmente se determinó el estado de salud en el último año, como bueno, en un 41.9% y regular, 47.2%. La utilización de EPP, botas, el 87% ropa de trabajo especial, el 33%. Además, se determinaron las etapas del proceso de producción y agentes químicos más utilizados. Se propone elaborar y presentar a los campesinos una Guía Práctica del Agricultor Para La Prevención del Riesgo Químico En el Cultivo de Cebolla.

Al identificar los riesgos químicos, se encontró que la falta de conocimiento en el uso de los plaguicidas es el factor más importante a intervenir. Escaso uso de elementos de protección personal, los empleadores no les proporcionan los EPP a los campesinos que trabajan en sus cultivos. Estos trabajadores lo hacen con su ropa de uso diario, no tienen guantes de caucho, monogafas, mascaras para vapores, gases, humos, ni siquiera uniforme impermeable. En la fumigación el riesgo es mayor, ya que en la mayoría de las ocasiones no cuentan con los EPP, el equipo esta en condiciones deficientes, y lo usan de manera indiscriminada, no tienen en cuenta los viento y efectos climáticos.

Es por esto que, además de afectarse el trabajador, afecta a la comunidad a su alrededor. No alejan a los niños y animales de las zonas de trabajo. Con respecto al almacenamiento: se realiza dentro de las viviendas, donde guardan ropa, alimentos y utensilios. No se encuentran estibados, y, en muchas ocasiones, no se encuentran protegidos del sol y la lluvia. Las mezclas o llamados cócteles (mezcla de plaguicidas sin ninguna contraindicación, revisión del ingrediente activo, hoja de seguridad), son parte de esa falta de educación. Se realizan de manera desorganizada y sin ningún tipo de protección personal, Por lo general manipulan los envases, sin la protección básica como son: guantes y monogafas, desconocen que por la piel se absorbe el químico y este llega al torrente sanguíneo distribuyéndose por el cuerpo, de igual manera que su inhalación daña las vías respiratorias y lo mas grave que los problemas mas avanzados afectan el Sistema Nervioso Central. Y lo más importante al mezclar lo realizan en lugares inapropiados y frente a niños de las mismas familias, llevando la exposición a otros miembros de la familia.

Riesgo Químico, EPP, salud, agricultores, sustancias químicas, enfermedades
Reducción de la exposición a plaguicidas.

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El riesgo químico está determinado por la toxicidad y la exposición. La exposición del aplicador de plaguicidas depende de varios factores como altura y desarrollo del cultivo, forma de aplicación, formulación utilizada, estado del equipo de aplicación, diseño del equipo de aplicación, tiempo de trabajo, cuidado del aplicador y uso correcto de equipos de protección. Sin embargo, en la práctica sólo se le da importancia al uso de los equipos de protección y se desconoce la importancia de otros factores.

El uso de equipos de protección, si bien es una medida válida, se dificulta en climas cálidos y expone al aplicador al golpe de calor, riesgo muchas veces más real que el riesgo químico y que produce síntomas muy similares a los de una intoxicación con plaguicidas lo que puede generar diagnósticos médicos equivocados. Existen formas de aplicación, tales como aplicar el surco de al lado o aplicar caminando hacia atrás, que pueden reducir de manera drástica la exposición.

Pero la manera más eficiente de reducir el riesgo de exposición y más confortable para el aplicador, consiste en el diseño de equipos de aplicación que ubiquen al aplicador delante de la nube de aspersión (la técnica de aplicación más común es caminar detrás de la nube) o alejado de ella. Varios trabajos realizados en diferentes países demuestran que se pueden lograr reducciones de la exposición superiores al 90%.

Palabras claves: plaguicidas, exposición, equipos de aplicación

Posters

Methods of determining free chlorine and pH in the potable water

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Chlorination of water is one of the most common methods of treatment and sanitation of water. Chlorine is usually added to water as the gaseous form or as sodium or calcium hypochlorite. With the addition of chlorine in water destined for the population use are formed products containing ammonia which reacts with the hypochlorous acid or hypochlorite ion to form monochloramine, dichloramine and trichloramine depending on several factors such as pH and temperature. The concentration of free chlorine in potable water is different depending on the relevant states standards.

Control of chlorine in the network supply is done two times a day by sanitary inspectors and every hour by the water company at the exit point of the reservoir beyond the chlorination hub. The location where the sample is
taken is the same and comprises the whole network from the deposit to the end point of the consumers. For a comparative analyses also have been used movable points placed in the network feeder. The analyses of the samples have been obtained separately by the iodometric, amperometric, O-tolidine and DPD method.

Chlorine which is added to water reacts with organic components that are present in water. Free chlorine that remains without reacting and chlorinated derivatives provide the full disinfection of water. Chloramines established act longer during the disinfections but have less efficiently than free chlorine itself. Relatively clean water creates less chlorinated derivatives among which trihalomenates some of which are of cancerous character. Some figures that show the efficiency of water chlorination: turbidity less then 0.5 NTU, pH less then 8, residual chlorine not less then 0.5 mg/l.

No ideal methods exist for quantifying chlorine and chloramines in water. After the disinfection of water with chlorine is important that the remaining or residual chlorine to come at a level of 0.5 mg/l. Free chlorine and pH must be measured at the place where the samples are taken because they change with time and environmental conditions. Other wise these figures must be measured in labor conditions within 30 minutes from the moment the samples have been taken and in refrigerator conditions.

Chlorination, free chlorine, pH, hypochlorous acid, chloramines, iodometric and DPD method

**T3: Work Hazards and Risks in Agriculture**

**Session 2: Hazards And Risk Agricultural**

**Compromisos Fisiológicos Y Biomecánicos De La Mujer En Tareas Agrícolas Manuales**

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Un estudio fue realizado en 100 trabajadoras desempeñando 19 tareas agrícolas (siembra-6, recogida-5, limpieza-5 y abonos-3) con el objetivo de conocer cuáles eran las demandas funcionales y biomecánicas de sus actividades laborales.

La evaluación fisiológica consistió en la determinación de la capacidad física de cada trabajadora mediante la aplicación de la prueba escalonada y durante la realización del trabajo a cada una de ellas, le fue evaluada la frecuencia cardiaca (sensor electrónico), la temperatura oral (termómetros clínicos sublingual), la tasa de sudación horaria (pesaje y control de ingestas y excretas) y el gasto metabólico (calorimetría indirecta respiratoria). Fue realizado un análisis biomecánico para la evaluación de la postura, la fuerza y la repetición de acciones utilizando el método MODSI

Los resultados de este estudio demuestran que las demandas fisiológicas no desbordaron los límites funcionales para una jornada de trabajo, pero fueron elevadas en algunas situaciones puntuales lo cual asociado con las altas exigencias biomecánicas (postura, fuerza y repetición de movimientos) y las desfavorables condiciones del entorno, generan los llamados momentos de esforzamiento, que hacen muy vulnerables las estructuras anatómicas
involucradas en la acción.

Finalmente se establecieron recomendaciones para prevenir lesiones músculo-esqueléticas y las mismas fueron organizadas atendiendo al adiestramiento en mecánica corporal, a la facilitación de un mejor vestuario y calzado, a la habilitación de condiciones sanitarias y a la utilización de herramientas e instrumentos de trabajo adecuados.

Fisología del trabajo. Trabajadoras agrícolas. Lesiones músculo-esquelética.

Exigencias biomecánicas

**Ambient solar UV radiation exposures at rural work**

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Solar UV radiation exposure of rural workers depends on three primary factors: (a) the ambient solar UV radiation, (b) the fraction of ambient exposure received on different anatomical sites, and (c) behavior and the duration spent outdoors. Thus, hazard assessment for specific outdoor work environments can only be semi-quantitative. A study of the worksite and tasks can provide an indication of individual worker exposure, but it is important to take into account that exposure will vary much with time-of-day and season.

The data on ambient UV radiation monitored in outdoor rural work environments are scanty. Available studies have employed UV radiation sensitive dosimeters (e.g. film badges) or carried out determination of UV exposure by spectroradiometric measurements, modelling, or by a combination of both. Recent studies show that indoor workers typically experience about 300 standard erythemal doses (SED) per year from solar exposure (mostly from weekends and holidays). Outdoor workers at the same latitudes receive about 5 times these exposure doses.

Examples of recent evaluations of outdoor workers' UV exposure levels will be presented, as well as practical methods for skin and eye protection of workers.

Keywords: ultraviolet radiation, occupational exposure, solar radiation

**Work-related musculoskeletal symptoms of dairy farmers in Gyeonggi province, South Korea**

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The prevalence of work-related musculoskeletal symptoms (WMS) among Korean dairy farmers has not been investigated. The purpose of this study was to assess the prevalence of WMS and to evaluate the relationship between WMS and risk factors.
A questionnaire made by Korean Occupational Safety and Health agency (KOSH) was modified and used to investigate WMS among dairy farmers in Gyeonggi province, South Korea. We informed selected dairy farmers about the study and sent the questionnaires by registered mail. They visited a public health center nearby and skillful researchers identified or conducted the questionnaires by interview. We finally analyzed 598 (32.8%) among 1,824 dairy farmers. Multiple logistic regression was implemented to estimate the odds ratios of risk factors.

The mean age of the respondents was 50.4 ± 8.7 years and the proportion of males was 63.0%. The prevalence of WMS at any site was 33.3%. The prevalence of neck WMS was 2.2%, shoulders 10.0%, arms/elbows 5.0%, hands/wrists/fingers 4.2%, low back 11.5%, and legs/feet 11.7%. The adjusted odds ratio of low back WMS for milking 4 or more hours per day was 4.231 (95% CI=1.124-15.932) and statistically significant. Low back WMS (2.827, 95% CI=1.545-5.174) was significantly decreased by education.

Low back WMS increased with milking hours and milking 4 or more hours per day was significantly associated with low back WMS. Low back WMS was significantly reduced with education. We hope that there will be increased attention about WMS in dairy farmers and the subject of future investigations.

Dairy farmers, Work-related musculoskeletal symptoms, Prevalence, Risk factors

Polymyalgia Rheumatica (PMR): Clinical, laboratory, and immunofluorescence studies in 13 patients

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Polymyalgia rheumatica (PMR) is characterized by symptoms of muscle pain and stiffness, aching, and tenderness of the neck, shoulders, and pelvic girdle with fever, general fatigue, body weight loss, appetite loss, and sometimes anemia. It mainly affects individuals over the age of fifty years, and the etiology and pathogenesis have remained uncertain. We selected 13 patients with PMR, for whom we had performed detailed immunologic, histologic, and immunofluorescence studies.

We retrospectively selected 13 patients with PMR. They fulfilled the following clinical and laboratory conditions: age older than 50 years; suffering from severe myalgia and stiffness of proximal muscles without muscular weakness or atrophy for at least one month; a markedly increased erythrocyte sedimentation rate (ESR≧50 mm/hr) and strongly positive C-reactive protein (CRP) level; normal serum creatine kinase (CK) concentration, and usually negative as to rheumatoid factor (RF) and antinuclear factor; and a dramatic response to low doses of steroids.

The patients ranged from 64- to 100-years-old, and were 9 men and 4 women. All patients had suffered from severe myalgia in at least two parts of the body including the neck, shoulders, and pelvic girdle. The myalgia had persisted for one to 4 months. The ESR and CRP values ranged between 50 and 148 mm/hr, and 4.68 and 32.43 mg/dL, respectively. An immunofluorescence study of muscle biopsy specimens revealed IgG, IgA, and fibrinogen deposits in the perifascicular area of the perimysium.

The presence of fibrinogen and fibrinogen degradation products (FDP) in the perimysium is probably due to the enhanced vascular permeability resulting from inflammation of the intima. These findings suggest that immune complexes play a role in the pathogenesis of PMR. Muscle pain, the chief symptom of PMR, is probably provoked...
by inflammation involving the interstitial tissue of muscles.

Polymyalgia rheumatica, Immunofluorescence study, Interstitial tissue of muscle, IgG, IgA, Fibrinogen

Solar radiation: an underestimated occupational risk. An update of epidemiological data

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The exposure to solar radiation represents one of the main occupational risk factors in agriculture, as in construction, fishery and other activities, but is usually largely underestimated.

Solar ultraviolet radiation (UVR) is highly variable depending upon time of the day, season, geographical latitude, stratospheric ozone, atmospheric pollutants, weather, ground reflectance and altitude. Furthermore, several factors other than occupation, as cultural and social factors, and outdoor activities, widely contribute to the inter-individual variation in cumulative annual exposure. Artificial sources can also contribute to exposure, including electric arc welding, medical uses of phototherapy equipment, and also fluorescent lamps for cosmetic purposes.

UVR can induce both acute and chronic effects. Acute overexposures, not rare in an occupational setting, can induce effects to the eye and to the skin, and immunosuppression. Long-term risk of chronic excessive exposure is mainly related to the induction of cancer: epidemiological evidence supports an association of prolonged and unprotected sunlight exposure with squamous cell and basal cell carcinoma (SCC and BCC), and malignant melanoma. A possible association with non-Hodgkin lymphoma was also suggested.

Epidemiological data clearly show that an excessive exposure to solar radiation can induce various adverse health effects, including cancer, in workers. This risk is currently underestimated. The development of sun protection policies and education programs in workers is urgently needed.

Solar radiation, ultraviolet radiation (UVR), occupational exposure; acute effects; cancer, carcinoma, melanoma
Session 7: Rural Work and Health Conditions

CARACTERIZACIÓN E INTERVENCIÓN DE INFECCIONES CRÓNICAS POR VHB EN PACIENTES DEL VALLE ALTO DEL RÍO MAGDALENA, COLOMBIA.

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Introducción
Entre 1980 – 90 se estableció que el VHB es endémico en Colombia, sin prevalencia uniforme; con mayor incidencia en sexualmente activos de áreas hiperendémicas como el Valle Alto del Río Magdalena. Allí hay brotes como el de Natagaima que en 2006 involucró a más de 182 personas en zona urbana de 6.000 habitantes y de la zona rural en reserva indígena Pijao.

Material y Métodos
Se hizo educación sobre Hepatitis B a médicos y enfermeras, después a Comunidad. Luego, evaluaciones clínicas, serológicas y por biología molecular, para caracterizar casos agudos y crónicos de Hepatitis B. A casos en fase aguda se les hizo seguimiento clínico y serológico hasta los 6 meses, cuando se definió su tratamiento. También anti - VIH y función hepática a todos los casos; ecografías de hígado y vías biliares en los pacientes crónicos. A los crónicos se les dio tratamiento antiviral.

Resultados y Discusión
En 2100 personas, de 10 a 60 y + años; hubo predominio de varones pescadores y agricultores. En 11.000 serologías VHB, 120 cargas virales, hubo 131 HBsAg+, varias cohortes, con mayoría de cargas < 300 cps./ml.. Requirieron tratamiento de la primera (antes 2006) 10 HBsAg+, 1 coinfectado por VIH; en 2007, 2/23 HBsAg+ Segundo pico entre 35-50 años, eran mujeres. De crónicos 5 tenían > 100.000 cps/ml, 1 > 10.000 cps/ml, 1 con 15.800 cps/ml y 6, 300-999 cps/ml.

Conclusiones
(El estudio fue copatrocinado por la SS del Tolima y donantes del IVEI, que prefieren permanecer anónimos).

Palabras claves: Hepatitis B, HBsAg, Carga Viral VHB, Natagaima, Tolima, VIH.
Acetylcholinesterase activity in individuals with risk of pesticide exposure from 11 provinces in Colombia, 2002-2005.

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INTRODUCTION

Acetylcholinesterase inhibitors used as pesticides are a significant cause of death in developing countries. The colombian National Institute of Health in Bogotá designed, started and developed the Organophosphate and Carbamate Epidemiological Surveillance Program of which this report covers the period 2002-2005. The main objective of this surveillance program is to determine the Acetylcholinesterase activity in participants with a history of or organophosphate and carbamate exposure, and to identify the most widely used pesticides in the study area.

MATERIALS AND METHODS

The information on this study was gathered from reports of the surveillance program carried out in 11 provinces in Colombia. The analytic determination of acetylcholinesterase was achieved by Limperos and Ranta method modified by Edson. The study sample consisted of 28,303 individuals with risk of exposure to pesticides. 84.1% were men and 18.6% women.

RESULTS

9.3% of all analytical determinations gave abnormalities in acetylcholinesterase activity (9.9% in men and 7.0% in women). The 18-25 year old age group showed the highest prevalence of abnormal activity (12.3%), followed by the group of 0-5 year olds (10.7%). The highest prevalence of abnormal activity was detected in farm workers (27.0%) followed by people working in general outdoor activities (26.1%). In the province of Meta 80.0% of sampled people showed abnormal activity. The most commonly used pesticides were organophosphates (39.7%) and carbamates (16.6%).

CONCLUSIONS

The increase in the prevalence of abnormal acetylcholinesterase activity and the risk of pesticide exposure in children makes it urgent to reduce the usage and trade of high risk pesticides described in this study, and to carry out safer methods for pesticide management in the field.
Introducción

Según la Organización Internacional del Trabajo, el sector agrícola es uno de los más peligrosos para la salud mundial. El trabajo agrícola posee características que ponen en riesgo la exposición a la salud, contacto cercano con animales y plantas, uso extenso de productos químicos y biológicos, posturas de trabajo difíciles y largas horas de trabajo y uso de herramientas agrícolas y maquinaria peligrosas. La salud y la seguridad dependen del tipo de actividad agrícola, tipo de trabajador y ubicación geográfica. Este estudiobriefamente outinelinea los peligros ocupacionales de los trabajadores agrícolas.

Materiales

Este estudio se realizó en el hospital rural Pravara, Loni, India, que es una unidad de atención primaria que atiende principalmente a la población rural durante un periodo de un año, desde el 1 de junio de 2008 hasta el 31 de julio de 2009. La información sobre los aspectos requiridos se obtuvo de los registros médicos del hospital. Estos casos fueron estudiados y analizados en función de la edad, el sexo, el estado civil, las condiciones de trabajo y las amenazas de salud.

Resultados

Este estudio revela varios riesgos ocupacionales que van desde condiciones menores como enfermedades cutáneas hasta accidentes mortales complejos. Los equipos y condiciones inseguros y la limitada disponibilidad de dispositivos de protección personal.

Conclusiones

Para efectuar cambios, el sector agrícola y el de la salud deben trabajar más estrechamente.

Keywords: trabajador agrícola, amenazas de salud, área rural
El mercado laboral del agro costeño ha experimentado profundos cambios, siendo el principal la demanda y participación de mujeres como asalariadas en la agroindustria. Esta demanda se da para puestos donde la habilidad manual, destreza, rapidez, son necesarias para el trabajo de recolección, selección, corte, etc. Pero este empleo es altamente flexible: temporales, de bajos salarios, sin cobertura de salud y en condiciones difíciles, en un contexto de mayor flexibilización de las leyes laborales.

La investigación aplicó un cuestionario general de condiciones de trabajo y salud, evaluación de la tarea, y cuestionario de síntomas. Para la evaluación del riesgo ergonómico, en la cosecha del espárrago, se utilizó el método RENAULT. Así mismo consideró el análisis del contexto socio-económico, y las percepciones de las mujeres trabajadoras, para lo cual se realizaron entrevistas a profundidad.

Los resultados muestran que en la fábrica, las labores de las mujeres se realizan de pie, manteniendo la cabeza inclinada más de un tercio de la jornada, con movimientos de barrido de las manos (movimientos horizontales), alcanzando una alta repetitividad, originando daño en los tendones y músculos de estas partes del cuerpo. En el campo, el análisis ergonómico de la cosecha, muestra que al realizar las tareas principales de corte y recojo de espárrago desde el piso obliga a la trabajadora a estar inclinando la espalda a más de 300, haciendo que su cuerpo incremente el desgaste orgánico y la fatiga, generando daño en la columna lumbar.

En esta tarea se realizan movimientos de atornillado de la muñeca, teniendo un nivel alto de repetitividad y monotonía generando mayor riesgo en este segmento corporal. Las labores desarrolladas no toman en cuenta ninguna medida de seguridad ni uso de implemento adecuado, a lo que se añade riesgo de exposición a plaguicidas en el campo. Los bajos salarios, la temporalidad del empleo, son elemento que coadyuwan a la caracterización de las condiciones laborales bajo las cuales laboran las mujeres en este sector. Las características del trabajo en ambas áreas serán elementos que explicarían el estado de salud de las mujeres trabajadoras del sector, pero para las cuales, pese a las condiciones desfavorables para ellas, su inserción a estos espacios considerados públicos, son oportunidades importantes, no solo a nivel económico sino de posibilidades de redefinición de los roles entre hombres y mujeres.

El trabajo en la agroindustria del espárrago es un trabajo precario, en la cual miles de mujeres se han venido insertando bajo condiciones difíciles, contrastando su situación con las ganancias importantes que viene generando este sector, de ahí-la necesidad de conocer su situación, aún invisibilizada.

Agroindustria, mano de obra femenina, condiciones laborales, problemas de salud.
Trabajo e integración de la mujer patagónica en la faena de ovinos

DR. JOSE ANGEL PERPIGNAN

Introducción
Se demuestra la integración de la mujer en el trabajo de faena de ovinos en un frigorífico de exportación; los diferentes puestos de trabajo, a la par de los hombres y se destaca el beneficio de la mujer en determinados sectores que hacen a la calidad de la presentación del producto elaborado listo para exportar.

Materiales
Se ilustran con una serie de slides del los diferentes sectores de faena, como descarnado, secado, registro, tripitería, vísceras, charqueado, selección, pesado, embolsado, destacando los puestos ocupados por la mujer.

Resultados
El resultado es la integración igualitaria de la mujer a la par del hombre en esta actividad, sin un régimen especial, y el beneficio obtenido por su cualidad, quedandra en una mejor presentación del producto terminado, listo para exportar.

Conclusiones
Numerosos puestos de la faena de ovinos para exportación pueden ser cubiertos por la mujer a la par del hombre. 2) la delicadeza de la mujer favorece la calidad de la presentación final del producto.

Keywords: LA MUJER RURAL- FAENA DE OVINOS-ELABORACIÓN DE KOSHER

Safety of Tetanus Toxoid Vaccine for Pregnant Women

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Tetanus toxoid is considered safe in pregnant women. There is no convincing evidence of risk to the fetus from immunizing the pregnant women with tetanus or diphtheria toxoids [1]. In the United States, the only vaccines recommended for administration during pregnancy are tetanus & diphtheria [2]. No significant risk of congenital abnormalities or abortion was found in immunized women.

Today is recommended the first dose of tetanus toxoid as early as possible during pregnancy.

Usually women report late for antenatal care, or this reason the immunization does not start earlier than the fourth months of pregnancy.

Some countries still have administering of two doses of tetanus toxoid during pregnancy.

It was studied effects of tetanus toxoid in pregnant women immunized with pregnant women who were not im-
munized.

Fig. 1 shows that when mother are vaccinated with TT during pregnancy, titer of tetanus antitoxin in their children are higher than children when mother are not vaccinated with TT during their pregnancy [3].

Actually Albania also recommended immunization of pregnancy women with tetanus toxoid. We have not reported side effects of TT vaccines from pregnancy women vaccination, and we have good vaccination coverage in our country.

On the Strategic plan of Immunization for the future time is planning to remove the vaccination of pregnancy women with TT and to add in vaccination schedule Td vaccine for 18 years.

1. The vaccination is very important especially for women because one mother with good health can have healthy child.
2. Our system has very good vaccination coverage especially for pregnant women. No side effects are reported for vaccination of TT vaccines from pregnant women.
3. Healthy women, healthy society.

Key words: vaccine, tetanus toxoid, pregnancy, women

References.

Session 14: Human and Financial Resources

**Related factors and willingness to work for rural area of medical student in South Korea**

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The shortness of rural medical doctors has been common problem in world wide countries. South Korea has overcome the problem through mandatory public doctor work system on behalf of military service. But the system confront rising crisis, because discharged male student from military service and female student has increased nowadays. Recently government has developed some idea for increasing doctor work for rural area. This study is designed to survey willingness to work for rural area of medical student in South Korea.

We have made a plan to survey for the nationwide medical student about rural background, being hard up for school expenses, educational experience for rural health care problem. Also we will survey willingness to receive scholarship for promise of working rural area after graduate and related term desired.

This study is ongoing now. We will analyze and prepare the presentation about this survey till October. The expected results are the proportion of willingness to work in rural area of medical students and related factors.

After this study, we hope that this study results contribute the development of policy for increasing rural medical doctors. And we will analyze the problems of former mandatory public doctor work system on behalf of military service.

Medical doctor shortness, Rural area, Willingness

**Seguro agropecuarios y de vida para población rural**

Pedro Gonzalez, Christian Mora y Ana Isabel Mejia

Introducción: Los seguros del Agro contribuyen al desarrollo de la agricultura. Uno, la existencia de mecanismos eficientes de transferencia de riesgos estimula la inversión en el sector. Dos, cofinanciar la prima entre Gobierno y Agricultores genera en estos una mayor consciencia acerca del riesgo y compromete tanto a agricultor como aseguradora y gobierno a realizar actividades que lo mitiguen. Tres, protege a las personas que trabajan el sector de las contingencias propias de este tipo de trabajo y de los peligros latentes del campo.

Materiales: El seguro agrícola (producto dirigido a proteger la producción de cultivos), cuenta con un subsidio de hasta un 60% por parte del gobierno, para pólizas tomadas colectivamente. El seguro pecuario, que las compañías planean implementar en el 2010, se dirige a bovinos, porcinos, equinos y avícola. El seguro forestal, busca proteger plantaciones nuevas y maduras. El seguro de vida en el sector rural ofrece cobertura a personas y/o agrupaciones de empleados del Agro.
Resultados: El desarrollo de los seguros agropecuarios en Colombia aún es incipiente como lo muestran las cifras del sector con primas emitidas durante el 2008 por 15 mil millones las cuales corresponden a tan sólo una de las compañías de seguros presentes en el país. Existen varias restricciones que limitan la oferta, como lo son: Las de tipo técnico relacionadas con falta de información que permita cuantificar de forma adecuada los riesgos a cubrir, de fraude en algunas de las coberturas, de acceso a la población y de recursos en varias regiones del país.

Conclusiones: El seguro en las Areas rurales es un factor de importancia, ya que busca el mejoramiento económico del sector rural, promoviendo el ordenamiento económico del sector agropecuario, como estrategia para coadyuvar al desarrollo global del país, buscando igualmente disminuir el peso fiscal para el Gobierno de los desastres climáticos en el agro y proporcionar cobertura para las personas que mueran o se invaliden en el desarrollo de actividades o siendo habitantes del campo.

Keywords: Seguro agropecuario, cultivos, agro vida, aseguradora, riesgo climático, pecuario, agrícola

Session 15: Respiratory Health

European Content for public health awareness of the Rural population on Avian and Influenza Pandemic (ECORAIP)

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The population living in rural areas of Europe is crucial to the potential transmission of avian influenza to humans, due to specific circumstances pertaining to rural life such as backyard poultries, multi-species bird’s farms, proximity to wetlands where migratory birds stop over, and open market’s custom. This project aims to provide practical information and guidelines on effectively preventing and managing these potential threats, targeting the rural population, where a gap of information can be observed.

The particular needs of the rural population and its different characteristics across three European Sub-regions which are representative of the Southern, Central-Northern and Eastern Europe have been taken into account. Rural life “risk factors” have been identified in order to develop specific guidelines. Up-to-date scientific knowledge has been evaluated and criteria defined to integrate or customize the available material of public health campaigns, so that this can be disseminated in a feasible and effective way to the population. The channels and networks used for the dissemination of the public health material have been also assessed, reviewing existing efforts aimed at targeting the rural population.

The most effective communication strategies have been identified and specific guidelines have been developed as the best practice model. The final phase included the practical application of the guidelines through a pilot test carried out in 30 municipalities of the participating countries (selected according to their socio-demographic char-
The “pilot campaign” has included a presentation and administration to the local population of a pre/post questionnaire, in order to identify potential deficiencies or operational problems of the format or content of the information or of the dissemination method.

The results of the questionnaires have been evaluated and used to amend where necessary the text for the final printed version of the illustrated leaflet. The leaflet is available in five languages (English, Italian, Greek, Polish and German). Public Health Executive Agency (PHEA) “Agreement n. 20067 (2007-2008). Partnership: National Kapodistrian University of Athens (Greece), Harvard School of Public Health, Cyprus (Cyprus), Nofer Institute of Occupational Medicine (Poland), Technische Universitaet Dresden (Germany)

Avian flu prevention, rural population; backyard poultry.

Airborne Nicotine Concentrations in Harvesting and the Processing of Tobacco Leaves

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Green tobacco sickness (GTS) is known as an occupational disease among tobacco harvesters, and a form of acute nicotine intoxication by the absorption of nicotine through the skin from the wet green tobacco plant. On the assumption that GTS may occur by inhalation as well as absorption of nicotine, we measured the airborne nicotine concentration in tobacco harvesting and the processing of tobacco leaves.

We measured the nicotine concentrations in the tobacco field and processing room between 13 and 30 July 2008. All sampling and analyses of airborne nicotine were conducted according to the manual of analytic methods of NIOSH 2551, and we sampled 2 times at 11 points in the tobacco field by area sampling. The sampling in the processing room of tobacco leaves was conducted at 3 points, and early-morning dew was collected from the tobacco by wringing the moisture into specimen bottles.

The airborne nicotine concentration [geometric mean (standard deviation)] in the tobacco field in the P.M. was higher [49.2 (1.34) mg/m$^3$] than the A.M. concentration [43.4 (1.41) mg/m$^3$]. Similarly, the nicotine concentration in the processing room of tobacco leaves was 224.42 (1.19) mg/m$^3$, and the concentration of nicotine in the dew was 64.65 (1.71) mg/L. Based on our results, the airborne nicotine concentration in the tobacco field and the processing room of tobacco leaves were 10 and 400 times higher than the occupational recommended values (TLV-TWA of 0.5 mg/m$^3$), respectively.

In the future, it is hoped that epidemiologic studies and environmental measurements will be conducted for GTS which occurs by inhalation of nicotine. If GTS is confirmed to occur by inhalation of nicotine, respiratory and dermal protective equipment must be distributed.

Green tobacco sickness, Inhalation, Nicotine, Poisoning
La tos crónica (TC) y tos crónica productiva (TCP) son los síntomas cardinales para la búsqueda de tuberculosis pulmonar (TBP). En una comunidad andina ecuatoriana, en el 2001, mediante búsqueda activa se identificó en mayores de 15 años, 47% con TC, 43% con TCP y 12.7% TBP. El presente estudio describe el cambio en las frecuencias de los síntomas mencionados comparando el censo 2009 con el 2001.

Estudio poblacional realizado en una comunidad indígena en la sierra central ecuatoriana, situada a 3500 metros de altura. Se aplicó una encuesta a los mayores de 15 años censados en 2001, que se encontraban en la comunidad y que aceptaron ser encuestados. Las frecuencias de TC y TCP se presenta con proporciones. La asociación entre frecuencias, efectuado en el programa SPSS v17, se realizó con el estadístico $X^2$, la prueba de significancia fue valor $P$ menor o igual a 0.05.

Participaron 148 ciudadanos, de 15 a 84 años, 48.6% fueron hombres. Noventa (60.8%) fueron TC y 30 (20.2%) TCP en el 2009. Respecto al 2001, en el 2009 pasaron a ser TC 38 (48.1%) y TCP 12 (13.5%), $p>0.05$ para cada evaluación. El mayor cambio se observó en el grupo de 31 a 45 años. Continúan siendo TC 48.6% y TCP 46.7% de los TBP 2001, $p>0.05$. La prevalencia de TBP 2009 fue 0.6%, mujer no TCP en el 2001.

El 80% de las personas que se encuentran en edad económicamente activa continúan siendo tosedores crónicos. El 48.6% de enfermos TBP tratados en el 2001 continúan presentando tos, cambios sin significancia estadística. Tanto la tos crónica como la productiva no son síntomas predictores para TBP en esta comunidad, dada la alta prevalencia de tosedores crónicos.

Tos crónica, tos crónica productiva, tuberculosis pulmonar, pobreza, Ecuador.

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Caldas, Colombia, inició consumo de biocidas desde hace 30 años en el cultivo más significativo (Café), cuando se establecieron problemas sanitarios acuciantes como roya, broca y se introdujo el herbicida glifosato, como mecanismo para rebajar costos de trabajadores. Hoy la participación económica es notoriamente alta. Para evaluar el estado actual de los agrotóxicos en el departamento, se entregan los resultados más recientes de investigaciones sobre agrotóxicos en la zona.

Mediante fuentes primarias y secundarias, con métodos de investigación de caso, experimentales, evaluaciones sociales y evaluaciones documentales, se logra una revisión histórica, legal, de inventarios de agrotóxicos en Caldas y de impactos en flora, biodiversidad y salud de los productores agrarios de la región.

Se presenta: relación histórica sobre introducción de agroquímicos en región cafetera central, la legislación vigente clasificada por actividades agrarias, los inventarios de agroquímicos en Caldas con los problemas de almacenaje, descripción de sistemas de protección personal (vestido de labor), evaluación de calidad de mora producida en Caldas desde trazas de agroquímicos contenidas en producto final. En secuencia cuatro trabajos sobre glifosato como agrotóxico de mayor presencia económica regional y dos valoraciones de colinesterasa en trabajadores de tomate y hortalizas.

Caldas presenta cifras alarmantes de intoxicación por uso de agrotóxicos agravadas por aplicación de productos prohibidos. No se investiga institucionalmente sobre ropa protectora. Hay cambios en flora acompañante por uso continuado de glifosato.

Horticultores sufren desinformación sobre riesgos, bodegajes inadecuados, usan biocidas intuitivamente, cultivan sin evaluaciones de campo ni exámenes preventivos de intoxicación ni chequeos de trazas en producto.

Agrotóxicos en Caldas, impactos de glifosato en flora, intoxicaciones agrotóxicos

Agro-toxics in the Central Coffee Region, Colombia

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Purpose: The use of biocide products for coffee, the most significant crop in Caldas, Colombia, began 30 years ago. Due to pressing sanitary problems such as hemileia vastatrix, hiyochenemus hampei, the herbicide glyphosate was introduced as a mechanism to reduce the cost of manual labor. Today the use of agro toxics as well as the
economic impact of their use is high. Our purpose in this paper is to present the most recent results of our pesticide research.

We used a variety of primary and secondary research methods: experimentation, case studies, social assessments, document evaluations. From these we obtained a historical and legal review of pesticides, biocide inventories in Caldas, and their impact on flora, biodiversity and health of agricultural producers in this region.

In this work we discuss: The history of agrochemical use in Colombian central coffee region; the current legislation pertaining to farming biocides; the inventories of agrochemicals in Caldas and the quality of storage facilities; a description of personal protection systems (work clothing); and an evaluation of Andean raspberry (Rubus glaucus) produced in Caldas for traces of agrochemicals contained in the final product. In addition we present four research studies of glyphosate, the most common biocide in the region, and finally two papers discussing cholinesterase rates in workers who harvest tomatoes and vegetables.

Caldas shows alarming levels of toxicity due to the application of prohibited pesticide products. There has been no research on the value of protective clothing. There are changes in flora near coffee cultivations due to continued glyphosate use.

Horticulturists are misinformed about risks, have inadequate storage facilities, and use biocides instinctively, without testing the ground or taking preventive tests which would indicate poisoning or traces of poison in product.

Pesticides in Caldas, impacts of glyphosate in flora, pesticide poisoning

Research and activity for prevention of pesticide poisoning in Asia

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In Japan, pesticides have been used at an increasingly fast pace after World War II, and pesticide poisoning has been a major issue for rural medicine. In other Asian countries, pesticide poisoning also seems to be a matter of great concern not just to rural medicine but to occupational and environmental medicine as well. We reviewed the results of research and activity for the prevention of pesticide poisoning in Asia.

We reviewed the results of research and activity for the prevention of pesticide poisoning in Asia, referring to articles that have appeared in medical journals and also to reports by international organizations and the Asian governments. We took note of hospital-based surveys done by regional WHO headquarters in East and South Asia on pesticide poisoning cases. Also, we noted concepts and activities of "community integrated pest management (CIPM)" explored by FAO in Asian countries.

Hospital-based surveys time and again pointed out pesticides at issue, such as highly toxic organophosphorous insecticides (methamidophos and monocrotophos), organo-chlorine insecticide endosulfan, and herbicide paraquat. Activities for CIPM in Vietnam produced so fruitful results that farmers began to refrain from using hazardous pesticides of their own accord. And in Thailand, the rice producing procedure, under the CIPM scheme served to change from chemical pesticides to biological ones, and saved the cost without a drop in production.
These research projects are expected to complementarily contribute to the prevention of pesticide poisoning. We resumed a hospital-based survey of pesticide poisoning in 1998, and worked out a pamphlet to prevent chemical burns with calcium polysulfide. In order to reduce pesticide poisoning in Japan and other Asian countries, we are interested in rendering cooperation in those projects.

Pesticide poisoning, clinical case survey, community integrated pest management

La Prevención de los Riesgos Químicos en el Cultivo de la Cebolla

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Introducción
A partir del proyecto de investigación e identificación de las condiciones de trabajo y evaluación de los factores de riesgo presentes en la población rural del municipio de Chipaque Cundinamarca, se verificó que no hay elementos de protección personal y los que usan para protegerse no son adecuados. Igualmente, de acuerdo con los niveles de accidentalidad, el factor de riesgo químico se presenta en cuarto lugar, antecedido de cortaduras, golpes y caídas. Sin embargo, este factor de riesgo tiene como consecuencia la aparición de sintomatología aguda o crónica, que puede llevar al desarrollo de enfermedades neurológicas, relacionadas, con la exposición a las sustancias químicas, utilizadas en el cultivo de las cebollas. También es importante tener en cuenta que la exposición a estas sustancias químicas, afecta económica y socialmente a los agricultores.

Materiales

Resultados
Evaluación de los Riesgos químicos asociados con las etapas de cultivo de cebolla. Se determinó el porcentaje de trabajadores por padecimiento de enfermedad, con un 53.7% de la población encuestada. Igualmente se determinó el estado de salud en el último año, como bueno, en un 41.9% y regular, 47.2%. La utilización de EPP, botas, el 87% ropa de trabajo especial, el 33%. Además, se determinaron las etapas del proceso de producción y agentes químico más utilizados. Se propone elaborar y presentar a los campesinos una Guía Práctica del Agricultor Para
La Prevención del Riesgo Químico En el Cultivo de Cebolla.

Conclusiones

Al identificar los riesgos químicos, se encontró que la falta de conocimiento en el uso de los plaguicidas es el factor más importante a intervenir. Escaso uso de elementos de protección personal, los empleadores no les proporcionan los EPP a los campesinos que trabajan en sus cultivos. Estos trabajadores lo hacen con su ropa de uso diario, no tienen guantes de caucho, monogafas, máscaras para vapores, gases, humos, ni siquiera uniforme impermeable. En la fumigación el riesgo es mayor, ya que en la mayoría de las ocasiones no cuentan con los EPP, el equipo esta en condiciones deficientes, y lo usan de manera indiscriminada, no tienen en cuenta los viento y efectos climáticos.

Es por esto que, además de afectarse el trabajador, afecta a la comunidad a su alrededor. No alejan a los niños y animales de las zonas de trabajo, Con respecto al almacenamiento: se realiza dentro de las viviendas, donde guardan ropa, alimentos y utensilios. No se encuentran estibados, y, en muchas ocasiones, no se encuentran protegidos del sol y la lluvia. Las mezclas o llamados cócteles (mezcla de plaguicidas sin ninguna contraindicación, revisión del ingrediente activo, hoja de seguridad), son parte de esa falta de educación, Se realizan de manera desorganizada y sin ningún tipo de protección personal, Por lo general manipulan los envases, sin la protección básica como son: guantes y monogafas, desconocen que por la piel se absorbe el químico y este llega al torrente sanguíneo distribuyéndose por el cuerpo, de igual manera que su inhalación daña las vías respiratorias y lo mas grave que los problemas mas avanzados afectan el Sistema Nervioso Central. Y lo más importante al mezclar lo realizan en lugares inapropiados y frente a niños de las mismas familias, llevando la exposición a otros miembros de la familia.

Keywords: Riesgo Químico, EPP, salud, agricultores, sustancias químicas, enfermedades
lence in 2008 than in 2003 for cutaneous (62.0 versus 29.2%), neurological (57.7 versus 32.0%), digestive (26.1 versus 3.1%) and general (13.4 versus 4.3%) manifestations. The more often sprayed pesticides were organophosphates with pyrethrynoïds in 2003 (54.4%), but on the other hand organochlorates in 2008 (57.5%). These obvious differences were statistically significative.

The chemical risk was clear in the cotton growing in Togo with frequent acute poisonings related to hazardous behaviours of the cotton-farmers in spite of some improvements between 2003 and 2008. Changes in symptoms in 2008 were tied up with the fact that organochlorates were used in preference to organophosphates. It appeared necessary to modify legal, technical and medical measures to set up an effective prevention.

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LOGROS Y SOLUCIONES AL PROBLEMA DE LOS PLAGUICIDAS EN BOLIVIA

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Frente al problema de uso y manejo irracional de plaguicidas y sus efectos negativos sobre la salud, agricultura y el medio ambiente en Bolivia y con el objetivo de mejorar la calidad de vida del pueblo boliviano, PLAGBOL viene implementando (2001-2009) programas y actividades orientadas disminuir la morbi-mortalidad ocasionada por los plaguicidas, mejorar la producción agrícola y prevenir la contaminación ambiental.

PLAGBOL plantea una intervención dirigida a 3 áreas de vital importancia: Agricultura, salud, comunicación y difusión. Como pilar fundamental, capacitación sostenible incorporando el tema plaguicidas y sus efectos negativos sobre la salud, agricultura y el medio ambiente, desde el nivel de enseñanza básica hasta el nivel profesional, elaboración de material audiovisual educativo e instructivo: manuales, cartillas, afiches, videos, etc. No se ha descuidado la capacitación orientada hacia los agricultores con formación de replicadores y la investigación en las áreas agrícola y salud.

Se han formado asociaciones agroecológicas, implementado programas de capacitación para trabajadores en salud. Incorporación del tema plaguicidas en la malla curricular en las principales facultades de agronomía, Institutos técnicos, escuelas de salud, Institutos formadores de profesores. Desarrollo de Cursos y Diplomados de post grado en Agronomía y Medicina. Se tiene programas de difusión masiva en radio y Tv, ayudas audiovisuales para todos los programas. Existe gran demanda de las comunidades solicitando el apoyo con programas en zonas donde no tiene presencia el proyecto.

Los logros alcanzados basados en una experiencia innovadora integral e integradora, frente a la problemática de los plaguicidas con un enfoque de desarrollo sostenible, permiten pronosticar cambios en cuanto a costumbres, procedimientos tradicionales de producción agrícola, atención y prevención de los daños a la salud y al medio ambiente. Otros países con el mismo problema podrían aplicar la estrategia.

IEC, estrategia integral, integradora, impacto social, económico, productivo, político.
INTRODUCCIÓN

Un estudio fue realizado en 100 trabajadoras desempeñando 19 tareas agrícolas (siembra-6, recogida-5, limpieza-5 y abonos-3) con el objetivo de conocer cuáles eran las demandas funcionales y biomecánicas de sus actividades laborales.

Materiales

La evaluación fisiológica consistió en la determinación de la capacidad física de cada trabajadora mediante la aplicación de la prueba escalonada y durante la realización del trabajo a cada una de ellas, le fue evaluada la frecuencia cardíaca (sensor electrónico), la temperatura oral (termómetros clínicos sublinguales), la tasa de sudación horaria (pesaje y control de ingestas y excretas) y el gasto metabólico (calorimetría indirecta respiratoria). Fue realizado un análisis biomecánico para la evaluación de la postura, la fuerza y la repetición de acciones utilizando el método MODSI.

Resultados

Los resultados de este estudio demuestran que las demandas fisiológicas no desbordaron los límites funcionales para una jornada de trabajo, pero fueron elevadas en algunas situaciones puntuales lo cual asociado con las altas exigencias biomecánicas (postura, fuerza y repetición de movimientos) y las desfavorables condiciones del entorno, generan los llamados momentos de esfuerzo, que hacen muy vulnerables las estructuras anatómicas involucradas en la acción.

Conclusiones

Finalmente se establecieron recomendaciones para prevenir lesiones músculo-esqueléticas y las mismas fueron organizadas atendiendo al adiestramiento en mecánica corporal, a la facilitación de un mejor vestuario y calzado, a la habilitación de condiciones sanitarias y a la utilización de herramientas e instrumentos de trabajo adecuados.

Keywords: Fisiología del trabajo. Trabajadoras agrícolas. Lesiones músculo-esquelética. Exigencias biomecánicas
Solar radiation: an underestimated occupational risk.
An update of epidemiological data

Fabriziomaria Gobba

Introduccion

The exposure to solar radiation represents one of the main occupational risk factors in agriculture, as in construction, fishery and other activities, but is usually largely underestimated.

Materiales

Solar ultraviolet radiation (UVR) is highly variable depending upon time of the day, season, geographical latitude, stratospheric ozone, atmospheric pollutants, weather, ground reflectance and altitude. Furthermore, several factors other than occupation, as cultural and social factors, and outdoor activities, widely contribute to the inter-individual variation in cumulative annual exposure. Artificial sources can also contribute to exposure, including electric arc welding, medical uses of phototherapy equipment, and also fluorescent lamps for cosmetic purposes.

Resultados

UVR can induce both acute and chronic effects. Acute overexposures, not rare in an occupational setting, can induce effects to the eye and to the skin, and immunosuppression. Long-term risk of chronic excessive exposure is mainly related to the induction of cancer: epidemiological evidence supports an association of prolonged and unprotected sunlight exposure with squamous cell and basal cell carcinoma (SCC and BCC), and malignant melanoma. A possible association with non-Hodgkin lymphoma was also suggested.

Conclusiones

Epidemiological data clearly show that an excessive exposure to solar radiation can induce various adverse health effects, including cancer, in workers. This risk is currently underestimated. The development of sun protection policies and education programs in workers is urgently needed.

Keywords: Solar radiation, ultraviolet radiation (UVR), occupational exposure; acute effects; cancer, carcinoma, melanoma
Posters

Work Activities and the Awareness of Zoonoses in Korean Livestock Hygiene Controllers

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The incidence of human zoonoses [brucellosis, Q-fever, and enterohemorrhagic Escherichia coli (EHEC)] in Korea has recently increased. The aim of this study was to survey work activities and the awareness of zoonoses among livestock hygiene controllers that are known as a high risk group for zoonoses. There are 202 livestock hygiene controllers who control livestock diseases. They generally conduct inspections and blood sampling of suspected livestock. We administered a questionnaire survey for the 202 livestock hygiene controllers who participated in a mass meeting on 26 October 2007. Through the questionnaire we evaluated the general characteristics, occupational characteristics, and awareness of zoonoses (brucellosis, Q-fever, and EHEC).

The major work activities of the controllers included blood sampling for cattle (98.0%), blood sampling for other livestock (92.0%), administrative tasks (71.8%), and general disinfection (32.2%). The major livestock under epidemic control were reported to be pigs (98.0%), cattle (96.5%), chickens (85.1%), and others (59.9%). The rates of use of personal protective equipment were as follows: disposal clothes (97.0%), boots (88.1%), protective masks (51.5%), glasses (13.4%), and aprons (11.4%). The rates of awareness of brucellosis, Q fever, and EHEC among livestock hygiene controllers were 100.0%, 30.2%, and 91.1%, respectively.

The majority of livestock hygiene controllers did not wear protective glasses or an apron. Thus, effective working guidelines to prevent zoonoses for livestock hygiene controllers must be developed, and an educational program on zoonoses is needed for livestock hygiene controllers, especially Q fever. Furthermore, publicity activities about the prevention of zoonoses are needed for high-risk groups.

Zoonoses, Awareness, Hygiene, Control

The Health Effects of Pesticides on Floriculture Farmers

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Flower cultivation is an economic mainstay in the countryside near Kunming city, China. Overuse of pesticides is very common. Many farmers fail to wear personal protective equipments when handling pesticides. Pollution in
agriculture is becoming a major environmental problem. It is a big challenge to sustainable development in rural areas and also threatens farmer’s health. In order to evaluate health effects of farmers working in the floriculture, we had this investigation.

A survey was conducted in a floriculture village. 144 farmers working in greenhouse were chosen as the exposure group and control group was another 44 farmers living in the same village but did not working in floriculture. A physical examination was held and blood samples were collected. Blood parameters, IgG, IgA and IgM; thyroid hormone T3, T4 and TSH were measured. According to the level of AChE activities, the exposure was divided into three groups: low, middle and high exposure. Each group had 48 people.

The heart rate of exposure groups was significantly lower than control group. The risk of ECG abnormalities in the exposure groups was much higher than that of control group (OR=2.39) and it showed dose-response relationship (rs=0.956). The serum AChE activity had positive relationship with RBC, HB, HCT, TP, ALB, GB, ALT, T3 and T4. Compared with the control group, the serum IgM level of middle exposure group was decreased (P<0.05). The serum T4 was decreased in middle exposure group (P<0.05).

Our results showed that pesticides exposure had some adverse effects on the health of floriculture farmers. In order to reduce agricultural pollution and protect farmer’s health, it is very important to improve related laws and regulations for proper pesticide management and usage; to enhance health education and environment protection in rural areas, and promote farmers awareness of the risks involved.

Floriculture, farmers, health effects, blood parameters, immunological function, thyroid hormone

Seroprevalence of Q Fever among Workers Related to Cattle Slaughter Industry in Korea

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Introduction

The incidence of zoonoses has increased recently. However, the study of high risk groups for zoonoses especially Q fever has not been conducted to date in Korea. Thus we performed this study to obtain data on Q fever among workers related to cattle slaughter industry in Korea.

Materials

We evaluated the structure of slaughterhouses and the process of slaughtering by reviewing the relevant literature and field studies. We visited 73 slaughterhouses and 62 residual products handle houses across the country. In addition, we conducted a questionnaire survey of the work activities, and obtained blood samples in order to determine the seroprevalence of Q fever. The titers of Q fever antibodies were measured using the immunofluorescence assay (IFA).
Results

We included 1,503 subjects and obtained 1,482 blood samples among them: 849 workers involved in slaughtering, 351 handlers of residual products, 190 inspectors and their assistants, and 92 grading testers and their assistants. The seroprevalence of Q fever among workers related to slaughter industry was 1.1%. Broken down, the workers involved in slaughtering was 0.8%, the handlers of residual products was 2.0%, the inspectors and their assistants was 1.1% and the grading testers and their assistants was 1.1% respectively.

Conclusions

We can infer that there are many Q fever patients underdiagnosed from the seroprevalence of Q fever among workers related to slaughter industry. Further studies about Q fever and zoonoses are needed. Thus, effective working guidelines for high risk groups must be developed in order to protect them from zoonoses.

Keywords: Q fever, Seroprevalence, Slaughterhouses

Resultados de Programa de Vigilancia Epidemiológica (PVE) para aplicadores de agroquímicos chilenos

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El uso de agroquímicos ha aumentado a nivel mundial. Esto se ha traducido en un incremento de la población laboralmente expuesta a plaguicidas, no teniendo certeza de su adecuada protección y capacitación en el manejo seguro de estas sustancias. Para vigilar la salud de los trabajadores se realiza seguimiento de los expuestos a plaguicidas monitoreando los niveles de acetilcolinesterasa en sangre, e indicando alejamiento de la exposición en caso de encontrar examen alterado respecto al valor basal.

A cada trabajador se aplica encuesta de antecedentes clínicos y medición de Acetilcolinesterasa en caso de estar laboralmente expuestos a plaguicidas de los grupos denominados Carbamatos y Organofosforados. La medición de acetilcolinesterasa se realiza por muestra sanguínea analizada con método colorimétrico ejecutado por profesional de enfermería. Los datos obtenidos son ingresados en sistema de registro electrónico único e interconectado a nivel nacional. Se entrega y explica cartilla educativa a cada trabajador al momento de la evaluación.

Se presentan el resultados de 19.848 evaluaciones realizadas durante 5 años (2004-2008) a trabajadores en Programa de Vigilancia Epidemiológica (PVE) por exposición a plaguicidas, encontrando 143 evaluaciones con alteración, lo que representa el 0.72% Se hace necesario objetivar la internalización de la capacitación mediante una encuesta de conocimiento, previa a la entrega de información educativa para el aseguramiento de la comprensión de la prevención.

En paralelo al aumento de uso de plaguicidas, se ha incrementado la cobertura de control a trabajadores en PVE por exposición a plaguicidas. La evolución de la distribución de resultados alterados ha ido disminuyendo en
el tiempo, pudiendo asumir que son producto del mayor conocimiento de los adecuados manejos y buenas prácticas de aplicación, adquiridos a través de la capacitación a los trabajadores.

Plaguicidas, acetilcolinesterasa, programa, vigilancia, epidemiológica, exposición, capacitación, prevención

T4: Health Education for Rural Populations

Session 12: Basic Occupational Health Services

Basic Occupational Health Services in Agriculture an Urgent Goal for the Healthy Village Campaign:

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Introduction

Half of the human population lives and works in rural areas. Agriculture represents the main source of income in developing and in transition Countries, but it is significantly present also in developed countries, such as USA, Canada, Japan and European Union.

This ancient human activity is directly linked with the wellbeing and the healthiness of entire nations, not only as income producer, but mainly because agriculture produces foods for entire communities, and quality and quantity of food are the basis of the healthiness of millions people. Finally, agriculture uses land, and such kind of use might cause environmental resource depletion and pollution. In this light, some examples are available of environmental disasters, such as the situation of Central Asia, where an irrational use of water brought about the dramatic reduction of the size of the Aral Lake, or the repeated and relevant reports of groundwater pollution from plant protection products and other chemicals coming from several corners of the world.

Moreover, agricultural activities themselves have a specificity to be considered, that is the lack of a clear separation between living and working environments. In fact, the two environments are usually overlapped, with a consequent overlapping and even coincidence of living and working time. Due to this specificity, very often entire families are involved in agricultural activities, sometimes in a non-official way, particularly in the family-based enterprises, where an important proportion of retired persons and elderly is present, mainly in developed countries. Of course, in agriculture also child labour is often present. Based on International Labour Office (ILO) estimates, about 250 millions children are engaged in agricultural activities in the whole world, mainly in developing countries.

The fragmentation in the territory, the relevance of family based enterprises without any (or with a very small number of) employees, the lack of specific risk assessment and management expertises bring about that agricul-
ture is something like a “grey area” for occupational and environmental medicine, despite the presence of relevant health risks and of a strong need of preventive interventions.

ILO estimates that a proportion of about the half of occupational fatalities are attributable to agriculture. Taking into account that the worldwide total yearly number of occupational fatalities is 345 – 350,000, and based on ILO estimates, one can conclude that every year about 170,000 agricultural workers lose their lives in occupational accidents. Data on non fatal accidents are less robust, however, it is possible to estimate an yearly incidence of such events of around 130,000,000. Taking into account that the total yearly number of people injured in traffic accidents is 20,768,000, it is possible to get a clearer view of the relevance of prevention of occupational accidents in the sector.

Agricultural activities bring about exposure of agricultural workers to an high number of health risks, such as chemical, physical and biological risks. However, there is still uncertainty on the real size of the health effects consequent to occupational exposures. Some data coming from developed world suggest that the most common occupational diseases affect the muscle-skeletal apparatus, followed by respiratory, skin, and nervous system diseases. Also allergies are significantly present, while the total number of reports of other kind of disease is quite small: the incidence of occupational neoplasms is, in agricultural workers, lower than in the general population, although for some specific cancers, for example melanoma and lip cancer, the incidence is significantly higher. As for zoonoses, they are in theory present but very often not regularly reported, or not reported at all, apart for specific severe diseases, such as the H5N1 infection.

Since the number of occupational diseases in agriculture at present reported in any corner of the world is very small, and since this data is apparently inconsistent with epidemiological estimates and even with ILO and World Bank data, it is reasonable to assume that there is at present, even in the most developed countries, a significant underreporting of occupational diseases in the sector.

Uncertainty on these data brings about uncertainty in the definition of the risk and the Priorities for risk assessment activities.

Apart for the structural characteristics of agricultural work, a further reason for underreporting of occupational diseases is the weakness and in some cases the absence of OH and Safety Services in the sector. Very often agricultural workers are not provided with health surveillance at the workplace, and the only health care available for them is provided by rural general practitioners (GPs), very often suffering an inadequate training on diagnosis and prevention of occupational diseases in agriculture.

On the other hand, in a world where food demand is growing very quickly, lot of interventions are at present running, addressed at increasing agricultural production and at improving the quality of the produced commodities. This brings about the use of new technologies, that might have a significant impact on environmental and human health, and whose use has to be decided based on a risk benefit analysis and informed consent. Examples of these problems are the use of Genetic Modified Organisms (GMOs), that might greatly improve the quantity of food produced, but whose use is causing an increasing worry for biodiversity and even, in some cases, human health. Another example of these problem is represented by the use in agriculture of hybrids who, from one side, improve the production of food but, on the other hand, bring about the need of an increased use of plant protection products.

These problems are present even in the developed countries, where the food demand is different from the one arising from the developing world, but it is in any case very relevant, and addressed at specific products with particular nutritional properties and characteristics.

Finally, also animal breeding bring about important public health problems, in some cases non fully studied and not anticipated at the happening, such as, for example, the “mad cow disease”, attributable to the use, in inten-
sive breeding activities, of specific kinds of feed, or the onset of the avian flue, the long range transboundary diffusion of the disease, related to birds migration flows, and the consequent worries for the possible development of a pandemic diffusion into humans.

It is therefore evident the need of an holistic approach to agriculture, and such an approach can be done only through the creation of reference structures, active at the local, national and international level, able to face very complex problems in their complexity, taking in due account the relevant differences existing among different areas of the world. In the rural areas of developing countries, for example, problems that do not exist anymore in the developed world are still present, such as the lack of access to safe drinking, or even sanitation water, or the access to health care structures.

In this line of action it is running, under the guide of the World Health Organization, the global movement “Healthy Villages”, launched at the end of the International Congress on Rural Health held in Lodi (Italy) in June 2006 (“Building New Tools for Health Promotion on Rural Areas”).

This is the general scenario in which this invitational conference is held.

Main objective of the event is the preparation of a position document to be published in a peer reviewed journal and to be submitted for approval to international organizations (governmental and non-governmental), stakeholders, institutions as a base for the creation of an international network addressed at developing BOHSs in agriculture in any country.

**Method**

A selected group of experts, representative of the different expertises necessary to deal with health prevention and promotion in agriculture (mainly: occupational medicine; general practice; veterinary medicine; agronomic sciences), have been invited to participate in a 1-day meeting, held in Milan on January 28, 2008.

All these experts have discussed a draft paper and have provided their comments and criticisms.

This paper represents a further and more detailed version of the draft circulated and discussed in January in Milan.

**Topics under discussion.**

1. **Definition of Basic Occupational Health Service in Agriculture (structure and activity).**

   How should a BOSH be? Characteristics may vary among different areas/countries based on local specificities. Main tasks of BOHSs are: i) Prevention; ii) Health Promotion; iii) Curative activities; iv) rehabilitation. These different tasks may be present together, but with a different weights in different situations. Taking into account that in developed countries a law requirement for the employment of a company physician is a minimum size of 100-500 employees, or the identification of specific high risks, it is evident that very hardly any agricultural enterprise might fulfil these requirements. Therefore, the most appropriate solution might be planning the creation of BOHS on a territorial basis, that is defining the needs of the territory (number of workers; number of enterprises) and identifying, based on the territorial needs, specific structures adequate to host a complex body of activities: health surveillance-physical examination; education and training; execution of vaccinations; execution of specific laboratory and instrumental examination (electrocardiography; respiratory function examination; hearing function) together with blood and urine sample collection, etc. Such a structures might also be equipped, if necessary, with occupational hygiene instruments and personnel, in order to fulfil any possible need of risk assessment at the workplace.

   Minimum set of equipment and basic elements to be defined.

   BOHSs in agriculture are part of the primary health care system in many countries. Incorporation of occupational
health care in general practice: might have different meanings and may be done in different ways in different
countries. The contents of these services would differ from context to context. For example: the role of BOSHs in
plantation.

2. Personnel
   2.1: Medical Doctor

   The educational profile of the medical doctor in charge of health surveillance of workers might vary on a ter-
ritorial basis: in countries where local legislation requires a Occupational Health Physician, this will be the profes-
sional profile required (but also in this case attention should be addressed to the professional profile, in particular
for the need of a specific training in agriculture). On the other hand, in most countries there is not a specific re-
quirement, and the possibility that the Occupational Health Surveillance provider is not an occupational health
physician, but, for example, a general practitioner, has to be taken into account. Any professional in charge of
health surveillance of agricultural workers should be adequately trained on the sector’s specificities. In any case,
a strong and continuous cooperation between medical doctor in charge of occupational health surveillance and GP
is anticipated, where possible through the common access to electronic files (the experience being carried out in
some European countries). Need: specific training programme at the level of i) university schools of medicine; ii)
post graduate schools on occupational health; iii) refreshing and training of medical doctors not specifically edu-
cated on agriculture and agriculture related issues.

   2.2: Occupational Health Nurse

   Many of the activities to carried out in a BOHS can be performed by nurses. BOHS nurses must have been
specifically trained for these activities, Also in this case a key problem is represented by university curricula.

   2.3: Occupational Hygiene Personnel

   In BOHSs active in agriculture, activities complementary to health surveillance, such as risk assessment/evalu-
ation and environmental monitoring are anticipated. The execution of these activities is based on the presence of
“new” professional profiles (the so called “Expert in Techniques of Prevention at the Workplace”). This kind of
profile has been recently addressed by university courses in some countries. This educational experience deserves
particular attention and dissemination, in order to creating in any country occupational hygiene personnel adequate
to face local situations, taking into account local specificities.

3. Health Promotion activities

   Some specific disease show an incidence mainly related to unhealthy life-style, or living conditions, and not to
the workplace itself. The burden of such as conditions is different in developed and developing world: in the first,
main problems are mental, musculo-skeletal, cardio-vascular diseases, and diabetes, well known causes of early
retirement and absenteeism. On the other hand, in the developing world major problems are represented by access
to drinking water, sanitation, strict contact with domestic as well as wild animals. These disease might have a sig-
nificant impact on production. Since workplace is a suitable forum for health promotion activities, such as activi-
ties might find place in BOHSs active in agriculture. Contents and priorities to be defined.

4. Who is supposed to pay?

   Different models and approaches are followed in the world, from a fully public system to a fully private sys-
tem. To be discussed.
5. Which approach for risk assessment?

Needs, contents and periodicity of basic occupational health care are supposed to be decided based on the result of risk assessment. Due to the small size of most agricultural enterprises very often “typical” risk assessment activities (based on sampling and analyses) cannot be carried out on a routine basis. Also the significant variability of the conditions deeply affects the possibility of doing analyses. There is therefore a growing need to produce an make available simpler and adequate tools, based on mathematical modelling as well as exposure and risk profiles for typical exposure scenarios.

6. Workplace inspection

A key component of prevention. Is it one of the tasks of a BOHSs (in particular if the provider is a public body)? Or is it an activity in charge of different offices? Perhaps, this is the best option, in order to highlight two main and different tasks: one, the execution of preventive activities, and the second activities addressed at coordination and control.

Session 18: Rural Health Services South-America

LA MEDICINA RURAL Y LOS INDICADORES DE SALUD RURAL EN LA AMAZONIA

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Introducción

El desarrollo de las actividades de salud, centrándose en el fortalecimiento de la Atención Primaria de Salud (APS) es el principal desafío en Brasil, especialmente en las zonas rurales y ribeirinhas en la Amazonia. Además de tener la característica de la dispersión de la población y el aislamiento de algunas regiones, las comunidades ribeirinhas viven en la dependencia de los niveles de los ríos (los períodos de inundación y refluo).

Materiales

Para el desarrollo de las acciones de la salud en las zonas rurales de la Amazonia, están desarrollando estrategias que implican, desde el uso de unidades móviles, con llamadas que viajan a la rotación del personal de salud, a fin de resolver un problema que es la fijación de profesionales en Áreas aisladas de la Amazonía.

Resultados

Entre las estrategias adoptadas, el uso de unidades móviles ha demostrado buenos resultados, haciendo posible el acceso a la salud de las poblaciones geográficamente aisladas, y resolver parcialmente el problema del ajuste de los profesionales que llevan cuidados de esta demanda. La continuidad en la atención es otro punto positivo, lo que permite la construcción y el acompañamiento de los indicadores relacionados con la salud infantil, salud de la mujer, salud de los ancianos y las enfermedades crónico-degenerativas (hipertensión y diabetes).
Conclusiones

La consolidación de la Medicina Rural en la Amazonia, la fijación de los profesionales de la salud, con miras a fortalecer la APS en Brasil es todavía un desafío para la gestión de la salud en Brazil y es un proceso continuo de desarrollo. El acompañamiento de los indicadores y la evaluación continua de los procesos de la salud son puntos básicos a consolidarse.

Keywords: Medicina Rural, Amazonia, comunidades ribeirinhas

Quality in Rural Health and Primary Health Care: a matter of access?

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Rural populations face broadly the same range of health issues as those living in urban areas, but lifestyle choices and medical interventions may not be the same. Whilst rural communities have fewer choices over primary healthcare professionals and a range of other local services, and are have to travel further to access secondary care and other healthcare services, the key issue is whether such “access” issues impact negatively their health.

Studies of inequalities in health between rural and urban settings have produced mixed and sometimes conflicting results, depending on the national setting of the study, the level of geographic detail used to define rural areas, the different wideness of the social gap within the communities, and the health indicators studied. Rural communities do not expect to have immediate access to the full range of clinical services available in urban areas: people understand that they may not have, in payment of living in the rural area, a suitable delivery. Also, they may have different perceptions (than that of healthcare planners) of what services are required locally. Perception of health care quality is associated with patient satisfaction and patient expectations: maybe they do not need or expect ultimate technologies only a safe process in their safe rural environment. Rural communities tend to have fewer health care organizations and professionals of all types, less choice and competition among them, and broad availability variation at local levels.

The distance that rural patients live from primary care and hospital services has a profound effect on their likely use of such services. In general, the smaller, poorer, and more isolated rural communities are, the more difficult it is to ensure availability of high-quality health services.

Quality, rural health care, access to health care, primary care
Salud y Ruralidad en Ecuador

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En la costa del Pacífico de América del Sur se encuentra Ecuador, cuenta con cuatro regiones conformadas a partir de la cordillera andina, habitada por 14 millones, INB per capita 2840 dólares. En los últimos 35 años, la proporción de población rural versus la urbana se ha invertido, actualmente el 36,5% vive en la zona rural. Habitada mayoritariamente por pueblos y nacionalidades indígenas y afroecuatorianos, la pobreza afecta al 87%. La inaccesibilidad a servicios de salud y la escasez de encuentros con la práctica sanitaria autóctona, evidencian la marginación y exclusión, si bien existen marcos políticos afines.

Como estrategia para la atención sanitaria de la población rural, desde 1970 cumplen obligatoriamente el año de medicatura rural los egresados de las facultades de ciencias de la salud. Hasta el año 2008, era el único recurso humano disponible; ha pasado de ser inicialmente un trabajo en condiciones completamente desfavorables a disponer de edificaciones y equipos básicos. Persiste el impacto que produce el reconocer la carencia de formación para un ambiente desconocido y en el que prima la marginación y pobreza.

Es necesario incorporar la interculturalidad a la práctica médica y reconocer al poblador rural como ciudadano.

Ecuador, salud rural, pobreza, medicina tradicional, acceso a la salud, derechos.

Posters

Antiviral therapies for chronic hepatitis C by collaboration between hepatologists and non specialists in a non urban setting in Japan

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Hepatitis C virus infection is the leading cause of hepatocellular carcinoma in Japan. For this reason the medical community and the Japanese Government have made it a priority to offer all patients the option for antiviral therapy. Whereas most patients in urban areas are treated by a hepatologist this is not the case in more rural areas, such as Ibaraki prefecture, with only few hepatologists available.

Nineteen patients with chronic hepatitis C (CHC) were treated with combination therapy with peginterferon-alpha 2b (PEG-IFN) / ribavirin. The duration of the therapy was 48 weeks for twelve 'difficult- to-treat' patients (genotype) 1b with a high load of HCV-RNA; 100KIU/m1 or higher (group A) and 24 weeks for the remaining
7 patients (group B). Antiviral therapy was initiated and adjusted, if needed, by a hepatologist (monthly visits) whereas the weekly administration of PEG-INF was performed by a non hepatologist.

All but one patient completed the therapy without significant adverse events. Treatment was discontinued in one patient (5.3%) because of general malaise. Intend-to-treat analysis showed a sustained viral response (SVR) in 42% of patients in group A and 71% in group B. SVR rates were similar to what have been reported in clinical trials in Japan conducted by hepatologists.

The purpose of this study was to assess the feasibility of treating patients with CHC, with state of the art antiviral therapy, by collaboration between hepatologists and non specialists in a non urban setting in Japan. The results showed a similar SVR rates and overall tolerability, comparable to, what has been reported in patients managed completely by a hepatologist.

chronic hepatitis C, peginterferon, ribavirin, non urban setting, rural area, collaboration, specialist, non specialist

T5: Health Education for Rural Populations

Session 19: Education And Research On Health

LA SEGUNDA OPINIÓN FORMATIVA Y LA FORMACIÓN A TRAVÉS DE LA TELESALUD COMO INSTRUMENTO DE LA MEDICINA RURAL EN EL AMAZONAS

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Introducción

La distancia es un factor crítico en el Amazonas, limitando el acceso de las personas a los principales centros de atención de la salud. Para satisfacer esta demanda, la Telesalud (definido por la Organización Mundial de la Salud como la prestación de servicios relativos a la atención de la salud donde la distancia es un factor crítico, utilizando tecnologías de la información y la comunicación como herramienta) se ha desarrollado, principalmente a través de la telemedicina, con la segunda opinión formativa.

Materiales

Para hacer frente a la distancia entre las comunidades rurales/ribeirinhas esta en desarrollo la segunda opinión formativa, que es la acción de la ayuda la decisión clínica, a través de medios electrónicos no sincroniza, con el uso del formato electrónico, disponible en el sitio http://www.telessaudeam.org.br/fichaclinica.php, como detalles de la duda clínica, relacionadas o no de un caso clínico específico.

Resultados

En funcionamiento desde el comienzo de la segunda mitad del semestre, hemos recibido duda de los municipi-
Conclusiones
El Telesalud se ha demostrado una herramienta importante para reducir al mínimo las dificultades de acceso para las zonas rurales/ribeirinhas en el Amazonas, siendo hecho posible el intercambio de información clínica, reduciendo la demanda especializada, más allá de hacer posible el proceso de la educación continua para las regiones aisladas de el Amazonas.

Keywords: Medicina Rural, Telesalud, Telemedicina

Session 20: Comunication Training Improve Practice

La Protección a la Salud y al Medio Ambiente, Compromisos de CuidAgro y Campo Limpio

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Introducción
Durante sus 19 años de existencia, el Programa CuidAgro de la Cámara Procultivos de la ANDI, que recientemente adoptó el nombre de CuidAgro, ha llegado a diferentes zonas agrícolas del país. Lugares recónditos y remotos han contacto con la presencia de sus capacitadores promoviendo el uso responsable y eficaz de plaguicidas. Campo Limpio es una Corporación sin Ánimo de lucro, que busca promover junto con las autoridades, distribuidores y agricultores la adecuada devolución y disposición final de los envases vacíos de agroquímicos. El programa Campo Limpio inició en el seno de CropLife hace 16 años, como un compromiso de la Industria de la Ciencia de los Cultivos con la protección y preservación del medio ambiente y de la salud de los productores agrícolas, así como con el pleno cumplimiento del Código Internacional de Conducta para la Distribución y Utilización de Plaguicidas de la FAO. En Colombia el programa de manejo de envases inició en 1998 al interior de la Cámara Procultivos de la ANDI como una demostración voluntaria del compromiso con el ambiente y productividad de sus empresas afiliadas con los empresarios agrícolas de nuestro país.

Materiales
Presentación en power point, método oral, e interacción con los participantes.

Resultados
de plaguicidas 2.955. Otros 2.973. Otros 2.973. Médicos y enfermeras 1.611, para un total de 43.191 capacitados. Durante el año 2008 formamos 200 multiplicadores que hicieron práctica en campo, capacitando a 3.000 agricultores y realizando preauditoria y posauditoría en fincas, evaluando el impacto de las capacitaciones. Con Campo Limpio Durante los 12 años que llevamos de trabajo se ha logrado generar una cultura del postconsumo y manejo de residuos peligrosos desde la óptica de la prevención y responsabilidad en cadena. Se introdujo al país la técnica de triple lavado que garantiza la descontaminación de los envases para su adecuado manejo y contribuye a reducir riesgos de salud y ambientales al agricultor, al tiempo que aprovecha la totalidad del producto. Gracias al trabajo voluntario y compromiso de las empresas de plaguicidas afiliadas a Procultivos, el país cuenta hoy con licencias ambientales para la disposición final de los envases en reciclaje y co-procesamiento. En este periodo desde 1998 se han retirado del ambiente para darle un manejo adecuado a más de 1.900 toneladas, que equivalen a casi 20 millones de envases, empaques y embalajes que contuvieron plaguicidas. Se han capacitado a más de 12.000 multiplicadores en triple lavado, normatividad y manejo adecuado de envases. El programa Campo Limpio hoy está en más de 200 municipios del país, con cerca de 50 centros de acopio especializados y diseñados para el manejo exclusivo de los envases vacíos con triple lavado. Durante el año 2009 se han duplicado los resultados que se obtuvieron en el año inmediatamente anterior.

**Conclusiones**

Durante los últimos años hemos logrado superar las expectativas entregando al país indicadores novedosos con los cuales medimos la efectividad. Constantemente estamos innovando nuestros resultados buscando oportunidades de mejora, con el fin de reducir el impacto del mal uso de los plaguicidas en Colombia. El programa Campo Limpio hoy está en más de 200 municipios del país, con cerca de 50 centros de acopio especializados y diseñados para el manejo exclusivo de los envases vacíos con triple lavado. Durante el año 2009 se han duplicado los resultados que se obtuvieron en el año inmediatamente anterior.

**Keywords:** Limpia el Campo disponiendo adecuadamente de los envases. Envases, plaguicidas

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**Escuela de Oficios Bananeros**

**Oscar Dario Elorza Toro**

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**Introduccion**

Debido a la llegada de la norma Global Gap para el sector Bananero es importante llevar acabo un proceso de motivación y cambio de actitud frente a los retos para el sector con el cumplimiento de la legislación, ambiental, salud ocupacional, laboral y alimento inocuo, con el objetivo de estar preparados para dicha certificación que permita entrar a los mercados internacional con los requerimientos exigidos por los compradores.

**Materiales**

Se utilizaron diferentes tipos de materiales ya que se dictaron charlas magistrales y prácticas en campo permitiendo a los trabajadores enfrentarse a estudios de caso para determinar la forma de abordar los inconvenientes en
cada una de las áreas.

**Resultados**

Se logró un cambio de actitud frente a la exigencia de la norma con el cumplimiento de cada uno de los pilares y la implementación de buenas prácticas agrícolas y de manufactura, teniendo como premisa la seguridad del trabajador y la protección del medio ambiente.

**Conclusiones**

Se puede concluir con el tema el avance que ha tenido el sector bananero frente a las diferentes procesos de certificación exigidos por los compradores internacionales y la disminución de los accidentes de trabajo y enfermedades profesionales por el cumplimiento de la legislación vigente en Colombia.

**Keywords**: seguridad, medio ambiente, escuela, trabajadores, buenas prácticas, protección

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**Guías para el uso y manejo seguro de plaguicidas en cultivos ornamentales**

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**Introducción**

El control de plagas basado en la aplicación de plaguicidas químicos, ha sido una herramienta muy útil para la floricultura colombiana. Sin embargo y a pesar de los beneficios que esta herramienta ofrece, también representa un factor de riesgo para la salud de las personas encargadas de su manipulación y aplicación, así como para el medio ambiente donde estos productos son aplicados.

**Materiales y métodos:**

Con el fin de orientar y capacitar a las personas involucradas en el uso de los plaguicidas químicos, el programa Florverde® de Asocolfloroses, ha documentado una serie de Guías para el uso y manejo seguro de plaguicidas en cultivos ornamentales, enfocadas hacia la implementación de estrategias que conduzcan a minimizar el riesgo químico a partir de la fuente que lo genera, en el medio donde son aplicados los plaguicidas y en las personas involucradas en su manipulación y aplicación.

**Resultados y discusión**

**Conclusiones**

Este trabajo presenta y describe las estrategias que las empresas floricultoras participantes en el programa Florverde®, tienen implementadas para hacer un manejo racional de los plaguicidas y minimizar el riesgo químico en la fuente, en el medio y en las personas.
Palabras claves
Plaguicidas, guías manejo seguro, ornamentales.

La salud ocupacional en la evolución de Florverde®: 13 años buscando mejorar las condiciones del trabajador de la floricultura colombiana.

Ximena Franco Villegas

Introducción
Durante los trece años que lleva la implementación del Programa de Buenas Prácticas Florverde, hoy una estrategia integral que incluye un sistema de certificación, los temas de la salud en el trabajo y el bienestar de los trabajadores han sido de importancia fundamental. Tradicionalmente los programas de buenas prácticas agrícolas se centran en la inocuidad de los productos, el manejo integrado de plagas o en algunos temas ambientales; sin embargo, en la estrategia sectorial que es Florverde, los aspectos sociales han tenido la misma atención que los mencionados.

La estrategia integral Florverde cuenta con tres ejes de trabajo: 1) un sistema de información sectorial, para la medición de indicadores del desempeño; 2) un esquema de asesoría y acompañamiento para las empresas interesadas en implementar las buenas prácticas ambientales y sociales y 3) un esquema de certificación, con reconocimiento internacional (acreditado bajo ISO/IEC Guide 65).

Así, los aspectos sociales en las empresas implementando Florverde son medidos mediante indicadores de desempeño alimentados por datos individuales mensuales; son asesorados y son objeto de una cuidadosa agenda de formación y acompañamiento y, finalmente, son auditados por organismos de certificación que actúan como terceras partes independientes, y que al final del proceso otorgan una certificación que abarca tanto lo social (hygienie, seguridad, aspectos laborales, bienestar, entrenamiento y formación, entre otros), como lo ambiental (aguas y riegos, fertilización, manejo integrado de plagas y enfermedades – MIPE, ecosistemas y biodiversidad y, manejo integrado de residuos) y lo técnico (trazabilidad, origen del material vegetal y, manejo poscosecha).

Como línea estratégica dentro de Florverde, lo social y en particular los aspectos de salud en el trabajo y seguridad, arrojan interesantes indicadores de mejoramiento en las empresas participantes en el programa Florverde. Así mismo, los datos muestran tendencias y comportamientos que son revisados permanentemente por parte de los expertos a cargo.

Materiales y métodos
A partir del establecimiento de una línea base, según la información inicial aportada por la empresa, se lleva a cabo un prediagnóstico que posteriormente es constatado y corregido (si es necesario) en el campo. A partir de este reconocimiento en el terreno y en la documentación de cada empresa, se establecen conjuntamente planes de acción a la medida. Finalmente, la ejecución y el seguimiento se llevan a cabo de manera acompañada por los expertos Florverde; esto se mide permanentemente.

Resultados y discusión
Se mostrarán a la audiencia, resultados tanto de la gestión del programa, como de la implementación de las es-
Conclusiones

La implementación de un programa integral de buenas prácticas como Florverde, ha permitido que se mejore de manera objetiva el desempeño de las empresas, lo cual puede verse a través de los indicadores. Un sistema de certificación sólo es creíble si detrás de él existe un planteamiento que promueve cambios reales, cuantificables y demostrables en el desempeño de las empresas.

Palabras claves

Floricultura responsable, Buenas prácticas agrícolas, Salud en floricultura, Colombia, Floricultura colombiana

3. Workshop

Conceptos de seguridad en plaguicidas

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Introducción

En la actualidad se debe contemplar la ecuación de riesgo como una variable de toxicidad y exposición para caracterizar y monitorear la minimización real de ese riesgo.

Materiales

En la revisión de datos siempre se encuentra un punto de coincidencia común, poner distancia entre la fuente y el receptor, lo cual redunda en un menor riesgo cuantificable.

Resultados

Después de analizar literatura y ver en la práctica varios equipos de aplicación, se pudo establecer una aproximación cualitativa de disminución de la exposición, manteniendo los parámetros físicos de aplicación.

Conclusiones

Una de las alternativas de protección con mejores resultados es la protección activa, contando con mejores equipos y técnicas de aplicación resultando en reducción de la exposición con la consiguiente minimización real del riesgo ocupacional en la aplicación de plaguicidas.

Keywords: DISMINUCIÓN EXPOSICIÓN A PLAGUICIDAS
Conceptos Básicos de Aplicación de Plaguicidas

John Jairo Sendoya Cabrera

Introducción
La Tecnología de aplicación hace referencia a las Técnicas y Procedimientos para colocar los Plaguicidas donde se requiere, acorde con su dosis, con el menor desperdicio y el menor impacto para los aplicadores y el entorno.

Materiales
Análisis del: Proceso de formación de gotas, dinámica de las gotas para alcanzar el blanco objetivo, capacidad de las mismas para llegar y depositarse sobre el blanco y condiciones ambientales que afectan su trayectoria, favoreciendo el potencial de pérdida y efectos colaterales.

Resultados
Tomar conciencia de lo que nos muestran los principios de la dinámica de gotas, de la necesidad de conocer más de los equipos que las producen y de los errores en los procedimientos, producto de la desinformación, falta de capacitación de todos los involucrados y calificación de los aplicadores

Conclusiones
Del mejoramiento y estandarización de los equipos de aplicación, del cumplimiento de parámetros para evitar el potencial de pérdidas y sus efectos colaterales y de una intensiva y permanente capacitación, depende el buen manejo de los plaguicidas

Keywords: Técnicas / Procedimientos / Tamaño de Gota / Espectro de gotas / Deriva / Capacitación.

Revising the ICOH International code of ethics: Latin American perspectives

Peter Westerholm Comité de ética y transparencia de ICOH, Suecia

1- Opening remarks (5 min JRG)
2- Introduction: ICOH International Code of Ethics for OH Professionals (25 min-PW)
3- Applicable criticism of some professional code instruments (20 min-PW)
4- Results of surveys carried out in Latin America (30 min – Julietta)
5- Ergonomic Break (5 min)
6- Re-thinking the ICOH International Code of ethics: revised objectives (15 min-PW)
7- Work groups: Specific issues arising at work for OH professionals: (60 min discussion)
   a. Reviewing the fundamental ethical principles
   b. Principles of ethical analyses
Revisión del Código Internacional de ética de la ICOH: perspectivas Latino Americanas

Peter Westerholm Comité de ética y transparencia de ICOH, Suecia

1- Comentarios de apertura (5 min JRG)
2- Introducción: Código Internacional de ética para los profesionales de la salud ocupacional de la ICOH (25 min-PW)
3- Criticas aplicables a algunos instrumentos de ética de profesionales (20 min-PW)
4- Resultados de las encuestas realizadas en América Latina (30 min – Julietta)
5- Pausa ergonómica (5 min)
6- Re-pensando el Código Internacional de ética de la ICOH: objetivos revisados (15 min-PW)
7- Trabajo en grupos: Aspectos emergente específicos en el trabajo para los profesionales de la salud ocupacional: (60 minutos de discusión)
   a. Revisando principios éticos fundamentales
   b. Principios de análisis ético
   c. Ética y economías de mercado, y servicios de salud
   d. Independencia Profesional, profesionalismo y múltiples lealtades
   e. Ética e investigación
   f. OHP y globalización
   g. Otros dilemas
8- Sharing conclusions and recommendations from working groups (30 min)
9- Concluding remarks (15 min –PW)
Participatory training methods for improving working life of farmers

Kazutaka Kogi, Institute for Science of Labour, Kawasaki, Japan
Valentina Forastieri, Coordinator, Heath Promotion and Training Cluster
International Programme on Safety and Health at work and the Environment (SafeWork)

Participants
Rural health facilitators and trainers

Duration
4.5 hours (tentative)

Objective
To enable participants to understand participatory training methods for improving agricultural working life of farmers, and to apply a low-cost action checklist as a participatory training tool.

Background
Participatory training methods are increasingly applied to train farmers in improving their agricultural working life. A clear focus of these training methods is placed on the application of low-cost improvements and the use of action-oriented training tools such as action checklists. A well-known example is the WIND (Work Improvement in Neighbourhood Development) method widely used in improving rural working life in different continents. Based on recent experiences in participatory training involving farmers, a workshop will be held to learn how to organize participatory training for improving safety and health of farmers and their families. A special emphasis will be placed on the design and use of an action checklist concentrating on low-cost improvements and adjusted to each local situation.

Programme
- Orientation to participatory training methods;
- Roles of low-cost improvements in agricultural working life;
- Ways to select check items for a locally adjusted checklist;
- Recommended group work steps to facilitate action by farmers;
- Successful experiences in Latin America and Asia.

Materials
A sample action checklist for agriculture / Good examples of safety and health in agriculture / A guide for low-cost improvements in agriculture
4. Closing Ceremony

A spotlight on rural health

**Dr. Wolfgang Hannoever & Dr. Hans-Joachim Hannich**

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Health care delivery in rural areas as a topic for scientific and political interest transports itself through international scientific publications. The issue of health care delivery in rural areas attains highest relevance in regions that are characteristically agricultural. Taking a global view, this applies for large regions in Africa, Australia, Asia, and South-America, and to a much lesser degree for regions in Europe and North-America. We investigated, whether this is reflected in scientific publications.

We conducted a literature research in medical data bases, such as Medline, Embase etc. with search topics such as rural, agricultural, pesticides and likewise. We followed a stepwise strategy for reduction based on plausibility, evaluating titles first, and abstracts consecutively. We then identified topics and nationality of the paper’s first authors and descriptively extracted critical information.

In 2008 we extracted a whole of 140 papers of respective relevance. Broadly the papers fell into two domains: rural health service delivery (107) and agricultural medicine (33). From the rural health service delivery papers the respective origin was: Australia 41 %, North-America 34 %, Europe 13 %, Asia 7 %, Africa, 4 % and South-America 1 %. For the agricultural Medicine papers the respective numbers are: North-America 53 %, Africa 22 %, Europe 13 %, Asia 9 %, South-America 3 %, and Australia 0 %.

Despite the fact that many topics related to rural health and agricultural medicine could play a very important role, international publications in medical journals do not reflect that. On the contrary: it looks as though a certain distance from the topic itself as well as industrialization and economical progress shift rural health and agricultural medicine also into focus. Here a mutual sharing and empowerment research from developing and transitional countries could be wished for.

Literature, review, data bases, rural health, service delivery, agricultural medicine, empowerment

**Increase in Numbers of Obese People and Rural Health**

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Number of obese people has been rapidly increasing and WHO has reported that the actual number has reached 1.7 billion (BMI >25). There used to be more obese people in the urban areas, however, it has been changing recently that there are more obese people in rural areas and has becoming a rapidly growing problem.
There used to be more obese people in the urban areas, however, it has been changing recently that there are more obese people in rural areas and has becoming a rapidly growing problem. For example, in Japan, cities such as Tokyo, Osaka and Kyoto that are placed in the central areas of the main land Japan have less numbers of obese people. On the other hand, rural areas, such as Okinawa (southern island), Kagoshima (farthest south western prefecture), Kochi (farthest southern prefecture) and Aomori (farthest northern prefecture) have more obese people than the urban areas.

This trend has been noted in China, Korea and other Asian countries as well. The spread of fast food restaurants and heavy use of automobiles as a transportation method in the rural areas have been pointed out as the cause of this trend. Because of this trend, diabetes, hypertension, hyperlipidemia have been increasing resulting in rising healthcare cost.

Aged society has worsened the problem further more and therefore the Japanese government has been working on cutting down the cost of medical expenses. However, the government decision has resulted in overworked and poorly treated physicians working in the hospitals and hence many hospitals in rural areas has gone bankrupt and rural healthcare system has collapsed because of it. This is my report on current situation of Japanese rural healthcare.

Obesity, Rural Healthcare

Una visión panorámica de los riesgos laborales y de su prevención en la agricultura de la Argentina.

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La agricultura es una actividad con elevada siniestralidad laboral. Esta ponencia sustentada en la experiencia, el relevamiento estadistico y análisis bibliográfico sobre la siniestralidad laboral y el comportamiento preventivo de la agricultura en Argentina, (avanizando también sobre algunos otros países de la región), busca compartir conocimiento y experiencia en la materia y difundir normas legales y de buenas prácticas que permiten avances en la mejora del nivel de salud y calidad de vida laboral en el medio rural.

La metodología se basó en relevamientos y análisis de información primaria y secundaria, sobre registros de organismos nacionales e internacionales e instituciones y/o entidades privadas. Se trabajó en el análisis de distintas fuentes bibliográficas especializadas en el estudio de las condiciones y medio ambiente de trabajo en la agricultura. También se realizaron entrevistas con referentes calificados y búsquedas por internet de distintas fuentes y países.

Las estadísticas sobre siniestralidad laboral en la agricultura son la punta de un iceberg, existiendo elevada subestimación de datos referidos al trabajo agrario. La mecanización es la principal causa de accidentes sectoriales. La Argentina, pionera en la región por haber generado un Reglamento sobre Higiene y Seguridad laboral
específico para la agricultura, que ha permitido importantes avances en prevención de riesgos en el agro, percibe también mejoras, por la implementación de sistemas de gestión de calidad y buenas prácticas, que impactan positivamente en las condiciones laborales del sector agrario.

El marco legal específico en prevención de riesgos para la agricultura (en Argentina y Brasil), y las normas y reglamentos de algunos otros países de la región que rigen a nivel general las distintas actividades económicas que por extensión son aplicadas a la agricultura, permiten avances, pese a lo cual, existe aún una elevada siniestralidad en el, lo que nos desafía a continuar mejorando los sistemas de gestión en prevención de riesgos en la actividad.

Agricultura, trabajador rural, siniestralidad laboral, condiciones de trabajo, prevención de riesgos laborales.

Creating and strengthening knowledge in agricultural medicine and rural health
Farming Struggles and Triumphs: The effects of a unique business environment

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The number of farming families in Australia has been declining for the last 20 years. Climate change, government legislation and policies are adding to the challenges. This study investigated the impact of work-family role conflict on farming family well-being, effective coping strategies and positive aspects of lifestyle. As available assessment tools aren’t culturally relevant, an additional aim was to develop measures of work-family conflict, stressors, and coping strategies for Australia.

The first stage involved semi-structured interviews of farming families (N=30) from across Queensland and South-Eastern Australia. Interviews were audio-recorded and qualitatively analyzed to identify items relevant to the following areas: lifestyle, work-home interface, stressors, coping. The second stage distributed this candidate pool of items to members of farming families (N=200) to assess their relevance and importance to this population.

Preliminary results from interviews indicate lifestyle and good relationships are strong buffers for stress. Role ambiguity and property partnerships contributed to family conflict and dissatisfaction. Coping strategies included spending time with family, friends, and social drinking. Families perceive themselves as socially isolated from the Australian public and government due to their chosen occupation. There is a perception changes in the industry have had a negative impact on community connectedness, support, and gatherings, which has impacted negatively on satisfaction and lifestyle.

The number of farming families is decreasing and the industry is becoming increasingly difficult for farms to remain sustainable, yet some remain though primarily for lifestyle and children. The development of measures to assess stress and coping can help identify good and poor practices for farming families of Australia, giving guidance for those struggling and those considering entering the industry.

Work-family conflict; farming families; lifestyle; stress; well-being; coping
Una visión panorámica de los riesgos laborales y de su prevención en la agricultura de la Argentina

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Introducción
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Materiales
La metodología se basó en relevamientos y análisis de información primaria y secundaria, sobre registros de organismos nacionales e internacionales e instituciones y/o entidades privadas. Se trabajó en el análisis de distintas fuentes bibliográficas especializadas en el estudio de las condiciones y medio ambiente de trabajo en la agricultura. También se realizaron entrevistas con referentes calificados y búsquedas por internet de distintas fuentes y países.

Resultados
Las estadísticas sobre siniestralidad laboral en la agricultura son la punta de un iceberg, existiendo elevada subestimación de datos referidos al trabajo agrario. La mecanización es la principal causa de accidentes sectoriales. La Argentina, pionera en la región por haber generado un Reglamento sobre Higiene y Seguridad laboral específico para la agricultura, que ha permitido importantes avances en prevención de riesgos en el agro, percibe también mejoras, por la implementación de sistemas de gestión de calidad y buenas prácticas, que impactan positivamente en las condiciones laborales del sector agrario.

Conclusiones
El marco legal específico en prevención de riesgos para la agricultura (en Argentina y Brasil), y las normas y reglamentos de algunos otros países de la región que rigen a nivel general las distintas actividades económicas que por extensión son aplicadas a la agricultura, permiten avances, pese a lo cual, existe aún una elevada siniestralidad en el, lo que nos desafía a continuar mejorando los sistemas de gestión en prevención de riesgos en la actividad.

Keywords: Agricultura, trabajador rural, siniestralidad laboral, condiciones de trabajo, prevención de riesgos laborales.