Current situation of the HACCP program in Korea

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SUMMARY: The occurrence of foodborne disease is one of the most widespread problems in the contemporary world. Preventive measures such as good manufacturing practice (GMP), supplemented by the hazard analysis critical control point (HACCP) system, has been introduced as a means of ensuring the production of safe food. Recently, the Korean government has been trying to induce the HACCP program to all food items. In this paper, the author attempts to introduce the current situation of the HACCP program in Korea such as the propulsion tendency of the HACCP system, procedures for getting certification for the applied HACCP system by the Korean Food and Drug Administration (KFDA), and an incentive benefit to the plants which introduced the HACCP system and also the shellfish sanitation program in Korea.

KEY WORDS: HACCP, hazard analysis, shellfish sanitation program

INTRODUCTION

The Hazard analysis critical control point (HACCP) is a modern food protection concept that has come of age. HACCP is divided into Hazard Analysis (HA) and Critical Control Point (CCP). HA is the rational and scientific estimation of hazard associated with food, ingredient or process. CCP is defined as the step or location during the food manufacturing process where failure to control it may result in an unacceptable risk. Since HACCP anticipates problems and makes sure that nothing happens, it is a preventive and fail-safe system. Control is applied during growing, harvesting, processing, manufacturing, distributing, marketing and preparing of the foods. Thus, it is a real-time control measure. The HACCP is developed and implemented by the industry.1,2

The HACCP system is recognized as an effective food sanitation regulatory program which monitors and controls the critical control points that cause hazards if it is not controlled properly. The HACCP system can therefore cut down on economic expenditures in food sanitation control and secure a reliable food safety regime. But the HACCP system is still a largely unfamiliar concept in food sanitation management in Korea.3

The HACCP system has already been adopted by some developed countries such as U.S. and those in the E.U. to secure seafood safety. And the HACCP system in these countries is being applied both to seafood produced within a particular country as well as to imported products. The acceptance of the HACCP system throughout the whole food industry including raw material production, processing and distribution will be a necessary for Korea's sea food export program. In addition, the adoption of this system makes sense due to its high effectiveness in ensuring food safety and strengthening public health standards compared with previously tested programs for the purposes of food safety.

What is HACCP?

The HACCP is first and foremost a proactive concept. The technique is based on treating the production of food as a total, continuous system, assuring food safety from harvest to consumption. Included in this system are purchasing, receiving, storage, preparation, and service. Each of these components is evaluated by principles of failure analysis. The premise is simple : if each step of the process is carried out correctly, the end product will be safe food.

It allows you to predict risks to food safety and prevent them before they happen. By using the HACCP, you no longer have to rely solely on routine inspections to spot potential food safety hazards.1
How to apply HACCP system?

First of all, the most important thing for applying the HACCP system is the determined will of owner and/or manager. There are 12 steps for applying the HACCP system.

1. Establishment the HACCP team
2. Explaination the product to be applied
3. Certification of usage (consumer)
4. Processing flow diagram, drawings of facilities, and working manual
5. Field confirmation
6. Assessing hazards
7. Identifying CCPs
8. Setting up procedures for CCPs
9. Monitoring CCPs
10. Taking corrective action
11. Setting up record keeping system
12. Verifying the system is working

The HACCP system propulsion tendency in Korea

Dec. 1995 -- The HACCP system based on the Korea Food Sanitation Law. Establishment at article 32 clause 2.

Dec. 1996 -- Notification of the operating standard of HACCP object food for application: Ham & sausage among meat products


Nov. 1997 -- Institute designation for education, training and technical support (Korea Health Industry Development Institute).

Feb. 1998 -- Revision of the operating standard of the HACCP, Extension of application food: Frozen fisheries food such as frozen fish, crustacean, shellfish, mollusk and seasoned processed food.

May. 1998 -- Extension of application food: Milk, fermented milk, processed cheese and natural cheese

Jun. 1999 -- Extension of application food: Some of the frozen food such as bread and rice cakes, noodles, general processed food and ice cakes

Oct. 2000 -- Revision of the operating standard of the HACCP,
- Provision of collective meals
- Application to any kinds of food if one wants
- Establishment of practical standard for evaluation, judgement and education and training for the HACCP.

Table 1 List of model plants developed for applying the HACCP system.

<table>
<thead>
<tr>
<th>Group</th>
<th>Kinds of food</th>
<th>No. of plants</th>
<th>Tested period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processed meat</td>
<td>Ham &amp; sausage</td>
<td>4</td>
<td>95. 10 - 96. 8</td>
</tr>
<tr>
<td>Processed seafood</td>
<td>Fish meat paste product</td>
<td>10</td>
<td>96. 7 - 97. 6</td>
</tr>
<tr>
<td>Frozen seafood</td>
<td>Fish, Crustacean Molluscan, Shellfish</td>
<td>6</td>
<td>97. 8 - 97.11</td>
</tr>
<tr>
<td>Milk and milk product</td>
<td>Milk, Fermented milk, Cheese</td>
<td>33</td>
<td>97. 9 - 98. 5</td>
</tr>
<tr>
<td>Frozen food</td>
<td>Bread, Rice cakes, Noodles, General processed food</td>
<td>5</td>
<td>98. 12 - 99. 4</td>
</tr>
<tr>
<td>Ice cakes</td>
<td>Ice cakes</td>
<td>10</td>
<td>98. 12 - 99. 4</td>
</tr>
<tr>
<td>Collective meals</td>
<td>Box lunch Collective meals Cooked food served in restaurants</td>
<td>20</td>
<td>00. 3 - 00. 6</td>
</tr>
</tbody>
</table>

Table 2 Designated plants as the HACCP system by KFDA

<table>
<thead>
<tr>
<th>Group</th>
<th>Name of plants</th>
<th>Designated date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processed meat</td>
<td>Jeil sugar manufactory(Echeon)</td>
<td>97 5</td>
</tr>
<tr>
<td></td>
<td>Lotte ham &amp; milk(Chungiu)</td>
<td>97 8</td>
</tr>
<tr>
<td></td>
<td>Daesang Co. Ltd.(Seongnam)</td>
<td>97 9</td>
</tr>
<tr>
<td>Frozen seafood</td>
<td>Samjin Co. Ltd.(Pusan)</td>
<td>98 5</td>
</tr>
<tr>
<td>Milk and milk product</td>
<td>28 manufactories</td>
<td>98 6</td>
</tr>
<tr>
<td>Processed seafood</td>
<td>Daerim Co. Ltd.(Ansan)</td>
<td>99 4</td>
</tr>
<tr>
<td></td>
<td>Dongwon Co. Ltd.(Seongnam)</td>
<td>00 1</td>
</tr>
<tr>
<td>Frozen food</td>
<td>Nongsim Co. Ltd. Jeil frozen food Co. Ltd.</td>
<td>99 12</td>
</tr>
<tr>
<td>Ice cakes</td>
<td>Lotte confectionery Co. Ltd. (Youngdungpo, Daejeon, Yangsan)</td>
<td>99 12</td>
</tr>
</tbody>
</table>
The procedure for designation of the HACCP system by the KFDA

When a plant manager and/or owner wants the designation of the HACCP system, he should operate the plants along with the operating standards of the HACCP for more than 3 months. After that he can apply a permit by the KFDA. At this time, the required documents are as follows: (1) A copy of business warrant (2) Current food production state (3) List of processing machines and inspection facilities (4) Self-evaluation sheet on the applied HACCP system (5) Operation standard and document for the HACCP system (6) SSOP and related documents (7) A copy of the educational documents on the HACCP system (chief of HACCP team and concerned persons).

The shellfish sanitation program in Korea

A sanitary agreement was achieved between the Korean government and the American government in 1972. After that, the shellfish sanitation program was established like the NSSP in the U.S.

Shellfish growing areas were classified as approved areas and closed areas.

Growing areas may be designated as approved when the sanitary survey and marine biotoxin surveillance data indicate that fecal material, pathogenic microorganisms, poisonous and deleterious substances are not present in the area in dangerous concentrations.

For example the bacteriological quality of sanitary indicative bacteria are as follows: (1) The total coliform median or geometric mean MPN of the water does not exceed 70 per 100 ml for a 5 tube decimal dilution test and not more than 10% of the sample exceed an MPN of 230 per 100 ml. (2) The fecal coliform median or geometric mean MPN of the water does not exceed 14 per 100 ml and not more than 10% of the samples exceed an MPN of 43 per 100 ml. While the area contains shellfish where in the concentration of PSP equals or exceeds 80 μg per 100g of edible portion of raw shellfish, or when neurotoxic shellfish poison is found in detectable levels is classified as a closed area.5)

Raw or frozen shellfish harvested from approved areas and processed at designated plants by the FDA or the EU can only be exported to the U.S.A or the EU.6)

We have 6 approved shellfish growing areas which designated by Korean government according to NSSP program in U.S.A. Those areas were reached to about 32,000 hectares and they are all located in southern coast of Korea. While designated fisheries plants which can export of frozen and/or raw shellfish are 5 by FDA and 43 by E.U., respectively. And also 138 boats for shellfish harvesting were designated.

Benefits to the company by induction the HACCP system

(1) Establishment sanitary control system independently not by official force (2) Can produce safety foods continually (3) Effective sanitary control by CCP (4) Economical benefit: induction period - expensive problem, post induction period - cuts costs (5) Strengthening international competitive power (6) Decrease the rate of adulterated food (7) Improvement of all employee’s sanitary consciousness (8) Advertising effect by sticking the symbolic logogram.4)

Administration standards for the HACCP system made by the KFDA

This regulation is based on article 32, clause 2 in Korean food sanitation law (Oct 20, 2000).7 It consists of fifteen articles and some additional rules. The main
content in the articles are as follows: (1) Subject of application (2) General standards for sanitary control (3) Management of the HACCP (4) Practical field configuration (5) Duty of chief of the HACCP (6) Control of record (7) Educational evaluation and training (8) Designation of the HACCP application company (9) Incentive treatment to the HACCP applied company (10) Post control after designation.

The KFDA determined the criteria for the HACCP management. The estimation score on the evaluation of the HACCP plan is 160 points in total. It includes 50 points on hazard analysis results, 60 points on critical control point management and 50 points on effective record keeping and verification. If a company get more than 138 points according to the above criteria, it can get the HACCP permission.

Important things applying the HACCP program

(1) Strong volition of owner and/or top manager (2) Understanding the HACCP just as a tool, not as a scientific work (3) Team work of all employee (4) Point out false records (5) Education and training of the concerned persons (6) Forming a habit on sanitary concept.

REFERENCES

3. National Fisheries Research and Development Institute. Symposium on HACCP system for Fisheries Food (proceedings) held on Jun 27. 2000 at Chungmoo, Korea. (written in Korean)
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