On the chromosome number in some agricultural plants

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The number of chromosomes in some agricultural plants was counted in pollen mother cells as well as in root tips. For pollen mother cells BELLING's aceto-carmin was employed. The root tips were taken from pots and fixed with FLEMMING's median solution, and they were imbedded in paraffin, cut 16—17 μ thick, and stained with HEIDENHAIN's iron-alum haematoxylin. The results are as follows:

	Reduced number	Somatic number
<i>Festuca tenuifolia</i> HORT.	7 (Fig. 1)	14 (Fig. 2)
<i>F. pratensis</i> GRAY.	7 (Fig. 3)	14 (Fig. 4)
<i>F. arenaria</i> L.	21 (Fig. 5)	42 (Fig. 6)
<i>F. duriuscula</i> L.		42 (Fig. 7)
<i>Andropogon sorghum</i> BROT.		
var. <i>cernuus</i> KOERN.	10 (Fig. 8)	20 (Fig. 9)
<i>A. sorghum</i> BROT. var. <i>sudanensis</i> PIPER.	10 (Fig. 10)	20 (Fig. 11)
<i>A. sorghum</i> BROT. var. <i>vulgaris</i> HACK.	10 (Fig. 12)	20 (Fig. 13)
<i>A. halepensis</i> BROT.	20 (Fig. 14)	40 (Fig. 15)
<i>Avena flavescens</i> L.	14 (Fig. 16)	28 (Fig. 17)
<i>Plantago lanceolata</i> L.		12 (Fig. 18)
<i>P. major</i> L.		12 (Fig. 19)
<i>Setaria italica</i> BEAUV.		18 (Fig. 20)
<i>Phalaris arundinacea</i> L.		28 (Fig. 21)
<i>Lolium perenne</i> LINN.	7 (Fig. 22)	

LITARDIERE (1923) reports that the haploid chromosome number of *Festuca ovina*, *F. spadicea*, *F. varia* and of *F. elatior* is 14 each. According to LEVITSKY (1927) the somatic chromosome number in sections *Montanae*, *Scariosae*, and *Subbulbosae* in *Festuca* is 14, and in *Festuca elatior* L. and *F. ovina* in the section *Bovinae* which is polymorphous, the same is 14—70 showing here the polyploidy. LEVITSKY and KUSMINA (1927) report that the diploid chromosome number of *Festuca pratensis* is 14 and that of *F. duriuscula* 42. My countings in the same species coincide with these results. *F. tenuifolia* ($n=7$) and *F. arenaria* ($n=21$) observed by the writer are diploid and hexaploid species in the polyploid series found by LEVITSKY and KUSMINA.

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KUWADA (1919) reported that the chromosome number of *Andropogon sorghum* var. *vulgaris* and of *A. sorghum* var. *obovata* is 10 haploid or 20 diploid. In my observation the species having 10 and 20 as the haploid number were detected, i. e., a case of tetraploidy.

According to KIHARA (1919) there is in *Avena* the polyploidy having 7 as the basic number. *Avena flavescens* observed by the writer is a tetraploid species in this series.

The somatic chromosome number of *Plantago lanceolata* was reported by NĚMEC (1910) to be 12. In *P. major* the haploid number was reported by EKSTRAND (1918) as 6. My countings in root tip cells of both species coincide or correspond to the results of these authors.

In closing the writer wishes to express his cordial thanks to Dr. Professor F. KAGAWA for his suggestion and guidance of this work.

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Explanation of Figures

All figures are drawn by the aid of ABBE's camera using LEITZ $\frac{1}{12}$ oil immersion and $\times 15$ or $\times 10$ periplant ocular.

Meiotic figures are of metaphase or early anaphase of the first division.

Magnification is $\times 2130$ for somatic, and $\times 2140$ for meiotic figures except Figs. 1. and 5. in both of which the same is $\times 1870$.