

Although we did not correlate in vitro with in vivo pollen growth, our results suggest that maize or sorghum pollen, when placed upon stigmas of the other genus, was incapable of sufficient pollen tube growth to effect fertilization. Therefore, embryoless seeds from maize x sorghum pollinations may have resulted from parthenogenesis. Further research on this possibility and on physiology of pollen germination and growth is being conducted.

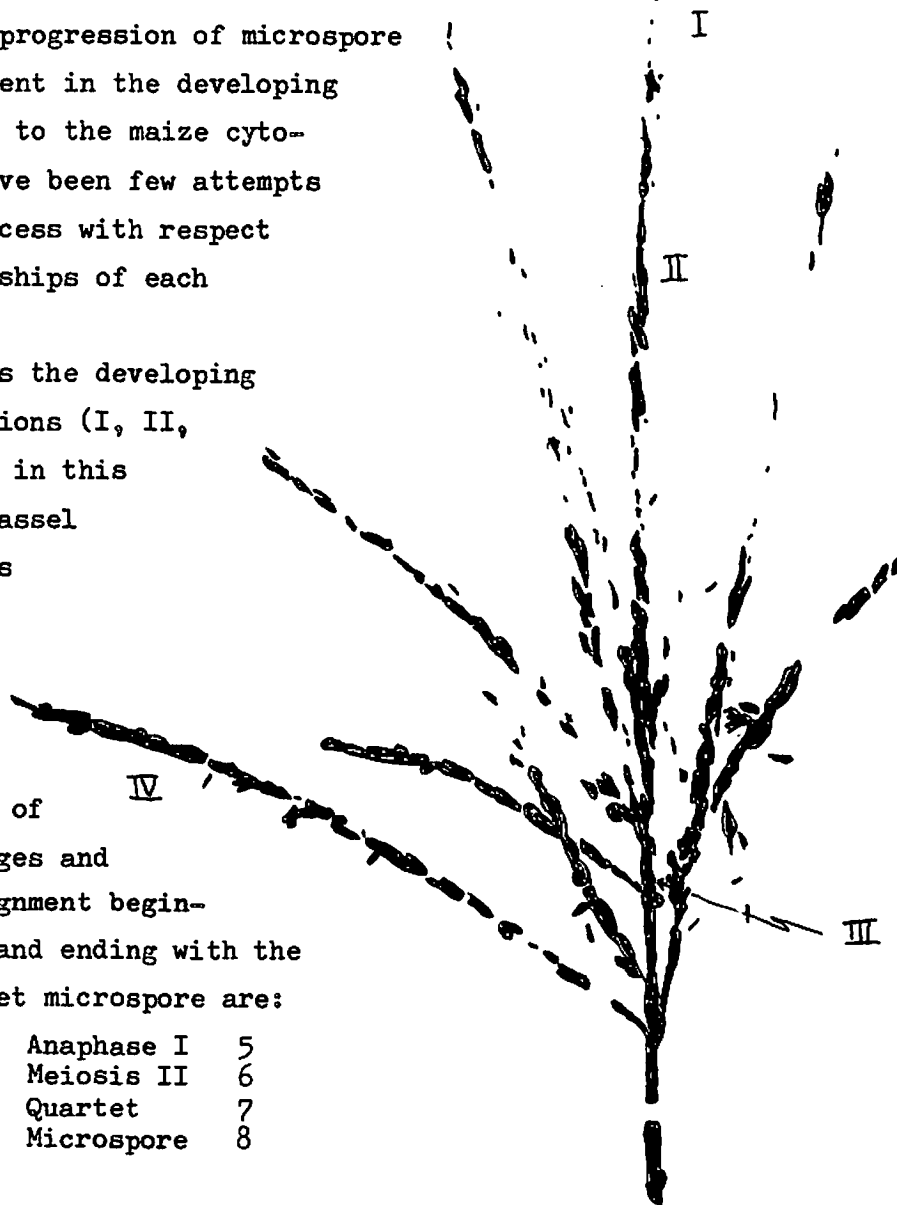
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3. The distribution of meiotic stages in the developing tassel.

Although the progression of microspore mother cell development in the developing tassel is well known to the maize cytogeneticist, there have been few attempts to quantify this process with respect to the interrelationships of each region.

If one divides the developing tassel into four regions (I, II, III and IV) as shown in this diagrammatic mature tassel and then standardizes each of the stages numerically one can quantify the relation between the areas and stages of maturation. The stages and their numerical assignment beginning with Leptotene and ending with the immediate post-quartet microspore are:

Leptotene	1	Anaphase I	5
Zygotene	2	Meiosis II	6
Pachytene	3	Quartet	7
Metaphase I	4	Microspore	8



Six inbred lines and seven hybrids were examined and four different tassels were used for each line and each of the hybrids except 101,03/70, 101/40, and 01/70. The numerical values are shown in Table 1. What is obvious to the practicing cytogeneticist is confirmed by these observations--i.e., the four areas of the maturing tassel, from the most advanced (mature) to the least advanced meiotic stages, occur in the following order: II-I-III-IV. The numerical values assignable to each of the areas are significantly different.

Table 1. The numerical average of meiotic stages in four regions of an immature tassel of seven inbreds and their hybrids.

Line	Area			
	I	II	III	IV
01	7.25	7.50	6.00	5.50
03	5.12	5.25	4.75	4.50
30	3.25	4.00	2.62	1.50
60	5.25	5.25	4.25	3.00
70	4.25	5.50	3.50	2.75
80	2.12	3.75	1.75	1.50
101	7.00	8.00	2.00	2.00
Average	4.89	5.61	3.55	2.96
60/80	3.25	3.75	2.37	1.75
60/30	2.00	3.00	2.00	1.00
30/60	4.00	4.62	3.25	2.37
01/70	8.00	8.00	7.50	7.00
03/70	7.50	8.00	7.50	4.00
70/102	6.50	6.87	6.25	5.25
101/40	2.00	4.50	2.00	2.00
Average	4.75	5.53	4.41	3.33
Grand Average	4.82	5.57	3.98	3.14

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