

interphase sporocytes (anther length 0.4 mm) - 0.135

interphase sporocytes (anther length 1.0 mm) - 0.142

interphase tapetals (anther length 0.4 mm) - 0.163

interphase tapetals (anther length 1.0 mm) - 0.192

interphase tapetals (pachytene anthers) - 0.191

The homologous K10's were very significantly (.01 level) nearer than random expectation would predict in both t tests and Kolmogorov-Smirnov tests at all stages studied.

Differences found between average K10 separation were not significant (0.10 level, t test) in the following comparisons:

interphase sporocytes (anther length 0.4 mm) vs interphase  
sporocytes (anther length 1.0 mm)

interphase sporocytes (anther length 0.4 mm) vs interphase  
tapetals (anther length 0.4 mm)

interphase tapetals (anther length 0.4 mm) vs interphase  
tapetals (anther length 1.0 mm)

interphase tapetals (anther length 0.4 mm) vs tapetals  
from pachytene anthers

interphase tapetals (anther length 1.0 mm) vs tapetals  
from pachytene anthers

The K10's were significantly closer (.01 level) by this test, however, in interphase sporocytes from anthers 1.0 mm. long than in interphase tapetal nuclei from the same anthers.

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1. Plants carrying the gene "rootless."

A phenomenon noticed rather strikingly in 1968 field plantings of some 1000 rootless (rt/rt) plants derived from a "nearly rootless" stock was that a portion of the field which was unintentionally left

unirrigated showed no influence of drought, while five parallel rows of W23/L317 F<sub>1</sub> plants which also ran into the unirrigated area showed drastic wilting in these portions within the dry soil area.

Conversation with other maize investigators has revealed that this same drought-hardiness of rootless stocks has been noticed but not explained in fields grown in Ohio and Iowa. The possibility of water conservation by such plants, which may be genetically able to regulate or lower transpiration rates, is the basis for a grant application to a private source with which it is hoped to undertake such investigations during the next two or three years.

Further data were accumulated during the summer of 1968 on the effectiveness on root development of treatments with  $2 \times 10^{-4}$  Molar TIBA (Tri-Iodo Benzoic Acid) and N<sub>6</sub>BZA (N<sub>6</sub>BenzyI Adenine), and are summarized in the following table in which brace root development is rated on a 0-5 scale. It can be concluded that, at the strengths employed, there was less influence on root development than at the higher strengths used one year ago.

	Total plant number	Treatment	No. of plants with brace root development rating* of:					
			0	1	2	3	4	5
Rootless with some roots	124	none	10	34	41	35	8	
	37	TIBA - 100 micrograms daily	6	4	22	5		
	33	TIBA - 100 micrograms each third day	2	11	14	5	1	
	40	N <sub>6</sub> BZA - 100 micrograms daily	3	13	19	5		
	34	N <sub>6</sub> BZA - 100 micrograms each third day	5	4	16	9		
	29	water (control)	2	10	13	4		

\*0 = no roots; 5 = normal roots.

	Total plant number	Treatment	No. of plants with brace root development rating* of:					
			0	1	2	3	4	5
<u>Rootless</u>	94	TIBA - 100 micrograms daily	27	27	27	11	3	
<u>Rootless</u>	105	TIBA - 100 micrograms each third day	33	30	23	11	8	
	94	N <sub>6</sub> BZA - 100 micrograms daily	34	34	16	10		
	107	N <sub>6</sub> BZA - 100 micrograms each third day	38	27	28	13	1	
	197	none	79	56	44	11	7	
	100	water (control)	50	19	22	7	2	

Norton H. Nickerson

2. Races of maize in Panama.

Seeds from certain stocks collected in Panama, as noted in last year's Newsletter (Vol. 42), were grown in the Bahamas during the spring of 1968, and internode data on 5 - plant samples of fifteen stocks were obtained. The Bahamas experimental plot is being activated again this year in an attempt to obtain data on those stocks not yet known except from ear collections. The samples collected were analyzed for Fe, Cu, P, K, Ca, Sr, Mg, Mn and Zn by Dr. Jack Gamble of the University of Florida. In general, levels were low and did not vary significantly among the varieties or the locations collected.

Norton H. Nickerson

3. Bahamian Maize.

There are at least two "native" strains of maize in the Bahamas which apparently exhibit drought resistance. One of these appears to be an extreme Chandelle type which we have been able so far to see only in