values. In spite of the low pH of these soils, the molybdenum deficiency was easily diagnosed by planting maize seed soaked for one hour in a 0.5% solution of sodium molybdate between the yellow plants. Plants originating from the treated seed were green and grew like normal plants.

In addition to the severe molybdenum deficiency symptoms, very distinct phosphorus deficiency symptoms were also observed on the same plants in the plots with a soil pH of 4.0.

It appears, therefore, that it is of paramount importance to check soil pH regularly and to guard against abnormal acidification.

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Plant Pathologist

3. Root disease of maize -- a request.

A serious root rot of maize, causing the rotting of all major roots as well as the newly formed thin roots, is found to occur in varying degrees through the whole Transvaal region of South Africa.

Organisms commonly associated with it are: three different Fusaria, two Helminthosporia, a Trichoderma and a nematode, Pratylenchus zeae. The production of a phytotoxic substance by one or more of the fungi, is another possibility.

Any information in this connection will be highly appreciated.

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Plant Pathologist

4. Position effect as a factor in pollen tube competition in Zea mays L.?

Studies of pollen tube competition reported in previous years (M.N.L. 1958-1962) have indicated that many genes are probably involved in pollen tube growth. Since the male gametophyte is apparently very sensitive to gene action it is possible that position effect, resulting from reciprocal translocation, may be revealed in its effect on pollen tube competition. In the table below are tabulated the progenies of crosses between normal seed parents and reciprocal translocation heterozygotes as pollen parents, as recorded in column 1. Optimum growing conditions were available so that errors for classification of semi-sterility were negligible. The pollen tubes containing the T1-3i reciprocal translocation were significantly more efficient in competition than normal tubes as is apparent in the difference in the number of normal and sterile plants recorded in the progeny. This was also the case for T1-6c. However, in the case of T1-8i the normal class predominated, whereas no significant differences were recorded in the progenies of T1-4a and T1-7b. It is of interest to note that although chromosome 1 was involved in all the reciprocal translocations studied, there was a marked difference in pollen tube competition recorded for the different progenies.

Crosses Normal X Semi-sterile

Chromosome Translocation Type	Progeny		P Value
	Normal	Semi-sterile	
T1-3i	165	345	<0.01
T1-4a	83	83	>0.99
T1-6c	142	188	0.01-0.02
T1-7b	111	135	0.10-0.20
T1-8i	240	100	<0.01

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5. Location of genes for ear-row number in Zea mays, L.

The different progenies recorded in the table of contribution No. 4 (above), showed a wide segregation for ear-row number, ranging from 8 to 16 rows. Of these only the first (T1-3i) showed a significant difference between the normal and semi-sterile ears with respect to ear-row number, and hence only these results are recorded in Table 1.

Table 1. Results of the cross: Normal X Semi-sterile

	Ear Row Number					
	8	10	12	14	16	Average
Normal	1	10	85	62	8	12.8
Semi-sterile	3	66	227	49	-	11.9

Table 2. Factorial Analysis

Source	D.F.	S.S.	M.S.	F
Total	39	12551		
Replications	3	455	155	3.77*
Fertility(a)	1	801	801	17.4 **
Rows per ear (b)	4	5024	1256	27.3 **
Interaction: (a) X (b)	4	5029	1257	27.3 **
Error	27	1232	46	

**Significant at P = 0.01, * Significant at P = 0.05.
Coeff. of Rank Correlation = 0.8 (significant).