

2. Brachytic-2 dwarf hybrids.

Hybrids of brachytic single crosses and normal single crosses have been obtained. The brachytic gene causes a shortening of stalk internodes, especially those below the ear. Other parts of the plant are usually not reduced. In the past three years, many hybrid combinations have been measured for ear and plant height, grain yield, and in some cases for culm diameter and silage yield.

A preliminary analysis of the performance is summarized in the accompanying table (No. 1). The means representing normal, semi, and full dwarf hybrids show an obvious trend. The brachytic-2 gene has partial dominance which is enhanced in specific genetic backgrounds. In addition, there is evidence that reciprocal semi-dwarfs respond differently. The degree of expression of the brachytic gene in identical nuclear backgrounds is not always equal in dwarf and normal cytoplasms.

Table 1 Dwarf-Normal comparative means by years:

	<u>1960</u>			<u>1961</u>				<u>1962</u>			
	Grain yield bu/A	Plant height inches	Culm dia- meter inches	Grain yield bu/A	Plant height inches	Ear height inches	Culm dia- meter inches	Grain yield bu/A	Silage yield lbs DM/A	Plant height inches	Ear height inches
Normal	90.2	88.0	0.98	100.9	94.6	37.6	0.81	90.3	8726.4	84.7	31.9
Semi-dwarf	86.0	81.6	1.05	101.1	92.5	35.1	0.82	86.4	8870.0	80.3	28.7
Dwarf	-	-	-	97.2	90.1	34.0	0.83	61.3	5749.9	57.1	13.6

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3. Chromosome knobs.

Dr. Albert Longley in a report to the Rockefeller Foundation Mexican Program ("Chromosome Knobs of Maize from the Latin Americas" by Albert Longley and Angel Kato Y. 1961) described the origin of large masses of heterochromatic material in several diverse collections of the race Nal-Tel. Plants used in Longley's studies were sacrificed. Seed samples (5 kernels) of collections reported to show unusual heterochromatic accumulations were planted in the greenhouse in winter 1962 and microspore mother cells were collected for chromosome observations.