

in being excessively tall and profusely tillered. Chaganti suggests they result from unreduced eggs and is studying the cytology of these plants at Andhra University in Waltair, India in order to determine this.

Genetic Data for Transmission Rate to 57 lg1 gl2 v4
Corn Plants of Two Dominantly Marked
T. floridanum Chromosomes Derived from a
Corn-Tripsacum BC₁ Hybrid

	Arm of corn chromosome 2	
	Short	Long
Dominants from Tripsacum	Lg ₁ G ₁₂	V ₄
Rate (%) excluding plants from "unreduced eggs"*	54.5	38.6
Rate (%) including plants from "unreduced eggs"	63.2	66.6

*The large plants resembling their 3n parent and which may be Z(ZZT).

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1. Year-round corn in Hawaii.

Sweet and field corn varieties are grown regularly throughout the year at most of the 13 field experiment stations of the University of Hawaii. The stations embrace a wide range of climates, from wet to arid, sub-tropical to temperate. Corn is grown commercially from sea level to 4000', almost exclusively in summer months. A picture of the range of variation encountered is given below for Golden Cross Bantam sweet corn (7' in height, 85 days to harvest, in corn belt):

Station	Elevation, Conditions	Annual Rain-fall	Month Plant-ed	Mature Height	Days to Harvest	Relative Yield
Poamoho	100'; clear	50"	June	7'	64	100%
"	"	50"	Dec.	5½'	68	90%
Waimanalo	Sea level; partial overcast	60"	June	6'	66	90%
"	"	60"	Dec.	5'	70	75%
Haleakala	3000'; partial overcast	100"	June	4½'	85	75%
"	"	100"	Dec.	3½'	102	50%

At the lower elevations in Hawaii, it appears that the short daylengths (11.5 to 12.5 hours) combine with high night temperatures (avg. 72 in July and 69 in January in Honolulu) to telescope down the growing seasons of corn belt varieties and hybrids, reducing ear lengths and yields. At higher elevations in Hawaii, the cool temperatures lengthen growing seasons. Adaptability to the short daylengths, rather simply inherited, is fairly widespread among field and pop corns, but uncommon among sweets (most of which trace to northeastern flints). Present corn breeding in Hawaii is confined largely to sugary and shrunken stocks.

Genetic marker stocks, such as McClintock's Chromosome 9 marker lines, have been planted in most months of the past three years and satisfactory seed yields obtained. Control of earworms and of leafhoppers which transmit a serious sweet corn mosaic is practiced routinely; Helminthosporium has not posed a significant problem. We would entertain interest in genetic nurseries in Hawaii during winter seasons.

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