

#### 4. A short day mutant.

During routine testing of Bikini-exposed progeny, a recessive mutant showing prolonged growth and late fall flowering was observed. Investigation was begun in 1951 to determine if the late flowering resulted from an absolute requirement for short days. Seeds of a segregating culture were planted February 6 in Earhart Plant Research Laboratory under a 20 hour daily light period (long day) (Temperature 30°C day, 22°C night). Approximately three quarters of the plants had matured by May 1st. The remaining one quarter (25 plants) which showed no indication of flowering at this time were transferred to an 8-hour daily light period (short day) (23° day, 17° night) to induce flowering. After 20 days they were transferred to natural day (23° day, 17° night). They began to tassel on June 15 and all had tasseled by August 30th. All of the 15 plants carried to maturity showed the same unusual development.

Comparison of normal and short day mutant plants at maturity

	Number of Leaves		Height in cm.	
	range	average	range	average
Normals	12-17	14	140-190	160
Mutants	28-50	35	210-450	298

Instead of only the usual 3-4 lower nodes showing prop roots, the mutants had an average of 21 nodes with prop roots, in some cases extending to within 3 nodes of the tassel. Ear primordia never formed in the leaf axils, but rather in a peculiar manner in the tassels. All tassels appeared normal when first emerged, but by the time the whole tassel was visible numerous irregularities were present. The top 3 or 4 branches produced functional anthers, whereas the lower 10-12 branches appeared to be a mass of vegetative plants. Many of these plant-like structures developed into very small but functional two rowed ears. The investigation is being continued making use of the approximately 100 selfed mutant seed that were obtained.

James L. Liverman