

(1) Cells of non-treated dwarf-1 leaf sheaths were fewer in number and smaller than those of normals.

(2) Dwarf-1 seedlings treated with gibberellins had a cell number and cell length that approached the cell number and cell length of non-treated normals. In the region of the ligule, cell lengths of treated dwarfs were characteristically shorter than those of the normals. In the median portion of the sheath, cell lengths of treated dwarfs were found to be the same or greater than cell lengths of non-treated normals.

Table 1. Length of first leaf sheath, total cell number and maximum cell length within this leaf sheath for dwarf-1 and normal seedlings.\*

	non-treated <u>dwarf-1</u>	treated <u>dwarf-1</u>	non-treated normal
Length of sheath	18 mm.	55 mm.	50 mm.
Total number of parenchyma cells along a linear file from the ligule to the base of the leaf sheath	248	405	437
Maximum cell length in the parenchyma of the leaf sheath	95 microns	205 microns	165 microns

\* values are averages from 4 leaf sheaths.

Kenneth R. Skjogstad

CALIFORNIA INSTITUTE OF TECHNOLOGY  
AND UNITED STATES DEPARTMENT OF AGRICULTURE  
Pasadena 4, California

1. The gametophyte factor of chromosome 5.

The translocation #5L.09-9L.06 brought into one linkage group the characters shrunken, waxy, gametophyte, brittle, necrotic and red aleurone. The necrotic character is a seedling abnormality recently observed by Dr. Anderson, that causes parts of the young leaf tissue to become watery and die, and it produces zebra-like stripes of lighter green tissue in the leaves of mature plants. The gametophyte character is detected only when pollen carrying this character falls on pistils that possess an inhibitor, preventing it from effecting fertilization. This inhibitor factor seems to be dominant and at present has not been

tied to any linkage group. Since it seems to eliminate all pollen carrying the ga factor it eliminates all other genes on the same chromosome.

Since egg transmission is normal for semisterile plants carrying the inhibitor or the ga factor or both, selfed plants heterozygous for ga, a second linked character and the inhibitor show directly 1/2 the recombination between them by the departure of the second character in seed or progeny classes from 50%, if the second character is not on the ga bearing chromosome, or by the departure from 0% if the second character is on the ga chromosome. When the recombination value is too low to show in some small samples these were not included in determining the value and consequently the determinations in this group given below are slightly too high. Back cross seeds or progenies, obtained when pollen from semisterile plants was used on testers carrying the inhibitor, gave a direct measure of the recombination value between ga and a second linked character by the departure of the second character from 100% or 0%.

<u>Character</u>	<u>Recombination value</u>	
	Back Cross %	Self %
<u>sh</u> - <u>ga</u>	---	27.1
<u>wx</u> - <u>ga</u>	7.6	9.0
<u>4</u> - <u>ga</u>	---	3.0
<u>ga</u> - <u>bt</u>	---	4.3
<u>ga</u> - <u>nc</u>	---	7.2

A. E. Longley

## 2. List of translocation stocks.

List of translocation stocks obtained from the "Crossroads" material (Bikini able bomb and x-ray controls). The cytological positions given are the average measurements of camera lucida drawings of three or more pachytene figures.

<u>Symbol</u>	<u>Chromosomes</u>	<u>Chromosomal Designation</u>	
4301- 39	3-8	3L.92	8L.82
4301-111	2-3	2 near cent.	3 near cent.
4302- 31	1-7	1S.16	7L.08
4302-116	5-8	5L.06	8S.11
4303- 9	9-10	9L.26	10S.44