Table 3
Effect of Short-term LD Cycles on $\underline{R}^1$ Expression

	Age of Plant in Days and No. of Cycles of LD				
LL	17-23 7	23-25 3	23-26 4	23-29 7	Field Grown
12.84	14.50	16.14	14.38	16.30	15.91
11.88	13.82	15.60	14.71	16.50	16.13
12.18	12.76	16.26	16.46	12.73	14.24
10.65	12.88	12.96	12.66	14.44	16.05
12.72	14.26	11.24	13.82	15.25	15.22
9.14				16.16	17.98
12.26				14.26	15.91
11.52					14.57
11.65	13.64	14.44	14.41	15.09	15.75 Pooled $\overline{X}$

Testcross results of $\underline{RR}^{st}$ plants given LD cycles during the 3rd and 4th weeks of seedling development. Plants were kept under constant light except for the periods of LD treatment indicated.

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1. Modified phyllotaxis in maize. Dispersion, spirodistichy, decussation, and similar alterations in other parts of maize plants. Multiple germination in distichous, spirodistichous and decussate plants.

In an inbred line of maize, inherited decussate phyllotaxis was observed in association with brachysm and other modifications in height. Some other abnormalities were found, such as alterations in the position of grains in the ear, increased numbers of plumules, plurality of embryos and multiplicity of plants after germination.

The decussation is present both in leaves and ears, and it may involve higher physiological efficiency and higher yield than in normal distichous plants having the same number of nodes. The decussate plants have the trend to subtend a high number of ears.

There is also a tendency to a helical disposition of several organs or parts of plants. The gyre of the helix may be turned to the right or to the left side.

The position of the grains in the spike may be alternate or opposed and in pairs coupled on the same peduncule, in all of the possible positions. The grains may weld together, giving rise to grains with two embryos or two endosperms. This abnormality has also been detected in normal distichous plants. The alterations in the ear are often symmetrical. An odd number of rows has been repeatedly found.

After germination of the seeds, two, three and more seedlings emerge, all coming from the same grain. The multiple germination can be predicted after inspection of the seed, owing to the presence of apparent swellings, corresponding to the preformed coleoptiles. Embryos carrying these anomalies have also been detected in seeds from normal distichous plants.

Welding, fasciation and abnormalities of this order, have been observed in leaves, stems and inflorescences. The decussate plants may give rise indistinctly to distichous, spirodistichous and decussate plants.

A program of studies is now developing in relation to these abnormalities.

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1. Peroxidase isozymes in maize; designation of locus Px_1.

Eighteen peroxidase isozymes were reported previously in several lines of maize (Hamill, Maize News Letter 41: 62, 1967). Using the same techniques of starch gel electrophoresis, 6 additional isozymes have been found, bringing the total to 24 (13 moving cathodally and 11 anodally). Twelve of these isozymes migrated to positions comparable to isozymes observed in commercial preparations of horseradish peroxidase, making this a useful reference. Plants within inbred lines of dent and sweet corn normally displayed identical isozyme patterns for a given tissue, while plants within open-pollinated varieties and diverse tropical races exhibited much variation.

Peroxidase isozyme patterns have been studied in some detail for 8 seedling tissues and 13 mature tissues. Isozyme complements varied greatly among tissues, with certain tissues showing a rather characteristic pattern. Two isozyme bands were found to be unique to mature tissues. No tissue studied had all the 24 isozymes and no tissue completely lacked peroxidase isozymes. Within tissues of any one line of maize the number of isozymes