packing the treated ears in ice for 15 minutes. The offspring from the treated ears were grown out, selfed, and crossed to Syn B. Several of the cross pollinations were successful. These tetraploid stocks are being expanded.

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1. Cryptic earliness in maize.

To produce an early maturing hybrid, one commonly uses at least one very early inbred as a parent in the cross. The degree of difference between maturities of parental inbreds is often limited by the ability of the breeder to provide for adequate "nick" of anthesis and silk extrusion. The concept of using "cryptically early" germplasm to bring earliness to the progeny of a cross was proposed in the 1972 Maize Genetics Cooperation News Letter. The term "cryptic earliness" describes a latent genetic potential for earliness which is masked by the id/id genotype. An id/id plant without effective earliness genes is vegetatively indeterminant and barren, but with proper selection of earliness and fertility genes in the id/id background, adequate fertility has been obtained in the inbred line B37 id/id. B37 id/id is taller and later than B37 +/+. However, the cross of B37 id/id x A619 is shorter and earlier than B37 +/+ x A619. The data presented here demonstrate the effect of the id gene in masking extreme genetic earliness and associated agronomic characters so that those genes for earliness can be utilized without the usual wide divergence in maturity of the parental inbreds. Earliness, shortened plants, and lowered ears are unmasked in heterozygous +/id offspring. Any effect of cryptic earliness conversion on yield remains to be established in replicated trials, but the effect on maturity and ear and plant height appears evident in this pilot study. Cryptically early inbreds may prove useful in producing hybrids in a location with longer growing season than the area of intended

Table 1

Agronomic data on inbreds and hybrids illustrating the effects of the id/id genotype

Entry	No. of nodes		Ear node		Ear height		Plant height		Days to silk		Yield		K. row no.		Ear length	
	$\bar{x}$*	s*	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
A619	10.1	0.57	4.2	.63	8.6	1.90	49.7	2.11	86.8	1.32						
B37 +/+	13.0	0.67	6.2	.42	19.3	2.50	61.9	3.54	93.3	1.49						
B37 id/id	17.0	0.94	9.0	1.15	37.8	6.46	97.7	6.50	115.4	2.59						
B37 +/+ x A619	13.1	0.57	5.8	0.42	27.4	3.53	75.2	4.13	95.0	1.25	90.7	17.79	14.6	1.35	5.21	0.79
B37 id/id x A619	10.7	0.67	3.5	0.53	14.5	1.96	66.9	4.77	78.8	1.62	86.4	22.71	16.2	1.14	4.91	0.97

*Mean and standard deviation statistics are based on one replication, ten plants per entry.

production, or for the incorporation of earliness genes by standard backcrossing into very late maturing inbreds without delayed planting of the early parent.

D. L. Shaver
C. L. Prior

2. Defective cytoplasm in Zea.

In 1956 an experiment was begun to insert the Wf9 nucleus into a number of exotic cytoplasms, among these, that of perennial teosinte, Zea perennis. Two isolates of perennial teosinte cytoplasm were made. In the 1966 winter nursery at Homestead, Fla. one of these was found to cause defectiveness in plant phenotype: male sterility, chorophyll striping, reduced germination and plant size. This was discovered in the backcross-7 progeny of the transfer process.

Upon reaching the backcross-8 level of recovery of Wf9 with teosinte cytoplasms, each of three Wf9 cytoplasmic types were inserted into two different single cross hybrids in order to evaluate the effects of the defective cytoplasm upon hybrid performance, and these were tested in a 4-replication yield trial at Greenfield, Calif. in 1968.

Entry	Hybrid	Type of cytoplasm	Acre yield	No. days to ½ silk	Inches above ground ear height
1	Wf9xC103	Maize	14,221	102.2	51.2
2	Wf9xC103	Normal teosinte	14,084	101.2	51.0
3	Wf9xC103	Defective teosinte	11,377	104.2	49.0
4	Wf9x644	Maize	14,389	103.2	51.5
5	Wf9x644	Normal teosinte	14,649	103.8	51.0
6	Wf9x644	Defective teosinte	11,432	104.2	46.5

Analysis of variance

Source	D/F	SS	MS	F	5%	1%
Total	23	19.0687				
Hybrids	5	13.7151	2.7430	14.892**	2.90	4.56
Reps	3	2.5904	.8635	4.688*	3.29	5.42
Error	15	2.7632	.1842			

Entry 1 vs. entry 2 = .02
Entry 1 vs. entry 3 = 1.53**
Entry 2 vs. entry 3 = 1.51**
Entry 4 vs. entry 5 = .14
Entry 4 vs. entry 6 = 1.40**
Entry 5 vs. entry 6 = 1.74**

Probability	T	σ MD
5%	2.13	.646
1%	2.95	.895