

380 seeds of the 1980 F2's were planted. Only two plants flowered at the normal (110-day maturity) time. These were observed and crossed with each other, and a satisfactory quantity of good seed was saved. Each following year the resulting seed (17LD) has been planted and has bloomed and produced seed. A minority (less than 5% of the plants) continue to bloom too late in Minnesota to mature seed.

In summation: The plants have a very pronounced teosinte growth habit, with 3 to 30 tillers; 10 to 200 silking locations; 10 to 100 viable seeds per ear; numerous brace roots extending from the 1st to the 7th node; some plants regenerate from planted nodes with brace roots. Seed is available on a limited basis from 1988 by contacting LAC.

Experiment 2. During 1985 in St. Paul, B73 was crossed with *Zea diploperennis* originating from Laventana, Jalisco, Mexico. The female parent was B73. A large amount of F1 seed was obtained, of which eight plants were grown in 1986 in St. Paul. The F1 plants were planted in May, and were "short-dayed" at the three leaf stage by covering them with 30 gallon trash barrels from 6 p.m. until 8 a.m. The short-day treatment was discontinued after 24 days. Three of the plants tasseled 11 days later. The eight F1 plants were grown in isolation to obtain as much F2 seed as possible. More than 600 seeds were obtained. In 1987 597 F2 plants were observed at the University of Minnesota. Seven plants flowered without the short-day treatment during the period July 28 through Aug. 15. Sibs were made between these plants. The balance of the plants did not mature. In 1988 about 35 F3 plants were grown in isolation without the short-day treatment in St. Paul. Open pollination with no selection was used, and a reasonable amount of seed was saved. All of the plants set seed with a three-week range in the time of maturity.

In summation: The plants have a very pronounced teosinte growth habit, with 1 to 10 tillers; 4 to 30 silking locations; 10 to 150 viable seeds per ear; numerous brace roots extending from the 1st to the 10th node; some plants regenerate from planted nodes with brace roots; new plant regeneration takes place when a tiller is held to the ground with the new roots growing from the node.

Experiment 3. The above seeds from 1979 and 1985 were combined and backcrossed two times to *Zea diploperennis* in the greenhouse. These plants continued to bloom in the long days of the Northern Corn belt. They continue to have multiple tillers and multiple ears but the ears returned to, for the most part, *Zea dip.*-like morphology. Most seeds were enclosed in a cupule. The progeny have been replicated several times (4) over the years in isolation. Seed from these plants, which I named "87½ *Zea dip.*," is available from the author (LAC) or the North Central Regional Plant introduction Station at Ames, Iowa.

In 2011 a single plant among 186 seemed to develop a cob-like structure. 51 plants from this selection were grown in isolation in 2012. All plants were harvested, but 20 plants were harvested individually. Of these, 13 plants yielded 1,032 grams of seed. 311 grams remain as ear or ear segments as of June 1, 2013. 721 grams are disarticulated. No attempt was made to preserve the ear structure. Without counting or weighing, at least 600 grams of these seeds had a pronounced extruded endosperm. The



Figure 1. Adapted *Zea diploperennis*, example ear.

other seven plants, without any articulated ears, yielded 1,179 grams of seed. All seeds from these seven plants were enclosed by the cupule.

URBANA, ILLINOIS

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2012/2013 allele tests at the Maize Genetics Stock Center

— Stinard, PS; Sachs, MM

During the past year, we obtained positive allele tests for the following previously uncharacterized mutants: *te**-87-2490-22 is allelic to *te1* and is now called *te1-87-2490-22*. *stb**-N938C is allelic to *oro1* and is now called *oro1-N938C*. *vp**-UFMu-03777 is allelic to *vp5* and is now called *vp5-UFMu-03777*.

We obtained negative allele tests for the following mutants: *clpp1-ys* is not allelic to *oro1*. *l3*, a poorly characterized pale luteus seedling mutant on 6L, is not allelic to *l10*. Previous tests showed that *l3* is not allelic to *l12* or *l15*. *l3* still remains to be tested against the 6L mutants *w1* and *w15*, which also have a pale luteus phenotype.

zebra7* and *luteus17* are allelic to *lemon white1

— Stinard, PS and Sachs, MM

Based on map location, function, and predicted phenotype, Stinard (MNL 86:29-31, 2013) hypothesized that the maize *lemon white1* (*lw1*) locus encodes the plastidial (MEP pathway) isopren-