

4. Teosinte populations in Nobogame Valley, Mexico.

Field studies begun two years ago in Mexico (MNL 37, 1963, MNL 38, 1964) were continued and the final and most northern of the teosinte populations in the Nobogame Valley were studied. This valley is located in the Sierra Madre Occidental of Chihuahua about eight miles northeast of Guadalupe y Calvo. In all areas in both Guatemala and Mexico where teosinte and maize occur together, I have been able to find some evidence (only a single F₁ hybrid in some cases) of hybridization, but never have I found such a large number of hybrids and clear and unmistakable effects of teosinte introgression in maize cobs as exist in Nobogame. The proportion of F₁ hybrids was comparable to Chalco (MNL 37, 1963) but the extent of introgression is much clearer and, unlike Chalco, teosinte was not limited to the cultivated fields but occurred in dense stands along the streams and in protected areas on the surrounding hills (1800-1850 meters).

The most effective isolating mechanism in most areas where teosinte and maize overlap has been the mean mid-flowering date, with maize flowering two to five weeks ahead of teosinte. Nobogame teosinte is unique in that it is the only teosinte population not seasonally isolated from maize. Maize of the Nobogame Valley is a five-month type planted in May and harvested in September before the early killing frost. Both teosinte and maize reach mid-flowering in August. This is three to seven weeks earlier than the mean mid-flowering date for teosinte in the rest of Mexico.

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5. Tripsacum population studies.

Field studies and collections of the Tripsacum species native to Mexico and Guatemala were begun this year. Two months were spent collecting seed, herbarium material, and live root stocks for propagation. An effort was made to collect not only all the known species but also to sample the variation typical of several parts of Mexico. Preliminary study of the collections has indicated that rigidly applied species concepts will not work with much of our material and we therefore hesitate to use species names.

The genus Tripsacum occurs throughout Mexico but is most abundant on the Pacific slopes. The greatest concentration of variation occurs in the Balsas Basin

north along the western side of the Central Plateau in Jalisco. This distribution is remarkably parallel to that of teosinte (MNL 38, 1964). Ecologically, Tripsacum shares with teosinte a preference for limestone rock and elevations from 800 to 1850 meters. The mean month of flowering is October but some of the narrower leaved forms flower in September.

Our collections include an amazing range of variation, some of which has never been described in the literature. Besides the usually mentioned variation in plant habit, (leaf length and width, spike characteristics and pilosity) we have a wealth of variation in plant colors (anthers, glumes, sheaths, leaf bases etc.). We hope to make material available for general study from 15 localities in Mexico and 5 in Guatemala as soon as clones are well established.

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6. Classification of Corn Belt inbreds.

Since the maize of the Corn Belt originated from the hybridization of southern dents and northern flints, present day inbreds can be arranged with respect to their flint or dent characteristics (Anderson and Brown, 1952). Further distinctions can be made with each of these groups on the basis of leaf and plant morphology, chromosome knob number, internal cob morphology, and ear attributes. Depending upon the degree of modification, four classes can be recognized altogether.

Table 1
The Classification of Twelve Inbreds

Dents	Modified Dents	Modified Flints	Flints
WF9	111 A	Oh51A	Oh40B
OS420	W22	38-11	Oh07
HY		L317	
		Oh45	
		Cl03	