preferred the sweet-dent silage to straight field corn silage.

In recent years we have used inbred CO-106 in some nutritional studies and during this period a curiosity developed to determine its potential when combined with certain sweet corn inbreds. CO-106 is a very early inbred and combinations were tested with a few early sweet corn lines such as Ma 21547, C5NT, and Ma 51.408.

Some of these hybrids and particularly CO-106 x Ma 21547 have demonstrated a remarkable degree of vigor considering the season of maturity. From plantings on May 11, the stalks develop to a height of about seven feet and the relatively large ears have developed to the dough stage during the latter part of July during the past two years. The plant habit allows for very close planting with subsequent high plant population.

This preliminary investigation dealing with the feasibility of early sweet-dent hybrids indicates they would not be competitive for silage but do give promise as a source of "summer-food" when many farmers are looking for nutritive and palatable forage for dairy cows.

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1. String cob maize.

Grobman et al (1961) described the cob (rachis) of the tiny-eared, primitive Peruvian race, Confite Morocho, as having small, shallow cupules and as being no thicker than the rachis of the tassel. We have named this feature "string-cob" and we have transferred it to a sweet corn inbred which is designated Sc 51 because of its relationship to Purdue 51. The string-cob ears in their new background are longer than their normal P51 counterparts, uniquely slender and above average in tenderness and flavor.

This evolutionary retreat to recover the string cob condition may have certain economic advantages in modern sweet corn. The string cob ear is ideal for whole ear canning and freezing, the cob is easily disposed in a garbage grinder and the ear is more dainty for eating on the cob.

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2. Inheritance of string cob.

After the string cob feature was transferred to a sweet corn inbred (Sc 51) and then outcrossed to three other inbreds, its expression was

found to be controlled by two incompletely dominant genes, as indicated by F_2 ratios of 1:14:1. In some cases the phenotypic effects of these genes are measured best in terms of rachis diameters (cob minus glumes) and in other cases rachis internode length is the more important criterion. In the F_2 segregation from self pollinating a hybrid between a string cob inbred and the sweet corn inbred Ia 5125, the distribution of rachis diameters was trimodal with a good fit to the 1:14:1 ratio. The fit was less distinct for rachis diameters with G29 and not at all apparent with Wilburs Flint. The reverse was true regarding rachis internode length. Only Wilburs Flint yielded a trimodal distribution for rachis internode length fitting a 1:14:1 ratio. The segregation involving Wilburs Flint was homozygous for the eight-rowed condition.

Crosses with the collection of A-B translocation testers yielded a few extreme string-type specimens in hybrids with TB4S and TB9S which indicates that the two major genes involved may be located on the short arms of these two chromosomes. Other studies indicate that teosinte also has loci affecting rachis internode length on these chromosomes.

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3. Non-cupulate pistillate rachises in maize.

The F_2 segregation of Iowa 5125 x string cob yielded a few pistillate rachises which were like the staminate rachises in being barren of cupules. This condition, apparently not previously observed in maize, may result from a recombination of parental factors for small cupules.

The small cupules of the string cob inbred stem from their vestigial nature in their "pure-maize" source, Confite Morocho.

The small cupules of 5125 may also be associated with pure maize germplasm or, at least, from a low-level of teosinte introgression. Because 5125 is fasciated and because teosinte introgression is known to reduce or eliminate fasciation (Galinat, MNL 37:35-36. 1963), this inbred is presumed to have a low-level of such introgression. While cupules appear to be rudimentary in maize, they do have a function in the formation of the cupulate fruit case of maize's close relatives, teosinte and Tripsacum. The well-developed cupules of modern "tripsacoid" maize appears to stem from the introgression by these relatives.

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4. Recessiveness of hairy sheath in Tripsacum species hybrids.

The gene for hairy sheath (Hs) on the short arm of corn chromosome 7 acts as a dominant (Tavcar, 1932). Yet when either of two species of Tripsacum with hairy sheaths, T. maizar, T. pilosum, are hybridized with species having glabrous sheaths, T. dactyloides, T. floridanum, T. zopilotense, and a glabrous form of T. australe, the F_1 hybrid is glabrous. The results of this study of the inheritance of hairy sheath in chiefly diploid species of Tripsacum may be useful in determining the parentage of various tetraploid species believed to have had an alloploid origin.