position of the tassels was completely taken over by silk producing female flowers. The percentage of these feminized plants was high. Unfortunately, we were unable to produce seeds of such feminized plants due to lack of pollen grains for pollination.

Since the factors for soil, greenhouse temperature, and watering were similar for all the plants, the only variable was the leaf stage of the seedlings when SD treatment was started. Thus, the seedlings which were too young (with less than 6 to 7 leaves) received a prolonged SD induction, which may have caused the transformation from a monoecious condition, as in maize, to completely feminized plants.

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3. Misuse of the term "vivipary".

The term "vivipary" was first used by Linnaeus (1737, 1759) for the vegetative shoots developing on the inflorescences in place of spikelets, in Polygonum viviparum and some grass species. Collins (1909) noticed in maize production of small, vegetative bulblike structures forming on the tassels instead of the staminate spikelets. Harris (1912), working with teosinte, raised a question about the correct use of the term "vivipary". He applied a new term "chloranthy" for the situation in which floral parts are transformed into foliar organs. Eyster (1931) has used the term "vivipary" in maize to indicate the continuous development of a plant body from its unicellular inception to maturity, without the intervention of a period of dormancy. Later, Arber in 1934 emphasized the use of these terms in a more restricted sense. According to her, only the germination of the seeds on the parent plant should be regarded as "true vivipary" and the phenomenon described by Linnaeus as "vivipary", by Collins (1909) as "bulblike structures" and by Harris as "chloranthy" should be designated as "proliferation". Further, it has been found (Harris, 1912; Reeves and Stansel, 1940; Ullstrup, 1952) that proliferations are physiologically initiated by incomplete floral induction or by fungal infection. But in "true vivipary" the zygotic embryo grows directly into the seedling without

cessation of growth, while still attached to the parent plants. The factors involved in this phenomenon are still not adequately known.

In maize (Zea mays L.) both "true vivipary" and "proliferation" may occur. The case in this species is much more interesting because the plant is monoecious, male and female sexes being present at different locations on the plant body. In maize "proliferation" is expressed only at the location of male flowers in tassels and "true vivipary" occurs only in the cobs, where female flowers are formed.

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4. Factors controlling "true-vivipary" in maize (Zea mays L.).

As we have indicated above, "true-vivipary" in maize is restricted to the cobs or female flowers. It has been recorded in the earlier literature that the sprouting of kernels occurs while they are still attached on the ear enclosed inside the husk. This condition has been considered as a "primitive character". But such premature sprouting of the kernels under natural conditions proves disadvantageous because of an insufficient water supply to maintain growth during unfavorable periods.

Various causative factors were suggested for such sprouting in maize. Weatherwax (1923) reported that environmental conditions such as warm, moist weather are responsible for premature germination. Lindstrom (1923) and Mangelsdorf (1923) considered that this phenomenon is associated with defective endosperm. Eyster (1924) suggested that a "primitive sporophyte" in maize occurs when the fertilized egg continues to grow into the new plant without going through a period of dormancy. He also proposed that the character is inherited as a simple Mendelian recessive. Further, he indicated that it appears to be associated with factors for pale yellow endosperm and albino seedlings. Mangelsdorf (1926) again reported that a number of genetic factors are involved in the inheritance of premature germination and these factors operate at various stages of endosperm development and differ in some of their effects. In a recent publication on maize by Neuffer et al. (1968), chromosome numbers 1, 2, 3, 5, and 7 are assigned for the viviparous condition. But it is still not clearly established whether vivipary in maize is entirely controlled by environmental