Effects of Advance in Generation Under Different Harvesting Regimes on the Genetic Composition of Pilgrim Ladino Clover

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PREVIOUS studies at this Station (5, 6, 9) have evaluated the effects of location of seed production and of management practices on gene frequency in Pilgrim Ladino Clover. Attention was first focused on the original parent clones of this variety and the Syn 1 generation produced by them. The clones were found to differ markedly in their seed setting ability, and the production of the clones was differentially affected by the area in which seed was produced and by the period of the year in which seed was harvested. Daylength as affected by latitude or by season seems to be the most important differentiating factor, but temperatures prior to flower initiation are also of some importance. The net result of these influences is that some clones may contribute a high proportion of the total germ plasm under one set of conditions, and notably less under another set. Thus the genetic composition of the synthetic variety, although produced from the same original clones, may vary considerably. The potential for genetic shift is of such a magnitude as to indicate a need for close control on the production of the Syn 1 seed for a variety of this type.

Syn 1 stock seed normally constitutes the breeder seed in an increase program under certification and is used to produce foundation, registered and certified seed in successive generations. In some cases the registered designation may be omitted and certified seed will be produced directly from foundation seed. Thus genetic changes in Syn 2, Syn 3 and in some cases Syn 4 may be of importance to the ultimate commercial grower. A study of successive generations from Pilgrim clones was instituted at Davis, California, a location outside of the area of origin of the variety to deter-