Notes

PISTILLATE F₁, CASTORBEANS: THEIR POSSIBLE SIGNIFICANCE IN PRODUCING COMMERCIAL HYBRID SEED

In recent years, a number of experimental single-cross castorbean hybrids have been evaluated with results showing increased yields over their inbred parents. Because of these increased yields, and because of an available method for producing single-cross seed, hybrid castors are now being grown commercially. The method for producing single-cross seed is dependent upon the pistillate character in castors.

Normally, the inflorescence of the castorbean plant is monoecious, having pistillate flowers on the upper 30 to 50% of the raceme, and staminate flowers on the lower 50 to 70%. There are numerous variations from the normal raceme. One such variation is expressed in a plant which has the interspersed pollen type of raceme; i.e., the staminate and the pistillate flowers are interspersed throughout the entire length of the raceme. Another variation is expressed in a plant which has only pistillate flowers along the entire length of the raceme. Both deviations from the normal type of raceme are now established in breeding lines.

The pistillate character is especially pronounced in the Nebraska 145-4 female line; when sib pollinated, it will segregate 1:1 for plants which have only pistillate flowers and plants which have the normal monoecious raceme. This line is now being used as a female parent in producing commercial F₁, single-cross hybrid seed. The procedure for producing hybrid seed with this line as the female parent requires that the normal monoecious plants be rogued prior to the shedding of pollen, thus allowing the female plants to be cross pollinated with a selected pollinator line planted in approximately every sixth to eighth row. As many as six roguing may be required to keep sib pollination at a minimum, as a number of the pistillate plants revert to the normal monoecious inflorescence on secondary racemes.

If roguing of castorbean crossing fields could be eliminated or materially reduced, the cost of producing hybrid seed on a commercial scale would be considerably reduced. This paper suggests a possible economical method on the production of F₁ hybrids which consist of only pistillate plants. Such hybrids resulted from crosses of two different lines with female plants of the Nebraska 145-4. One of these lines, Brazilian 330, has the normal monoecious type of inflorescence. The other, USDA 49, has the interspersed pollen type of inflorescence. In the cross of Brazilian 330 with Nebraska 145-4, all of the F₁ population was pistillate with no reversions of the secondary inflorescences. In the cross of USDA 49 with Nebraska 145-4, only a slight trace of male flowers was observed in the F₁ population, the

These pistillate F₁ hybrids suggest the following three-way crosses for making commercial hybrid procedures involved for producing such the castorbean seed are: (1) Cross Nebraska 145-4 to a selected male parent which would produce progenies. This cross would require the regular monoecious plants and the reversioning from the Nebraska 145-4 female line. Only eight rows of the female line can be sibulated when interplanted between two rows of male parent. (2) Cross the pistillate F₁ progeny from the previous cross to a selected pollen with good combining ability. As mentioned, the pestillate F₁ plants from the pollen line should be adequate. Since all are pistillate, it would not be necessary to monogous plants as was the case in the

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AMOUNT OF FLOWERING OF LADINO CLOVER LOTS FROM DIFFERENT SOURCES

Since west coast grown Ladino seed is used by farmers in North Carolina, strain tests were initiated to study different lots of seed produced in various states. Two strain tests were seeded in the Piedmont area of North Carolina, near Raleigh, on a Cecil clay loam. These tests were seeded in different years, limed and fertilized according to general recommendations. Individual plots were 5 feet by 25 feet, and each plot was surrounded by a 3-foot tall fescue border to prevent mixing between plots. There were three replications.

On June 15, 1953, plants from the four lots of Ladino seed from California were blooming more profusely than those from the four lots of seed from Oregon. Observations at several other periods during the year showed that the Oregon strains flowered more profusely than the California.

Yield comparisons of these lots were obtained for production of forage over a period of years is not known. As shown in table 1, the lots of California

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As shown in table 1, the lots of California produced approximately twice as many flowering heads as the lots from Oregon. Pilgrim produced approximately twice as many flowering heads as the California lots of seed. Observations at several other periods during the year showed that the Oregon strains flowered more profusely than the California lots.

Yield comparisons of these lots were obtained only for the period of time. Differences in yield among these various lots were determined by the

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