

Sweet cherry pollination for Early Burlat and Moreau

Two promising, early maturing cherry varieties, Early Burlat and Moreau, were recently introduced in California. Adequate pollination data for these varieties were not available at the time of introduction, so a study was conducted to develop this information. Early Burlat was found to be successfully pollinated by a number of commercially grown varieties. However, no satisfactory pollenizer for Moreau has been found.

COMMERCIAL SWEET CHERRY varieties are self-incompatible and self-unfruitful and must be cross-pollinated for satisfactory yields. However, not all varietal combinations will effectively cross-pollinate each other. Among the combinations that are cross- and inter-unfruitful are Bing, Lambert and Royal Ann (Napoleon). Other varietal combinations have been recognized as inter-unfruitful; however, none of these are of commercial importance in California.

During the cherry bloom periods in 1968 and 1969, a study was undertaken to find satisfactory pollenizers for the Early Burlat and Moreau varieties which are relatively new to California. In addition, a number of other newer varieties were checked as possible pollenizers for older, established varieties. To serve as effective pollenizers for each other, the bloom period of the varieties must substantially overlap, and they must be inter-compatible.

Carefully controlled hand pollination is required to determine the compatibility of two varieties. Prior to opening, the test flowers are either bagged, or the floral parts—except the pistil—are removed (emasculated) so that bees will not visit and pollinate these flowers. Since a particular cross is made only once during the bloom period, the possibility of pollination failures, due mainly to inclement weather, is greatly increased. For this reason, poor fruit sets do not necessarily indicate incompatibility. However, when good sets are obtained, there is a high degree of certainty that the cross is compatible. In test crosses of this type a 10 per cent fruit set is considered (from past experiences) to be a satisfactory indication of cross-compatibility of the varieties, even though this set may be somewhat less than that

found in commercial orchards under open pollination. A 5 per cent set in these tests is considered to indicate that the varieties are probably cross-fruitful.

The main emphasis of this project has been to find suitable pollenizers for Early Burlat, a variety relatively new to California, which is becoming increasingly important in the Central Valley because of its early maturity. The percentages of fruit set obtained with a number of varieties used as pollenizers for Early Burlat are presented in table 1. Bing, Black Tartarian, Chinook, Larian, Mona and Rainier were successful pollenizers for Early Burlat. Van also appeared to be cross-compatible with Early Burlat, but the percentage of set was lower than with the other varieties. In the reciprocal crosses, Early Burlat successfully pollinated Bing, but it has not yet been adequately checked as a pollenizer for Black Tartarian, Chinook, Larian, Mona and Van. However, experience has indicated that if a cross is compatible in one direction, the reciprocal is also compatible. Studies are planned, however, to check Early Burlat as a pollenizer for these latter varieties.

Early Burlat, Larian, and Van were tested in 1968 as pollenizers for Moreau, a variety which has failed to set satisfactory crops in a number of California plantings. In 1969, Bing, Chinook, Early Burlat, Larian, Mona, Rainier, and Van were tested (table 2). None of these varieties proved to be satisfactory pollenizers for Moreau in the years tested, although Larian is considered promising. Additional work using this variety as a possible pollenizer for Moreau will be done in future years. Some reciprocal crosses have indicated that Moreau satisfactorily pollinates Bing, Rainier, and possibly Van and Larian. These results suggest that some factor other than the incompatibility of pollen may be causing the poor set experienced on Moreau.

In both 1968 and 1969, Moreau pollen failed to set fruit on Early Burlat. Furthermore, Early Burlat pollen did not set fruit on Moreau. This failure of Early Burlat and Moreau to effectively cross-pollinate each other indicates that these varieties may be inter-unfruitful.

Pollination studies were also made using other relatively new varieties now

grown in California. Mona, Larian, Chinook and Rainier all satisfactorily cross-pollinated Bing (table 3). Royal Ann and Rainier proved to be intercompatible and Corum was successful as a pollenizer for both of these varieties. Some follow-up work on similar crosses of interest to California growers is being planned.

The overlap of bloom periods of the varieties used in the test crosses discussed in this article appeared to be sufficient for adequate natural cross-pollination. However, the bloom overlap between varieties may vary with the season and area.

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TABLE 1. EFFECTIVENESS OF CERTAIN SWEET CHERRY VARIETIES AS POLLENIZERS FOR EARLY BURLAT SAN JOAQUIN COUNTY—1969

Pollen Source (Pollenizer)	Fruit Set %
Bing	28.8
Black Tartarian	45.5
Chinook	37.5
Larian	44.9
Mona	41.4
Moreau	0.7
Rainier	41.9
Van	13.2

TABLE 2. EFFECTIVENESS OF CERTAIN SWEET CHERRY VARIETIES AS POLLENIZERS FOR MOREAU SAN JOAQUIN COUNTY—1969

Pollen Source (Pollenizer)	Fruit Set %
Bing	0.4
Chinook	3.8
Early Burlat	0.0
Larian	6.5
Mona	1.4
Rainier	1.4
Van	1.3

TABLE 3. EFFECTIVENESS OF CERTAIN SWEET CHERRY VARIETIES AS POLLENIZERS FOR BING, RAINIER, AND ROYAL ANN SAN JOAQUIN COUNTY—1969

Variety Pollinated	Pollen Source (Pollenizer)	Fruit Set %
Bing	Chinook	60.3
Bing	Larian	68.0
Bing	Mona	52.0
Bing	Rainier	24.1*
Rainier	Corum	42.1
Rainier	Royal Ann	53.0
Royal Ann	Corum	60.5
Royal Ann	Rainier	73.8

* This cross was made in 1968.