The Strawberry Cultivars of the Pacific Northwest

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Twenty-five years ago, Marshall, which had been the most widely grown strawberry cultivar throughout much of the Pacific Northwest for many years, was replaced by the Northwest cultivar which was introduced from the Washington State University (WSU) breeding program in 1949. At that time Marshall showed serious decline problems due to susceptibility to a complex of viruses. Northwest was tolerant to this complex.

In southwestern British Columbia, which is the northern limit of the strawberry production area of the Pacific Northwest, the British Sovereign cultivar was at least as important as Marshall. One reason for this was that British Sovereign was more winter hardy than Marshall. Also, British Sovereign fruit was considered to have a unique flavor for the fresh market. However, British Sovereign was also susceptible to the virus complex. In addition, it was not adapted to the processing market outlets which were becoming increasingly important. Thus, Northwest, which was adapted to processing, replaced British Sovereign as well as Marshall.

Northwest occupied nearly 80% of the strawberry acreage throughout the entire Pacific Northwest until 1970. it is interesting to note that at one time during this period Northwest had the distinction of being the most widely grown strawberry cultivar in the world.

In the more northern part of the production area (southwest British Columbia as well as Whatcom County in Washington), Northwest was susceptible to winter injury in some years. In fact in each of two years (1965 and 1969) there was a 75% loss of production due to this injury. Yield reductions as high as 25% were recorded in several other years.

Totem, introduced from the British Columbia (BC) breeding program, and Shuksan, from the WSU program, were released in 1971. Each is considerably more winter hardy than Northwest. These two cultivars, in a relatively short period of time, have replaced Northwest in the northern part of the production area. The two cultivars are at least as well adapted to processing as Northwest and are better adapted to fresh market outlets. In recent years there has been renewed interest in the fresh market outlets throughout the entire area. Of the two new cultivars, Totem is now preferred mostly because of its greater virus tolerance and its larger fruit size, which is maintained throughout the season.

In southwest Washington and Oregon, Northwest was replaced by Hood, from the Oregon State University—United States Department of Agriculture (OSU-USDA) breeding program and by Olympus from the WSU program. Hood replaced Northwest mainly because its larger and more accessible fruits are easier to harvest. However, the future of Hood is now in doubt because of its extreme susceptibility to virus. Olympus is a high yielding cultivar which produces fruit well-adapted to processing. One reason for its high yield is the production of many branched crowns. At present there is a need for studies on the most appropriate cultural methods to realize the maximum yields that could be obtained from the cultivar.

Although Olympus is less sensitive

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to viruses than Hood, it is not tolerant enough to be grown in the northern part of the production area, where viruses are usually more severe.

The development of increased fresh market outlets for Pacific Northwest strawberries emphasizes the need for cultivars with differing seasons of maturity. At present, there is interest in Rainier, released from the WSU program in 1973, because it produces late-season, high quality fruit. Rainier seems to have virus tolerance comparable to that of Totem. This also makes it a promising prospect for the future. A selection (70-22-82) from the BC program produces fruit which ripens 10-14 days earlier than that of the mid-season Totem. This, together with virus tolerance, has justified placing the selection in commercial propagation in 1978 so that it can be extensively tested over the next few years.

Selecting for adaptation to mechanical harvesting has received major emphasis in the OSU-USDA program. One cultivar, Linn, has been released because of its mechanical harvesting adaptation. This cultivar and selections from all three Pacific Northwest breeding programs will continue to be evaluated for adaptation to this method of harvesting. It is inevitable that much of the acreage grown for processing will be harvested mechanically. High fruit quality traditional to the area and cultivars for fresh market consumption will continue to be emphasized in the three ongoing breeding programs.

California Strawberry Cultivars—Past, Present and Prospects

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Average yield of strawberries in California has increased dramatically since the mid 1960's, and during the past five years the state average has exceeded 20 tons per acre (over 45 metric tons per hectare) with top yields of more than 50 tons/ acre (> 112 MT/H) reported.

The Tioga cultivar released in 1964 has dominated production in California during the 1970's, accounting for about 60% of the acreage. The once popular central coast variety Shasta has now disappeared and Fresno, useful in southern California since its release in 1961, is also on its way out. Tufts, released in 1972, has become the second ranking variety. Aiko, released in 1975, is gaining rapidly in the central coast area and partially accounts for some of the reduction in the Tioga percentage of the total acreage in the 1978 plantings, although most of it is due to the substantial increase in Tufts (Figure 1). Heidi, an excellent private variety (Driscoll Associates), very important as a summer cropping variety in the central coast including Santa Maria, accounts for a substantial portion of the "other" acreage.

Most California strawberries are marketed fresh (66% in 1977), most of the rest is processed. "Pick-your-own" operations are rare or non-existent in most areas.

All California strawberries are grown under "hill" culture under two planting systems:

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[2]Note: Tufts, Aiko, and Heidi are U.S. patented varieties and U.S. patents are pending for CN7, CN8, C38, C45, C51 and C55.