

oped and more information is obtained on how to program them for optimum exploitation.

In general, more attention in breeding cultivars will have to be given to disease and pest reaction.

The prospects are still bright for a strong California strawberry industry continuing to flourish even as much of the prime area where strawberries

have traditionally been grown is lost to urban developments.

NOTE: All University of California cultivars are now patented or patents are pending. For information regarding this please contact:

University of California Patent,
Trademark and Copyright Office
2199 Addison Street
Berkeley, California 94720

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Pacific Northwest Strawberry Cultivars

F. J. LAWRENCE¹

The commercial strawberry industry of the Pacific Northwest is found west of the Cascades and from southwestern British Columbia on the north, to Salem, Oregon on the south. There are distinct climatic differences in the region that have some effects on cultivar performance, such as: 1) colder winters in southwest British Columbia and northwest Washington, 2) warmer harvest temperatures in southwest Washington and Oregon and 3) more late spring frosts in Oregon. Although these differences in seasonal harvest and cultivar adaptability exist, the region is considered a single entity for strawberry production for the processing market.

The production acreage has fluctuated over the past 20 years, but has gradually increased during the last 10 years from about 10,000 acres to nearly 14,000 acres in 1987 (2). The crop is nearly 90% for the processing industry and production has increased from less than 100 million lbs in 1979 to about

150 million lbs in 1987 (2). Smaller acreages for local fresh fruit or "U-pick" operations may be found in eastern Washington and Oregon in areas such as Walla Walla, WA or Milton-Freewater, OR, and in central and southern Oregon.

A very limited number of cultivars have dominated the industry for many years. 'Marshall' was the single most important cultivar until the 1950's when it was replaced by the cultivar, 'Northwest.'

'Northwest' was more virus tolerant, had high yields under irrigation in the valley and the berry was superior in the marketing of a sliced frozen product. The release of 'Hood' by the USDA and Oregon State University (USDA OSU) in 1965 was an important step because this cultivar was easier to harvest and could be made into a "non-browning" preserve, two important characters lacking in the cultivar 'Northwest.'

¹Research Horticulturist, USDA-ARS, National Clonal Germplasm Repository, Corvallis, OR 97333.

However, neither ‘Northwest’ nor ‘Hood’ had the winter hardiness needed for the southwest British Columbia and the northwest Washington area. Two releases in 1971, ‘Totem,’ from the British Columbia (BC) breeding program and ‘Shuksan,’ from the Washington (WSU) program were more winter hardy than ‘Northwest’ and had good processing qualities. Gradually these cultivars gained more of the production acreage through the 1970’s (1) and by the middle 1980’s ‘Totem’ had replaced ‘Northwest’ and is now the dominant cultivar (Tables 1, 2), especially in the British Columbia production area.

‘Olympus’ and ‘Rainier’ released by WSU in 1973 have found limited use in the region. ‘Olympus,’ a highly productive cultivar, appears to have limited areas of adaptability and is mainly grown in Oregon (Table 2). ‘Rainier,’ more virus tolerant than ‘Olympus,’ has high quality fruit, but has not been as productive as ‘Totem.’ ‘Benton,’ from the USDA-OSU program, was released in 1975, and quickly gained popularity because it was an easy cultivar to manage (grow), was productive and virus tolerant. ‘Benton’ soon became a leading cultivar in Oregon, but the fruit has some disadvantages for processing, such as: 1) lack of good internal red color and 2) poor texture after thawing. However, the productivity of ‘Benton’ has improved the average yields per acre in Oregon and the berry flavor ranks it as a good home garden and local fresh market

(U-pick) cultivar. ‘Linn’ was released in 1976 from the same USDA-OSU program as a potential machine harvest cultivar; however, the machine harvest of strawberries is still very limited and ‘Linn’ is no longer grown.

Since 1978 other strawberry cultivars have been released for trials in the Pacific Northwest region (Table 3). Three of these: ‘Burlington,’ ‘Sakuma,’ and ‘Tillikum,’ were day-neutrals, two were patented by a private breeder and have had limited planting. One of these cultivars, ‘Sakuma,’ shows variegation, but remains reasonably vigorous and productive and ‘Tillikum,’ from WSU, was released primarily for the home garden. ‘Tyee,’ a summer cropping type, released by BC in 1980, had promise for machine harvest, but shows variegation and has had limited planting. ‘Sumas,’ also from BC in 1987, is an early ripening, productive cultivar but it is too soon to see how and where it will fit into the production picture.

There are other cultivars in very limited plantings throughout the re-

Table 2. Strawberry production of the three primary areas of the Pacific Northwest.

Area	Acreage	Cvs.	%
British Columbia	3800	Totem	79
		Shuksan	9
		Rainier	8
		Hood	2
		Others	2
Washington	2200	Totem	28
		Shuksan	28
		Hood	27
		Benton	6
		Rainier	6
		Puget Beauty	2
Oregon	7800	Others	3
		Benton	35
		Totem	28
		Olympus	14
		Hood	12
		Shuksan	8
		Others	3

Table 1. Pacific Northwest strawberry production.*

Principle cultivars	1987 Acreage 13,800	%
Totem		44
Benton		22
Hood		11
Shuksan		11
Olympus		8
Rainier		3

*Commercial processing.

Table 3. Strawberry cultivars released in the Pacific Northwest since 1978.

Burlington	(private patent)
Sakuma	(private patent)
Tillikum	(WSU) ^a
Tyee	(BC) ^b
Sumas	(BC) ^b

^aWashington State University.^bBritish Columbia.

gion, such as the day-neutrals 'Selva,' 'Fern' and 'Tristar.' These are grown primarily for local fresh sales. Eastern Washington and Oregon also may have some of the eastern US cultivars such as 'Midway,' 'Earliglow,' 'Cardinal,' and 'Honeoye' in addition to 'Totem,' 'Shuksan,' and occasionally 'Benton.'

Reduced acreage and consequently reduced production appears to be the outlook for the commercial strawberry processing industry in the Pacific Northwest for the next several years. Low berry prices for processing and labor problems have been the main causes, especially in Oregon, where 'Benton' is marginal for processing

quality. However, local fresh sales and home garden production is expected to increase using the existing cultivars. The mechanized harvest of strawberries for processing did not materialize as predicted in the 1970's, but it still remains an objective, at least for a portion of the industry. New cultivars will have to have all of the qualities necessary for the processing market plus improved disease and pest resistance, as older pesticides are definitely becoming more difficult to keep and new ones more difficult to register. Additionally, ease of harvest and high yields will be critical to aid in controlling production costs. More acres of day neutrals as berries for fresh market will be planted, but the major portion of the acreage will remain in processing types for the next 10 years.

Literature Cited

1. Daubeney, Hugh A. 1979. The strawberry cultivars of the Pacific Northwest. *Fruit Var. J.* 33:44-45.
2. Federal-State Market News, USDA, Agricultural Marketing Service. 1988. and Statistics Canada. 1988.

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