lumbia carries Prunus Necrotic Ringspot virus. However, no virus symptoms have been observed thus far in Oregon field trials.

The cultivar produces medium-sized cones (about 150 mg dry wt.), that are slightly smaller than those of seeded Fuggle. They can be picked easily by machine with little shattering and excellent vine cleanup. The resin (lupulin) glands are plentiful and have a golden yellow color. The aroma is mild, pleasant, and similar to that of Fuggle.

Mature plants of Columbia outyielded comparable Fuggle plants by 86% in experimental yield trials over a 5-year period, and by 38% in 0.8 ha commercial trials over a 2-year period. Seed content in commercial plots averaged less than 2%, compared to about 12% for Fuggle. The alpha acids content of Columbia in experimental yield trials varied from 7.0% to 10.2% with a mean of 8.5%, as compared to an average of 5.4% for Fuggle. The proportion of alpha acids to beta acids averaged slightly higher than that of Fuggle. The cihomone content of Columbia was higher than that of Fuggle, but essential oils were slightly lower. In the 2 years of commercial trials, Columbia produced alpha acids levels that averaged 56% higher than those of Fuggle, while beta acids content was 42% higher.

Columbia yields about 15% extract (toluene solvent), compared to about 10% for Fuggle. The extract contains about 50 to 55% alpha acids. Preliminary data indicate that the storage stability of baled cones of Columbia is better than that of Fuggle. Commercial-scale brewing tests by a major domestic brewery indicated that Columbia would be an acceptable substitute for Fuggle, and other brewers have expressed interest in using it.

The variety is best adapted to the Willamette Valley of Oregon, where Fuggle also grows well. It is not adapted to the Yakima Valley of Washington, and tests in Idaho have been inconclusive.

In April 1976, Columbia was released to hop growers for commercial production. The original breeder stock of Columbia will be maintained by the Oregon Agric. Exp. Stn., Corvallis, OR 97331.

REGISTRATION OF WILLAMETTE HOP
(Reg. No. 6)

Alfred Haunold, C. E. Horner, S. T. Likens,
D. D. Roberts, and C. E. Zimmermann

'Willamette' hop (Humulus lupulus L.), a triploid sister selection of 'Columbia' was early recognized by a major U.S. brewer for having exceptionally desirable aroma characteristics that closely resemble those of Oregon-grown 'Fuggle'. Willamette was first tested as Selection No. 6761-117 and in 1971 was assigned the permanent USDA Hop Accession No. 21041. Willamette was developed to offer American hop growers a cultivar with an aroma-profile similar to that of the low yielding Fuggle and imported European hops which frequently are available to U.S. brewers only at premium prices. The triploid (2n = 3x = 30) chromosome complement of Willamette results in very low seed set when pollinated by fertile male plants. Therefore, growers receive the customary premium for seedless hops, regardless of pollination by fertile male hop plants.

In Oregon, Willamette matures in late August or early September, about 4 to 6 days earlier than its sister selection, Columbia. It produces many large, vigorous shoots early in the season, and has a golden yellow color. The aroma is mild, pleasant, and similar to that of Fuggle.

Willamette is moderately resistant to downy mildew infection (incited by Pseudoperonospora humuli C. G. W. Wils.), similar to that of 'Bullion'. Willamette is resistant to cone infection. It is susceptible to Stachybotrys albo-atrum R. & B., and Verticillium dahliae. Willamette was found in the Pacific Northwest and should not be planted on soils with a history of Verticillium wilt infection. Occasional plant with mild wilt symptoms was noted in commercial yield trials in Oregon over 3 years. Effects on cone yields. In the Yakima Valley, Willamette was readily infected by Verticillium wilt and was judged as having good commercial potential in that area. Like its parents, Columbia, Willamette also carries Prunus Necrotic Ringspot virus which generally produces no visible symptoms when the virus infects a resistant cultivar is grown in its area of adaptation.

Willamette produces medium large to large cones, about 180 to 200 mg that resemble those of seeded Fuggle. Cones can be easily picked by machine with little loss. They have an excellent vine clean-up. Mature cones have a golden yellow color.

Mature plants of Willamette outyielded Fuggle by 2 to 6% in 2-year experimental yield trials near Corvallis and 2-year commercial trials in the Willamette Valley. Willamette seed content in commercial plots adjacent to sea- soned Fuggle was slightly over 2% by weight, compared to about 18% for Fuggle. Alpha acids content of Willamette in experimental plots averaged 33% higher than that of Fuggle, and 11% higher in commercial plots; beta acids content was approximately 10% lower than that of Fuggle, resulting in a ratio of alpha to beta acids nearly identical to that of Fuggle. The cihomone tent was slightly higher than that of Fuggle. Average oil content was identical to that of Fuggle over a 5-year period with a range similar to that of Fuggle. Commercial-scale brewing tests by a major domestic brewery indicated that Willamette would be an acceptable substitute for Fuggle. Other brewers have expressed interest in using it.

The storability of Willamette is similar to that of Fuggle. Like Fuggle and Columbia, Willamette is best adapted to the Willamette Valley of Oregon. It is not adapted to the Yakima Valley, and tests in Idaho have been inconclusive.

Willamette was released to hop growers for commercial production. The original breeder stock will be maintained by the Oregon Agric. Exp. Stn., Corvallis, OR 97331.

REGISTRATION OF DAWN PROSO MILLET
(Reg. No. 38)

Lenis A. Nelson

'Dawn' proso millet (Panicum miliaceum L.) was developed by the Univ. of Nebraska, Panhandle Station. The line was released on 20 Jan. 1976.

Dawn is a white-seeded proso with a closed head of spikelets tested under the experimental number IPM 1061. Dawn was one of a proso collection assembled by the Germplasm Evaluation Laboratory, ARS-USDA, Beltsville, Md. It was introduced to the U.S. as PI 260053 from the USSR. The line was plant hardy and had a head selection to give a plant type with a compact panicle, and a uniform white seed color.

Dawn was evaluated from 1970 to 1975 at Scottsbluff, Neb. It has a yield record slightly lower and more erratic than Panhandle 'Dawn,' but it does not produce as much straw and has a compact panicle. It has a yield record slightly lower and more erratic than Panhandle 'Dawn,' but it does not produce as much straw and has a compact panicle. It has a yield record slightly lower and more erratic than Panhandle 'Dawn,' but it does not produce as much straw and has a compact panicle.