

SIX DWARF MUGO-PINE CULTIVARS RELEASED

The Mugo or Swiss Mountain pine is one of the most popular evergreen shrubs used in present day landscaping, especially the more dwarf seedlings of *Pinus mugo pumilio* and *P. mugo mughus*. The other botanical variety, *P. mugo rostrata*, produces quite large trees. The trade propagates Mugo primarily from seed and a great deal of variation exists in such populations in plant habit, size, needle form and color, cone-bearing tendency, etc. Research in Europe has shown *P. mugo* to hybridize freely with *P. sylvestris* making seed selection a must in this form of propagation. Our work has shown that seed selection from known parents can increase uniformity in Mugo-pine considerably and can be used as a first step in tree improvement. Selected forms of Mugo-pine have been named and propagated by grafting in Europe. At present, the only ones generally available in the trade are 'Gnom', 'Kobold', and 'Mops' in Holland and 'Hesse', and 'Kokarde' in Germany.

We have grown thousands of seedlings of so-called true Tyrolean dwarf Mugo-pine, *P. mugo mughus* obtained from F. W. Schumacker, Sandwich, Massachusetts, at the Oregon Agricultural Experiment Station's Lewis-Brown Horticultural Farm. Seedlings of *P. mugo pumilio* have also been grown for comparison. Visits to nurseries and arboretums in Europe to study seed sources and seedling variation in Mugo-pine have also been helpful. Botanists and foresters in Innsbruck and Vienna, Austria have been particularly helpful in explaining seedling variation.

During the past 18 years we have selected over 100 superior plants from thousands of seedlings. From this collection six of the best have been selected for naming and release to the nursery trade. Others are under observation for possible future release.

Rooting tests of these selections have been made during the past seven years. It is apparent that, if properly handled, these selections can be rooted from cuttings in June or January in percentages of 60-90%. There are clonal and seasonal differences in rootability that have been determined. However, consistency in propagation has been a problem and research is being continued to improve our understanding of factors involved. Research has been reported from other universities indicating an interest in vegetative propagation of selected Mugo-pines.

The selection of clones for naming and release was made on the basis of evaluations by nurserymen, landscapers and staff horticulturists after 15 years of observation. The names suggested are based on a poll of names supplied from various sources. Special weight was given to suggestions made by cooperating nurserymen who are familiar with the trade in conifers.

Descriptions

OSU 67-2, 'Oregon Jade' (Fig. 1)

As with all of this species, the needles are in pairs, about 3-4 cm in length, closely set at a 45° angle with the short, many branched stems to form a bright green, compact mound in seven years about 76 cm wide and 46 cm high, at 18 years 107 cm wide and 53 cm high. The compact bush is produced without pruning and the bright green needles do not "bronze" excessively under low temp of winter. The expanding candles are light brown in early spring turning to bright green as the needles become fully exposed. This self-branching Mugo has not produced cones even on older plants. June cuttings from 10-year-old stock plants have rooted as much as 92% when properly handled.



Figure 1

OSU 67-5, 'Alpenglow' (Fig. 2)

Like 67-2, a self-branching, compact mound but a faster growing, finer textured mound with many fine stems and needles that are shorter, being 2.5-3.5 cm in length. 'Alpenglow' can reach the size of a seven-year old 'Oregon Jade' in three years (78 cm in spread and 48 cm in height). At seven years and 18 years 'Alpenglow' will reach 102 cm x 61 cm and 183 cm x 102 cm, respectively. Nurserymen feel that it is a nice compromise between sufficient vigor and growth control to satisfy them and the landscape designer. Its fine-textured needles and branching habit make it a fine specimen for bonsai work. It has good needle color, non-bronzing and retention characteristics. Very few cones have been produced on these plants even at 18 years and they are



Figure 2

smaller than average for the species, being 2.5 cm long and 1.5-1.7 cm in diameter. The overall effect of this plant is a neat, bright green, oval-shaped mound of fine texture. It develops rapidly to commercial size from June or January cuttings from 10-15-year-old plants. It is not uncommon to obtain 80-100% rooting.

OSU 67-9, 'Elfengren' (Fig. 3)

A compact, low-growing, grey-green carpet with the general needle and branch texture of 'Oregon Jade'. It will serve as a low ground cover to compliment the latter cultivar. The needles average 3.5-4.0 cm in length. Three year-old plants are 33 cm in spread and 25 cm in height; at seven years they are 61 cm x 25 cm and at 18 years 102 cm x 46 cm showing their low, spreading profile. The three-year old plants are producing a few attractive cones, 3-3.5 cm long x 2-2.5 cm in diameter. June cuttings have rooted as much as 80%.



Figure 3

67-15, 'Oregon Pixie' (not pictured)

This sage green selection is an unusual and very attractive small-growing Mugo-pine. Unlike most Mugs the needles are inserted at right angles to the stem giving the small shrub a sprightly, pin cushion appearance. The needles average 3-4 cm in length. Although not producing cones at an early age, they are loaded with bright male flowers each year which are white in the beginning, turning to a golden brown as they ripen. This dwarf Mugo was 31 cm x 25 cm (spread x height) as three-year-old plants and 51 cm x 51 cm at seven years and 76 cm x 66 cm at 18 years. June cuttings from 10-year-old plants have rooted 75%.

OSU 67-20, 'Tyrol' (Fig. 4)



Figure 4

This dwarf Mugo-pine does not produce the dense mounds of 67-2, 67-5, 67-9 and 67-15, but develops a distinctive upright, open branching habit that is most attractive. Dark green terminals stand out above the contour of the plant making a striking contrast to the abundant male flowers below. These flowers change from pure white to golden brown as they mature. The needles average 3.5-4.0 cm in length and hold their color well in winter. Three-year-old plants are 41 cm in spread and 36 cm in height; at seven years they are 51 cm x 51 cm forming an irregular outline with distinct character. A few relatively large cones (4.0-4.5 cm long x 2.5 cm wide) are borne on even three-year-old cuttings. June cuttings from 10-year-old stock plants have rooted 60-70%.

OSU 69-2, 'Green Candle' (Fig. 5)

This largest-growing clone of those marked for introduction is still small-growing compared with vigorous sister seedlings, some of which have reached 4.5 meters (15 ft.) in height. Three-year-old cuttings are 61 cm x 41 cm (spread x height) and the original 18-year-old seedling is now 168 cm x 117 cm. The structure of this small tree is what makes it stand out. Its candelabra-like growth habit and emerald-green candles elongating in spring will make this tree a choice one for specimen work. The needles (3.5-4.0 cm long) emerge from small sheaths to give the candles a green rather than light-brown color during early candle extension. Cones (3.5 cm long x 2.0 cm in diameter) are borne on young rooted cuttings adding another interest to this superior plant. June cuttings from 10-year-old stock plants have rooted 88% with best treatment.



Figure 5

Licensed nurserymen can obtain stock plants and/or cutting wood of these selections by contacting: A. N. Roberts, Dept. of Horticulture, Oregon State University, Corvallis, Oregon 97331.

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