

HortScience 15(6):830-831. 1980.

'Autumn Blaze' Ornamental Pear¹

M. N. Westwood

Department of Horticulture, Oregon State University, Corvallis, OR 97331

Additional index words. *Pyrus calleryana*, ornamental breeding

Since the release of *Pyrus calleryana* Dcne. cv. Bradford by the U.S. Department of Agriculture (4) this species has become popular as a street tree and in landscapes in areas where it is hardy. Because of problems in maturing 'Bradford' trees in the nursery, with subsequent problems of dieback in storage and poor transplanting success, some nurseries have sought selections of *P. calleryana* with all of the good characteristics of 'Bradford' but with better growing and handling traits. Also in some climates 'Bradford' does not exhibit red leaf coloration in the fall, and a number of selections have been made that are more colorful.

With the need for an early maturing, hardy red-leaved *P. calleryana* in mind, testing began in 1972 with Oregon Pear Rootstock (OPR) 250, a clone observed in 1969 to show striking fall leaf coloration, even on vigorous nursery trees. This clone, now named 'Autumn Blaze' was patented (Patent Number 4591) by Oregon State University in 1980.

Origin

'Autumn Blaze' pear was selected in 1969 from several hundred seedlings of *P. calleryana* growing in the rootstock research nursery at the O.S.U. Lewis-Brown Horticulture Farm, Corvallis. This seedling was from one of the numerous *P. calleryana* trees introduced to the Medford, Oregon area by the late F. C. Reimer (3). He made 2 seed collections from native trees in China. The first and largest collection was done in 1917 near Ichang in Central China at 1200-1500 m elevation. This was done cooperatively with the late F. N. Meyer and the seed lots were divided between them. The second collection was made in 1919 much farther north in Shantung province. Unfortunately Reimer did not maintain these 2 collections separately,

so the absolute origin of 'Autumn Blaze' is unknown. It appears to be a pure specimen of *P. calleryana* as described by Rehder (2).

Trees of 'Autumn Blaze' were originally propagated on their own roots or on seedling *P. calleryana* rootstock. Later they were propagated by budding to *P. communis* L. seedlings or to *P. fauriei* Schneid. seedlings. The clone retains its original characteristics when budded to these various rootstocks, but trees on *P. fauriei* rootstock are dwarfs. The choice of rootstock will depend also upon the soil type. *P. calleryana* is best for very wet or very dry soils or those such as clays with low oxygen supply and poor internal drainage. But *P. calleryana* roots are susceptible to high pH or high lime soils and develop chlorosis. In such soils *P. communis* roots are best.

Description

'Autumn Blaze' trees develop an upright pyramidal shape if trained to a dominant central leader (Fig. 1). If the leader is headed back at planting, then the tree develops as a broad pyramid or it may be broad ovate in shape. The

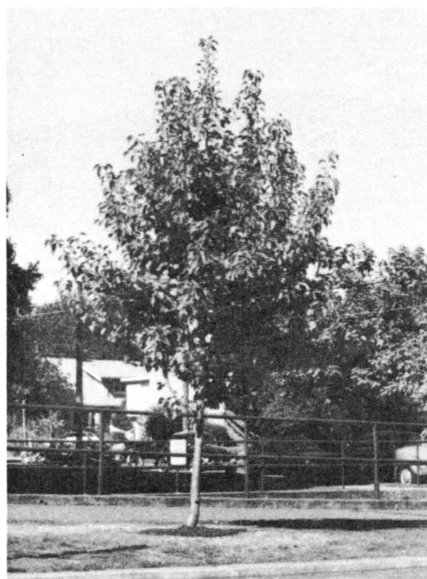


Fig. 1. Three-year-old 'Autumn Blaze' tree showing the general form when given central leader training.

lateral branch angles of 'Autumn Blaze' are nearly 90° with the central leader, with the ends of the branches bending upward at the tips. The mature tree is medium sized.

Leaves: Oval base, with acuminate apex, margin crenate; young leaves reddish tinged, mature ones medium to dark green in summer, turning red in autumn; spur leaves about 59 mm long, 35 mm wide, length/width ratio 1.67, petiole about 34 mm long, blade length/petiole length ratio 1.73; shoot leaves about 81 mm long, 52 mm wide, length/width ratio 1.56, petiole about 28 mm long, blade length/petiole length 2.91. A particular characteristic of this clone is the early red-leaf coloration. For example it was compared with 'Bradford' on November 8, 1979 in Western Oregon. At that time 'Autumn Blaze' leaves were Cardinal red (822/1) to Oxblood red (00823) while 'Bradford' leaves were Fern green (0862/2) to Spinach green (0960/2) (From Horticultural Colour Chart, 1). Because fall coloration depends on many other non-genetic factors of soil and climate, the only valid comparison is under identical ecologic conditions. Such a comparison indicates relative rather than absolute differences in color development.

Inflorescence: Dormant flower buds are Egyptian buff (407/2) in color, pubescent, 11.6 mm long, 4.8 mm wide, with a length/width ratio of 2.4 (Fig. 2A). The flower cluster is an indeterminate corymb arising from a mixed bud in which the basal leaves open at the time of anthesis, with about 13 flowers per cluster (Fig. 2B). The corolla is pink (prebloom) to white at anthesis; the flower is 18.5 mm diameter at anthesis (Fig. 2C). Stamens are numerous and Rose red (724/3) before dehiscence.

Fruit:

Shape: Nearly round, but slightly oblate, length/diameter ratio 0.97 (see Fig. 2D).

Size: Longitudinal length 10.1 mm, transverse diameter 10.4 mm.

Color: Russet-green to Maize yellow (607/1) when ripe.

Skin: Russeted, with many small white lenticles.

Stem: 11.4 mm long, thin, (0.8 mm diameter), fruit length/stem length ratio 0.89, no stem basin (attached flush).

Calyx: Deciduous, calyx tube closed.

Flesh: Cream colored, very acid, with a heavy layer of stone cells exterior to the core area.

Carpels: 2, bearing a maximum of 2 seed per carpel.

¹Received for publication October 6, 1980. Technical Paper No. 5654 Oregon Agricultural Experiment Station.

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Fruit Set: Very low (about 5 to 10%), usually only one fruit per cluster. Maturity season: Fruit ripens about 3 weeks after 'Delicious' apple.

In common with other *P. calleryana* clones, the fruit is persistent, even at full ripeness and thus does not drop to the ground to cause a messy litter under the trees.

'Autumn Blaze' has the same desirable resistance to a wide array of insects and diseases as do other selections of this species. Like other clones, also, it is not resistant to bacterial infection by *Pseudomonas syringae*.

While *P. calleryana* as a species is not hardy to the coldest areas of the country, tests with 'Autumn Blaze' indicate it is somewhat hardier than other selections tested. Xylem parenchyma of other *P. calleryana* stems was killed at -25°C while 'Autumn Blaze' required -27° . Also 'Autumn Blaze' buds were hardy to -34° while buds of other selections were hardy only to -28° .

Availability

Scions will be available to research stations and arboreta in the winter of 1980-81. Arrangement for commercial propagation of 'Autumn Blaze' is being made by license agreement with specific nurseries.

Literature Cited

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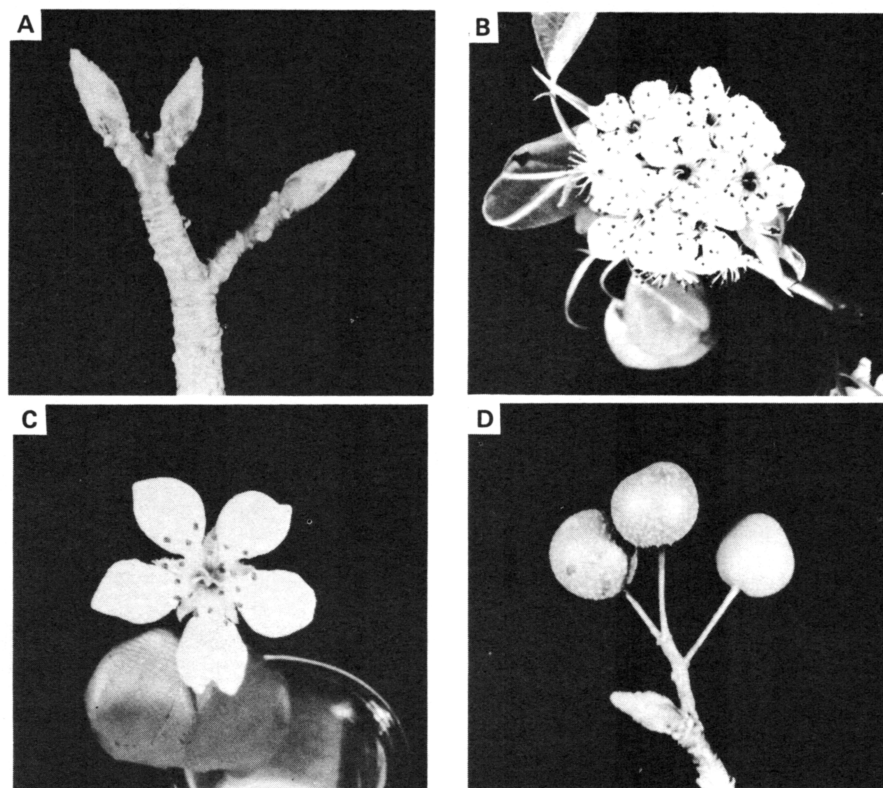


Fig. 2. Plant characters of 'Autumn Blaze'. A, dormant flower buds; B, inflorescence at anthesis; C, detail of a single flower; D, mature fruit. Leaf shape and color are shown on the front cover of this issue.

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HortScience 15(6):831. 1980.

'Beersheva' Suaeda¹

LeMoyne Hogan, Warren Jones, and Chi Won Lee²

Department of Plant Sciences, University of Arizona, Tucson, AZ 85721

Additional index words. halophyte, groundcover, ornamental breeding, *Suaeda vera*

'Beersheva' *suaeda* (*Suaeda vera* Forssk.), Chenopodiaceae, was released by the Arizona Agricultural Experiment Station to provide a salt-tolerant, drought-tolerant, bright green, perennial groundcover adapted to the arid southwestern United States and similar regions of the world.

Origin

'Beersheva' is a selection derived from open-pollinated seed collected in the Negev Desert of Israel in 1975.

¹Received for publication May 1, 1980. Journal paper no. 3332, Arizona Agriculture Experiment Station, Tucson, AZ 85721.

The cost of publishing this paper defrayed in part by the payment of page charges. Under postal regulations, this paper must therefore be hereby marked *advertisement* solely to indicate this fact.

²Professor of Horticulture, Professor of Landscape Architecture and Assistant Professor of Plant Sciences, respectively.

Description

'Beersheva' (Fig. 1) is an evergreen, herbaceous, perennial, procumbent shrub that grows 3.5 m in diameter and 0.5 m in height. It has survived -12°C without foliar damage at Tucson, Arizona. The dense bright green, fleshy leaves are alternate, scattered, linear, sessile and attenuate. Leaves on the branches are 6-7 mm long and the lower leaves are 1-1.3 cm long. New stem growth is rose-colored and older stems are tan. Flowers are small, inconspicuous, axillary, mostly solitary, and bisexual. 'Beersheva' flowers in April in Tucson, Arizona.

Outstanding characteristics and uses

'Beersheva' is tolerant of salinity and drought and it withstands high temperatures and low humidity. It has a very deep and extensive root system. Plants grow well on sandy or calcareous soils.

It is readily propagated by tip cuttings under mist. 'Beersheva' can easily be maintained at less than 0.5 m in height by occasional selective pruning and is an excellent groundcover for hot, saline, dry locations.

Availability

Rooted cuttings may be obtained in limited quantities from LeMoyne Hogan, Department of Plant Sciences, University of Arizona, Tucson, AZ 85721.

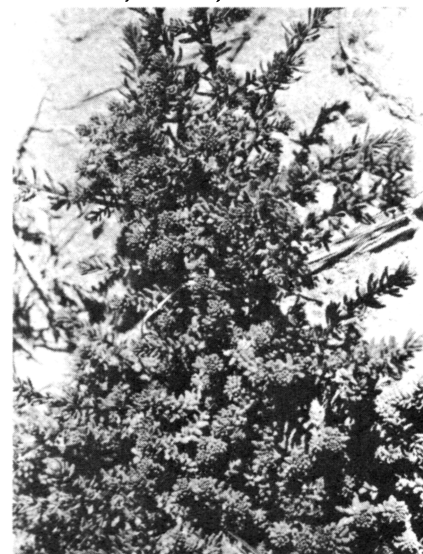


Fig. 1. Foliage of 'Beersheva' *suaeda*.