

STRONG HABIT OF SPRUCE DOMINATES HOMES YET FITS INTIMATE AREAS

By Douglas Chapman, Horticulturist, Dow Gardens, Midland, MI

Spruce (*Picea*) makes an effective tree for golf courses, institutional grounds, parks, and large-area landscapes. It is also a fine specimen and attractive in mass plantings. Spruce grow native in the cool-humid-boreal region of the country from New England through the Great Lakes to the West Coast. Species spruce are fairly stiff and formal. Their habit is a strong vertical line which can dominate home landscapes, yet cultivars have been developed which fit small, intimate landscapes. When young, the trees are thick; while at maturity, the lower branches thin or die off destroying the landscape effectiveness. They are sun dependent. Shade or competition from other trees will cause thinning, decline, or death. Generally, *Picea* grow best in fertile, moist, yet well-drained soil.

Cytospora canker, heartwood decay (fomes), root rot, rust, and needle cast will attack spruce. Cytospora canker is the most devastating. It limits the useful life of Colorado Spruce (*Picea pungens*) to 20 to 25 years in much of the Midwest.

Insect problems include galls, aphids, budworm, spruce needle miner, scale, and mites. Aphids, spruce needle miner, and mites are the most difficult insects to control in the Midwest. Bagworm causes a

significant problem in the Southern Great Lakes, e.g., Illinois, Indiana, and southern Ohio.

The most important species of spruce in the Midwest and Northeast are Norway, White, Serbian, Oriental, Englemann, and Colorado.

Norway Spruce (*P. abies*), a native to Europe, is an outstanding spruce for the Midwest and Northeast. It prefers cool, humid climates, and is very hardy to -72°F., depending upon provenance or local adaption. *P. abies* has a shallow root system and will grow in sandy soil with a relatively high water table. When young, it is a stiff, formal plant; at maturity, this 60-foot tree becomes graceful with pendulous branches. The 4- to 6-inch long cones are cylindrical and hold on for the entire winter. The contrast against a dark green foliage is spectacular. Norway Spruce tolerates salt spray but not soil-applied chlorides. It is an effective specimen tree for large area mass plantings or at the borders of open areas. I feel it is the most graceful and effective of the species spruce.

Several cultivars of Norway Spruce work well for home landscapes. They include 'Maxwell,' 'Nest,' and 'Remont.' 'Maxwell' Norway Spruce (*P. abies*



Steel blue needles (above) accentuate the Colorado Spruce, which grows in a wide range of soils but is very susceptible to Cytospora canker.

Servian Spruce (*P. Omorika*—left) grows in a dense, symmetrical fashion and reaches an effective landscape height between 40 and 50 feet.



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'Maxwellii'), a dwarf, low globe, growing about one inch a year, has short, bright green needles completely surrounding the stems. 'Nest' Norway Spruce (*P. abies* 'Nudiformis') is a dwarfed, somewhat flat-top globe, growing 2 to 4 inches in height each year with an ultimate height of 7 to 10 feet. 'Remont' Norway Spruce (*P. abies* 'Remonti') is a wide, conical dwarf, reaching 12 feet in height. It grows 4 to 6 inches annually and has brilliant green foliage. These cultivars are extremely effective as accent plants in intimate areas.

White Spruce (*P. glauca*) is a broad, pyramidally-shaped tree when young, and becomes somewhat ascending at maturity. Its ultimate peak height ranges between 40 to 60 feet with a spread of 10 to 20 feet. White Spruce is particularly effective in mass plantings, tolerating shade more than Norway or Colorado Spruce. The leaves are 1/2-inch long, usually crowding the upper side of the stem. They are pale green to glaucous in color. White Spruce transplants readily in moist, loamy soils. Some of its outstanding characteristics include good tolerance to wind, heat, cold, drought, and especially crowding, which is exceptional for spruce. It is most effective in mass planting or groups (3-5) and has a fairly rapid rate of growth.

Engelmann Spruce (*P. engelmannii*) is native throughout the Cascades from British Columbia to New Mexico. It is perfectly hardy, withstanding tem-

peratures from -50°F. to a high of 90°F. In its native range it often reaches 100 to 120 feet in height; in the Midwest, this dense, narrow, pyramidal tree rarely reaches over 50 feet in height. It has been reported tolerant to sulfur dioxide and chloride sprays. Disease problems are rare, showing a high degree of resistance to Cytospora canker and heartwood rot (fomes). This species has a coarse texture due to 1-inch long blue-green needles. Engelmann Spruce should be considered one of the outstanding spruce, ranking as high as Norway or White Spruce. In fact, Wyman considered it the best of the ornamental spruces available. As a species or accent in large areas, this plant should be emphasized to increase availability in the trade.

Servian Spruce (*P. Omorika*) is an extremely effective dense, symmetrical tree. It grows slower than Norway Spruce, reaching an effective landscape height between 40 and 50 feet, but has been reported over 100 feet in height. It is native in southeastern Europe. The foliage is a good dark green. *P. omorika* is particularly effective for industrial and park landscapes. It does require some winter protection or placement in a north or northeast side of buildings in fertile soil that is well-drained.

Oriental Spruce (*P. orientalis*) is a dense, compact pyramidal tree with horizontal branching. Its effective

Continues on page 55



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landscape height at maturity is between 45 and 55 feet, although native plants have been found reaching heights of 110 to 120 feet. Its rate of growth is somewhat slower than White Spruce. Soils with much gravel don't bother *P. orientalis*. When used in the Midwest, some form of winter protection is desirable. Some plantmen have reported Oriental Spruce is more graceful than Norway or White Spruce, but in our experience, Norway Spruce is hard to beat.

Colorado Spruce (*P. pungens*) is one of the most widely-used spruces throughout the Midwest. In fact, it is almost overused. It is broadly pyramidal with a stiff horizontal branching, often reaching 40 to 50 feet in height with a 15- to 25-foot spread at maturity. *P. pungens* is native to the Southwestern United States and the Rocky Mountain area. Colorado Spruce grows in a wide range of soils, thriving in well-drained fertile soils but tolerating heavier clay soils of the Midwest. The needle is 3/4 to 1 1/2 inches long and glaucous-green. The desired plant has a steel blue foliage color. *P. pungens* is very susceptible to *Cytospora* canker, often succumbing in the first 15 to 20 years. In fact, there are few *P. pungens* in Central Michigan which are not affected at 30 years of age by *Cytospora* canker, which, of course, leads to general decline or death.

One of the most outstanding cultivars of Colorado Spruce is 'Honnell' (*P. pungens* 'Hunnelliana').

It is dwarf, somewhat conical, and silver to deep blue in color. It grows at a greatly reduced rate while integrating well into most intimate or home landscapes. 'Koster' Blue Spruce (*P. pungens* 'Kosteriana') is a sharp, deep blue cultivar, and quite formal. Its habit of growth is normal for Colorado Spruce, but can be narrow. A deep blue color distinguishes its attractiveness.

Most spruce are truly sentinels in the landscape. They grow best alone or in small groupings. The few companion trees to spruce would be large pines, e.g., White Bark Pine (*Pinus albicaulis*), Eastern White Pine (*P. strobus*), Austrian Pine (*P. nigra*), or Eastern Redcedar (*Juniperus virginiana*). Spruce are very effective in large-area landscapes; Norway Spruce is outstanding. These trees show good tolerance to salt spray and adapt well to Midwestern soils. If there is any one spruce overused, Colorado Blue Spruce would highlight the list. Not only does *P. pungens* have many insect problems, but *Cytospora* canker often results in premature death of the tree. Colorado Spruce may be striking or outstanding in the Far West (dry), but in the humid Great Lake States, it should be used with caution. If spruce are desired in the home or small-area landscapes, then the many cultivars — *P. abies* 'Remonti,' 'Kosteriana,' or 'Nudiformis' — should be considered.

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