PROBLEM MANAGEMENT

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Replacing disease-infected trees

Problem: *We are dealing with a number of blue spruce trees planted in a row around house property for privacy. These plants are now severely infected with cytospora canker. They would like for us to remove them and replace them with either hemlock or Norway spruce.*

We are not sure whether it is a good idea or not. Would you please make comments on this as well as any other suggestions for future plantings. (New York)

Solution: Several different species of cytospora fungus can cause canker and/or twig blight disease on a large number of deciduous trees and shrubs as well as a few species of conifers. Mountain ash, maples, willows and poplar plants are the most common deciduous hosts to this disease.

Cytospora canker disease on blue spruce is caused by *Cytospora kunzei*. The latter species of cytospora is reported to cause canker disease on a number of conifers such as cedars, firs, hemlocks, larch, pines, blue spruce, Norway spruce and white spruce. Therefore, it is not a good idea to plant these trees in the same location.

This disease produces different symptoms on deciduous and on conifer hosts. On deciduous trees, elongate sunken cankers are produced on the trunk or branches, generally at a branch stub or mechanical wound. Cankers may appear cracked with callus ridges at the margin. At maturity, small fruiting bodies with spores exuding out like a thin thread can be found. On conifers, the disease generally progresses from the lower branches upward. Needles discolor from yellow to purple as the disease progresses. Excessive resin flows from the infected branches and drips onto lower branches and coats them. Small, black fruiting bodies can be detected with a hand lens.

During wet weather, abundant spores will be released from these fruiting bodies in a thread. Incidence of cytospora canker can be minimized by providing proper care to improve plant vitality. Selective pruning of dead and/or dying branches during dry weather will remove an important source of inoculum for future spread of the disease. Where feasible during dry weather, surgical excision of cankered bark, two inches beyond the canker margin is suggested. Pruning or surgical tools should be disinfected between cuts to minimize the disease spread.

Choosing salt-tolerant trees

Problem: *What are some good salt-tolerant tree or shrub species to use along roadways? (Michigan)*

Solution: The following list of plants obtained from a fact sheet entitled *Salt Injury to Roadside Plants* from the Ministry of Agriculture and Food, Ontario, Canada, might be helpful in dealing with the salt problem. Although the findings are for Canadian situations, it is likely that similar results will be obtained in your area.

DECIDUOUS TREES	INJURY RATING*
Norway maple *Acer platanoides* L.	1
Horse-chestnut *Aesculus hippocastanum* L.	1
Tree of Heaven *Ailanthus altissima* (Mill.) Swing.	1
Honeylocust *Gleditsia triacanthos* L. *inermis* Willd.	1
Cottonwood *Populus deltoides* Bartr.	1
Black locust *Robinia pseudoacacia* L.	1
Shagbark hickory *Carya ovata* (Mill.) K. Koch	2
Russian-olive *Elaeagnus angustifolia* L.	2
White ash *Fraxinus americana* L.	2
Largetooth aspen *Populus grandidentata* Michx.	2
Lombardy poplar *Populus nigra* L. 'Italica' Muenchh.	2
Trembling aspen *Populus tremuloides* Michx.	2
Choke cherry *Prunus virginiana* L.	2
Pear *Pyrus sp.*	2
Red Oak *Quercus rubra* L.	2
Mountain-ash *Sorbus aucuparia* L.	2
Amur maple *Acer ginnala*	3
Red maple *Acer rubrum* L.	3
Silver maple *Acer saccharinum* L.	3
Sugar maple *Acer saccharum* Marsh.	3
Paper birch *Betula papyrifera* Marsh.	3
Gray birch *Betula populifolia* Marsh.	3
Northern catalpa *Catalpa speciosa* Warder.	3
Quince *Cyonia oblonga* Mill.	3
Green ash *Fraxinus pennsylvanica* Marsh. *lanceolata* (Borkh.) Sarg.	3
Black walnut *Juglans nigra* L.	3
English walnut *Juglans regia* L.	3
Black willow *Salix nigra* Marsh.	3
Basswood *Tilia americana* L.	3
White elm *Ulmus americana* L.	3
Siberian elm *Ulmus pumila* L.	3
Manitoba maple *Acer negundo* L.	4
Allegheny serviceberry *Amelanchier laevis* Wieg.	4
Hawthorn *Crataegus* spp.	4
Apple *Malus* sp.	4
Crabapple *Malus* spp.	4
Mulberry *Morus* sp.	4
Peach *Prunus persica* (L.) Batsch	4
Weeping golden willow *Salix alba* L. 'Tristis' Gaud.	4
American beech *Fagus grandifolia* Ehrh.	5

DECIDUOUS SHRUBS	INJURY RATING*
Siberian peashrub *Caragana arborescens* Lam.	1
Sea-buckthorn *Hippophae rhamnoides* L.	1
Staghorn sumac *Rhus typhina* L.	1
Burningbush *Euonymus alatus (Thunb.)* Sieb.	2
Honeysuckle *Locicera* spp.	2
Japanese tree lilac *Syringa amurensis japonica (Maxim.) Fr. & Sav.*	2
Common lilac *Syringa vulgaris* L.	2
Speckled alder *Alnus rugosa* (Du Roi) Spreng.	3
Border forsythia *Forsythia x intermidia* Zab.	3
Privet *Ligustrum* spp.	3
Mockorange *Philadelphus* spp.	3
Flowering-quince *Chaenomeles speciosa (Sweet) Nakai*	4
Beautybush *Kolkwitzia amabilis* Graebn.	4
Bumalda spirea *Spirea x bumalda* Burv.	4
European cranberry-bush *Viburnum opulus* L.	4
Gray dogwood *Cornus racemosa* Lam.	5
Red-osier dogwood *Cornus stolonifera* Michx.	5

CONIFERS	INJURY RATING
Blue spruce *Picea pungens* Englem. *glauca* Reg.	1
Jack pine *Pinus banksiana* Lamb.	1
Mugo pine *Pinus mugo* Turra.	1
Austrian pine *Pinus nigra* Arnold	1
Red cedar *Juniperus virginiana* L.	2
Juniper *Juniperus* spp.	2
Norway spruce *Picea abies* (L.) Karst.	3
Yew *Taxus* spp.	3
White spruce *Picea glauca* (Moench) Voss	4
Red pine *Pinus resinosa* Ait.	4
Scots pine *Pinus sylvestris* L.	4
White cedar *Thuja occidentalis* L.	4
White pine *pinus strobus* L.	5
Hemlock *Tsuga canadensis* L.	5

A rating of 1 indicates no twig dieback or needle browning of conifers and no dieback, tufting, or inhibition of flowering of deciduous trees and shrubs. Ratings of 5 represent complete branch dieback and needle browning of conifers, and complete dieback, evidence of previous tufting, and lack of flowering of deciduous trees and shrubs. Under severe conditions plants rated 5 will eventually die. Ratings of 2, 3 and 4 encompass slight, moderate and extensive gradations of the above injury symptoms.