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X-Disease of Peach and Cherry:

A guide to chokecherry identification

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X-disease has been a perennial problem for Michigan fruit growers, but during 1976 there was an alarming increase in the incidence of X-disease in Michigan peach plantings. The number of diseased trees in previously infected orchards increased, and X-disease became established in many young peach and cherry orchards for the first time.

Because chokecherry (*Prunus virginiana* L.) is the main source of X-disease, this publication is designed to help fruit growers identify wild chokecherry bushes. The removal of chokecherry bushes in or near peach and cherry orchards is essential for controlling X-disease.

Symptoms

Peach: X-diseased peach trees usually appear healthy early in the season, then develop symptoms after about two months of growth. Leaves on infected branches curl inward and develop irregular yellow to reddish-purple spots. The spots soon drop out, leaving the leaves tattered in appearance. Leaves on affected branches fall prematurely, and only a tuft of leaves remain at the shoot tips. Girdling caused by peach canker produces similar foliar symptoms, except that leaves usually persist much longer on girdled branches. Fruit-set on X-diseased trees may be normal at first, but the fruit on infected branches drop prematurely. Symptoms usually appear on isolated branches at first, but most branches will show symptoms within two or three years.

Cherry: X-disease is more difficult to identify on cherry than on peach. Cherry trees on mahaleb rootstock decline suddenly in mid-summer while trees on mazzard rootstock decline slowly over several years. Scattered fruits produced on trees propagated on mazzard rootstock often have a bitter flavor and are small and pink at harvest time.

Chokecherry: X-diseased chokecherry plants are easily identified since their foliage turns bright red or yellow during mid-summer. Growth is slowed, and terminals become rosetted (show closely spaced leaves).

Spread of X-Disease

Extensive research has shown that X-disease is transmitted by several species of leafhoppers. These leafhoppers acquire the X-disease agent while sucking juices from the leaves of X-diseased chokecherries. Later, they inject the agent into healthy leaves while feeding. Fortunately, the leafhoppers which transmit X-disease do not normally live on peach or cultivated cherry. Nor are leafhoppers as likely to pick up X-disease from diseased peach or cherry trees, although this may happen occasionally.

Leafhoppers which transmit X-disease are present in most areas of the Michigan fruit belt from late May until early October. Field spread of X-disease is also known to occur from June through early September. However, disease spread declines when chokecherries around infected orchards are removed.

Identification of Chokecherries

Chokecherry is often confused with wild black cherry and wild pin cherry. Recognizing the differences between these three wild cherry species is important because only chokecherry is involved in the spread of X-disease.

A description of these plants is provided in Table 1. The leaves, fruit, and twigs of the three species are illustrated in Figures 1-3.

Control

Eradication of all chokecherry plants near stone fruit orchards is essential to the control of X-disease. Chokecherries are commonly found in hedgerows, along property lines, in open woods, and in overgrowth meadows and abandoned fields.

Brush killers offer the cheapest and most effective way to kill chokecherry plants. Both summer and fall spray treatments are available. Removal can also be accomplished by bulldozing, deep plowing, burning, or by pulling out individual bushes.

During the growing season following removal, check the treated area carefully for chokecherry sprouts.

Sprouts, or new chokecherry seedlings should be treated with herbicide sprays or otherwise removed in summer.

The following herbicides are suggested as summer or winter treatments for removing wild chokecherry near peach and cherry orchards.

Summer Control

Herbicide	Amount	Method of application
1. Ammonium sulfamate (Ammate - X)	¾ lb./gal.	Spray to run-off
2. Ammonium sulfamate (Ammate - X)	2½ lb./gal.	Brush on freshly cut stubs.

Fall or Early Winter

1. 2,4,5-T ester in fuel oil	See label	Apply to basal part of trunk 12 to 15 inches above ground line.
2. 2,3,5-T ester in fuel oil	See label	Cover freshly cut stumps and stubs.

NOTE: The use of 2,4,5-T is prohibited in some grape growing areas from May 1 to October 1. Consult local authorities concerning such laws before using this herbicide.

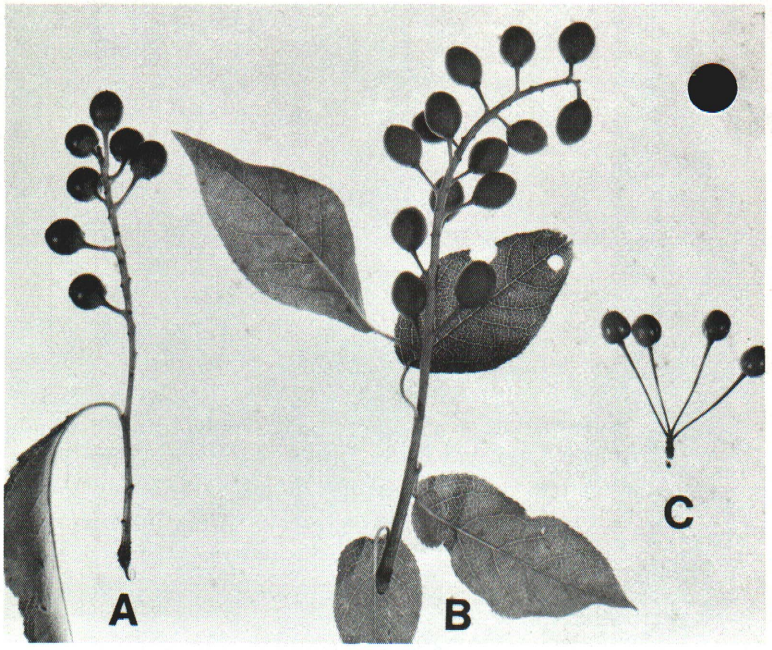

Figure 1. Clusters of black cherry (A), chokecherry (B), and pin cherry fruit (C). Note that black cherry fruit have a calyx cup which persists while pin cherry fruit are borne in clusters.

Table 1. Characters for distinguishing wild chokecherry from two other species of wild cherry.

Plant Species	DISTINGUISHING CHARACTERS: Size	Bark[1]	Fruit	Leaves
Black cherry *(Prunus serotina)*	Usually a tree, often grows to 100 feet high. Does not grow from suckers.	More shiny than on chokecherry; blackish-brown.	Fruit produced along a central stem (raceme). Ripens later than chokecherry and are blackish red when ripe. Calyx cup persists.	Narrower and longer than chokecherry. Shiny. Shorter and blunter teeth (serations) along the leaf margins. Conspicuous hairs along the mid-rib toward the base on underside of leaf.
Chokecherry *(P. virginiana)*	Usually bush-like, rarely over 15 feet high. Grows in clumps and from root suckers.	Dull grayish-brown.	Fruit produced along a central stem (raceme), reddish-black when ripe. Caylx cup is shed.	Wider in relation to length to broader toward tip than black cherry. Serrations (or teeth) on the leaf margins are larger. Surface dull. Two glands on leaf petiole (stalk) without hairs beneath.
Pin cherry *(P. pensylvanica)*	A small tree; does not grow from suckers.	Shiny, reddish-brown.	Fruit produced in clusters. Bright red.	Very long and distinctly wider at base than toward tip. Leaf surface shiny, serrations not prominent without hairs beneath.

[1] *Refers to bark on young growth.*

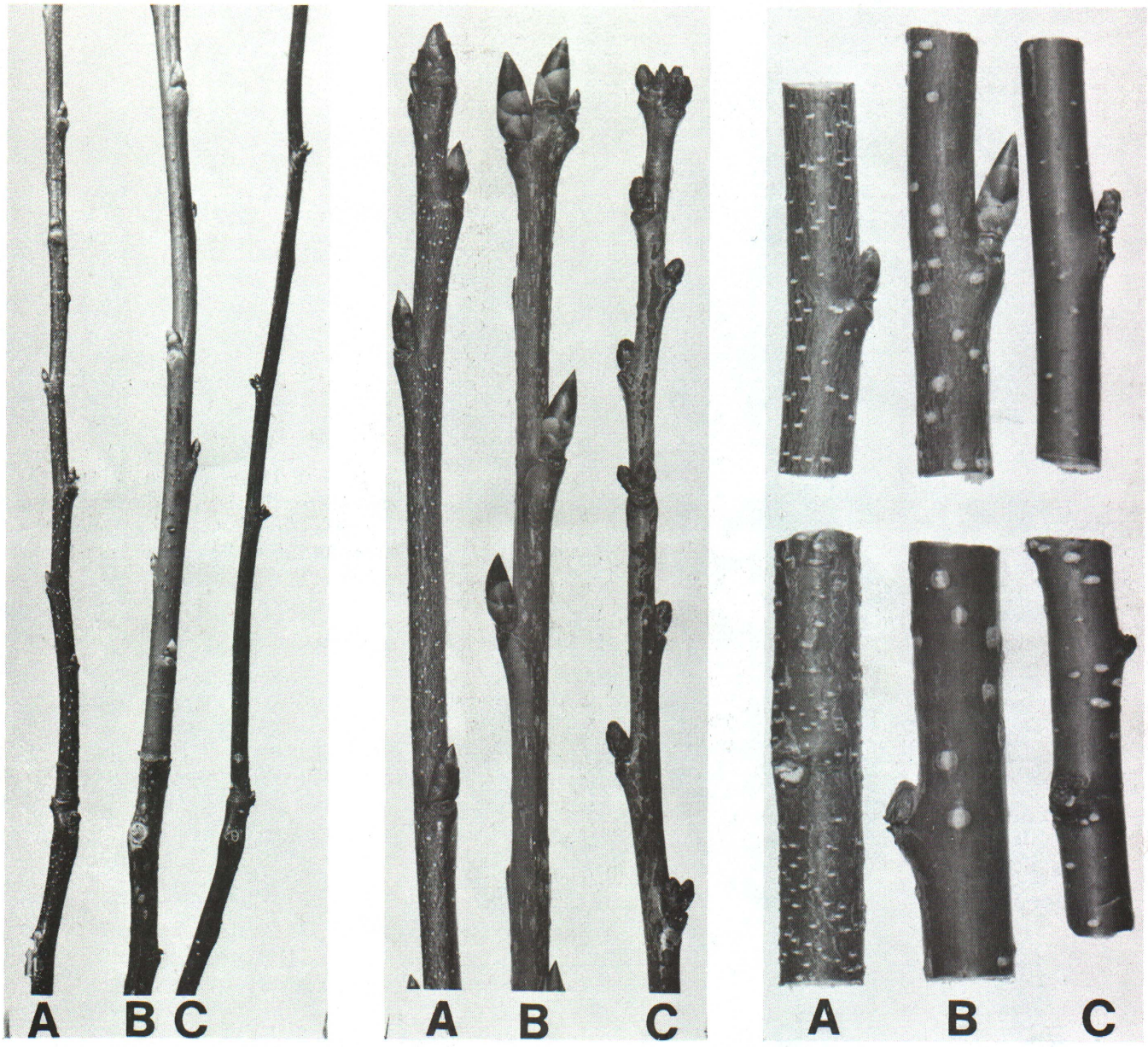

Figure 2. Twigs and buds of black cherry (A), chokecherry (B) and pin cherry (C). Picture at left shows junction of new and 2-year-old growth; center picture shows tips of shoots; and picture at right shows lateral buds on 2-year-old twigs at bottom, and 1-year-old twigs at top.

Other X-disease control procedures include:

—Maintaining a vigorous insect control program from June through harvest with insecticides effective against leafhoppers.

—Removing infected peach and cherry trees in young orchards. For trees five or more years old, chemical injection treatments which provide disease remission may be practical. Registration of an effective antibiotic has been requested and information on its use will be available once it is registered.

A Further Note on Identification

Starting in 1977, representatives of the Michigan Department of Agriculture will be marking chokecherries and peach trees with X-disease during their regular peach inspection tours. Only a few chokecherry plants will be marked as a guide to help growers identify other chokecherries on their farms. Peach trees are being marked to make the industry aware of the severity of the X-disease problem. These trees should be removed or otherwise treated but no compulsory removal of diseased peach trees is contemplated at this time.

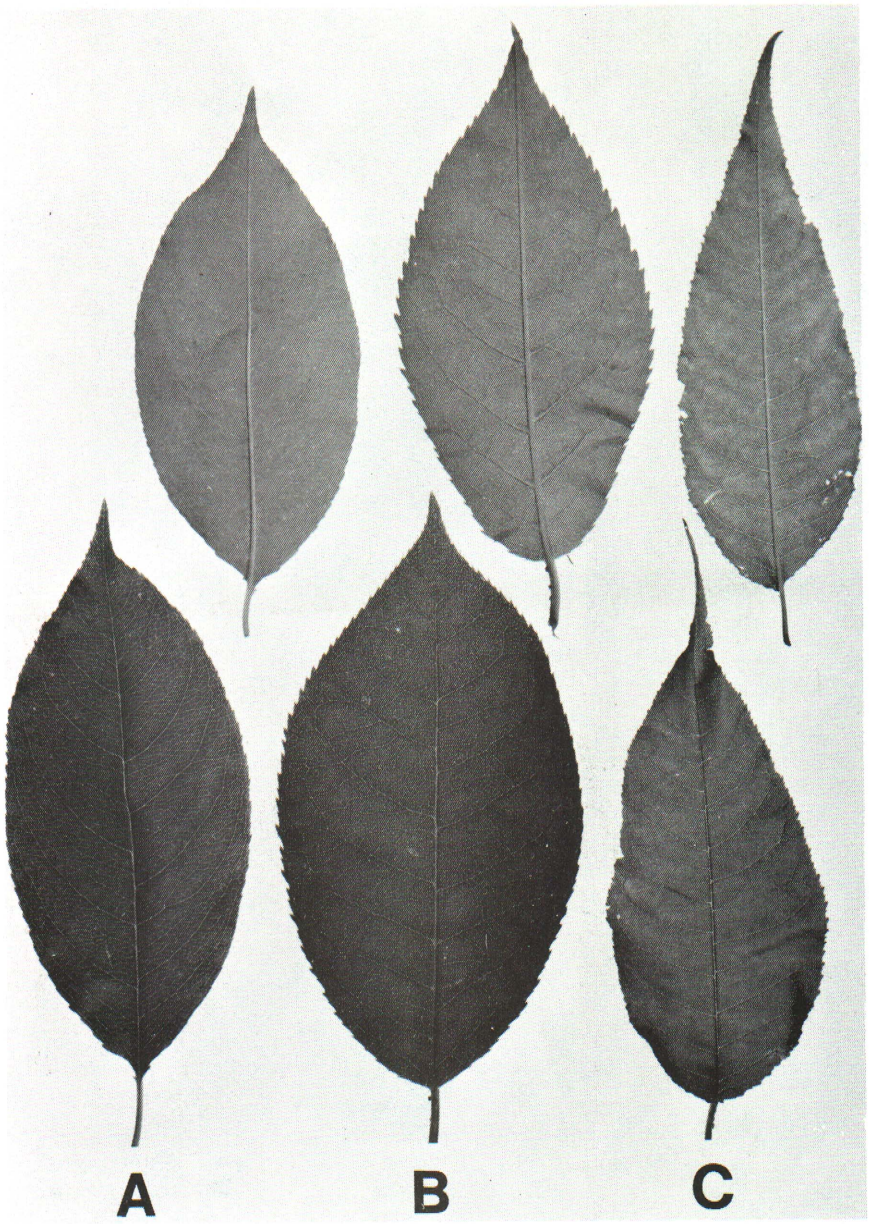

Figure 3. Leaves of black cherry (A), chokecherry (B) and pin cherry (C). Top row shows lower leaf surface, bottom row shows the upper leaf surface. See table for details.

ACKNOWLEDGEMENT

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