AGRICULTURAL EXTENSION SERVICE UNIVERSITY OF MINNESOTA

FRUIT GROWERS' LETTER

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By Leonard B. Hertz, extension horticulturist

APPLE TREES HAVE VARIABLE TOLERANCE TO WATER STRESS

Most Minnesota-grown apple trees experience a water deficiency at times during the growing season. In addition, apple trees themselves react differently to a deficiency of water, depending upon when the deficiency occurs during the growing season. A moisture stress within the first 20 to 30 days after bloom has little effect on fruit size, yield, or tree growth. However, later in the season, any extended moisture stress of a week or more can be expected to stop shoot growth and reduce fruit size and yield. Therefore it is vital to have an ample water supply throughout the harvest season.

Dwarfing apple rootstocks also respond differently to moisture stress. Their tolerance can be summarized as follows:

M26 - tolerance less than seedling rootstocks and M7.
M7 - very drought tolerant but fruit production more readily reduced than with seedling rootstocks.
M106 - less drought tolerant than M7. Some tree mortality can be expected following severe moisture stress.
M9 - poor drought tolerance.
M111 - drought tolerance good, almost equal to M7.

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PRUNING FOR TREE HOLDING

When apple trees start to touch in the row, it is time to take action to control further perifery shoot extension growth. This usually occurs in the fifth or sixth year when the planting is getting into good production. It often seems drastic to have to cut off or cut back good, potentially-fruiting branches. However, there are only three alternatives: control tree growth, live with tree crowding and shading, or remove some trees. The last choices we do not want or need, so start tree control before it is too late.

Controlling pruning means that some of the main scaffolds are actually shortened by cutting off a portion of the terminals. This practice should be selective rather than extensive. It should not be done all in one year but some each year as needed. Controlled pruning of this kind res lts in more compact trees without loss of fruiting area, since the insides of the trees remain productive.
(From: Compact Fruit Tree)

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FUNGICIDE GUIDE FOR APPLE SCAB CONTROL

1. Benlate is a good Apple Scab material, but tolerance by the scab fungus to Benlate has been reported in some apple growing areas. Experience has indicated that by using Benlate with other fungicides, the tolerance problem can be reduced or at least delayed. Labeled mixtures (combinations) include:

   A. Captan (50 WP) 1 lb plus 3 oz Benlate.
   B. Polyram (80 WP) 1 lb plus 3 oz of Benlate.
   C. Glyodin - 1 pt plus 3 oz Benlate.

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2. Cyprex is still giving good Apple Scab control, although some growers are reporting difficulty. Because of potential scab tolerance, alternating Cyprex with Captan, Polyram, or Benlate might be helpful.

3. Captan - is often less effective as an early season scab fungicide (from green tip to petal fall) than Benlate or Cyprex. When used at the rate of 1½ to 2 lb/100 as a protectant on developing fruit, scab control has been good.

4. Difolatan - is registered for use only in a single application at green tip stage of bud development. If the 3 gallon per acre rate is used, another suitable fungicide in a regular program is necessary, starting at pink. If the 5 gallon per acre rate is used, apply another fungicide, starting in petal fall.

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COMMON STRAWBERRY PEST PROBLEMS

Tarnished Plant Bug (Lygus Bug)

The adult is a flat bug; about ¼ inch long, brownish, marked with yellowish and black dashes; has brassy appearance. Adults overwinter in weeds, clover, and on other plants. Both adults and young feed on blossoms, causing "button" or "nubbin" berries which take on a woody texture and fail to mature.

The commercial grower can control the Tarnished Plant Bug with Thiodan, applied in the bud stage of plant development (before blossoms appear).

The home gardener can use a mixture of malathion and methoxychlor (All Purpose fruit spray), applied also in the bud stage of plant growth.

Strawberry Weevil (Clipper)

The strawberry weevil is a snout-nosed beetle which girdles the stems of flowerbuds and clusters. The flowers then drop to the ground. Yield of fruit are severely reduced from infestation of the weevil. An application of the insecticide methoxychlor just before blossom will effectively control the weevil.

Strawberry Fruit Rot

The most important disease of the fruit is a rot called gray mold or sometimes Botrytis. The infection may start where leaves or berries touch the ground or on injured areas of the blossoms and green fruit. The first symptoms appear on the fruit as light brown, rather soft spots. If moist conditions prevail, a gray powdery mass of spores appears over the surface of the fruit. If dry conditions prevail after infection, the berries may dry out and become tough. The gray mold fungus also attacks the flowers, resulting in a blossom blight. If cloudy, rainy weather persists during the bloom period, a great many blossoms can be infected and lost. Splashing rains and fruit pickers also spread the spores of this fungus, thus adding to the problem of producing quality fruit.

Both Captan and Benlate will control fruit rots. Begin applications after the blossom period (7 to 10 days) and apply during the harvest period (right after picking, at about 7 day intervals).

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OFFICIAL LIST OF FEDERAL RESTRICTED USE PESTICIDES RELEASED

The first official list (as of February 9, 1978) of restricted use pesticides has been published. In summary, what this means is that those who desire to use any of the listed materials must have been certified. Those who must be certified include private applicators (farmers and gardeners, but not home gardeners) and commercial applicators.

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The list includes:

Common Name	Trade Name(s)
acrolein	Aqualin
acrylonitrile	Acriter, Ventox
aldicarb	Temik
allyl alcohol	Allyl Alcohol Weed Seed Killer
aluminum phosphide	Phostoxin
azinphosmethyl	Guthion
calcium cyanide	Cyanogas
demeton	Systox
endrin	
ethyl parathion	
fluoroacetamide	1081
hydrocyanic acid	Cyclon
methomyl	Lannate, Nudrin
methyl bromide	Brom-O-Gas
methyl parathion	
mevinphos	Phosdrin
paraquat	Paraquat CL
picloram	Tordon
Sodium cyanide	Cymag
sodium fluoracetate	1080
strychnine	
sulfotepp	Bladafume
tepp	

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CONTROLLING MINNESOTA'S POCKET GOPHER

The pocket gopher can potentially cause extensive damage to tree and berry fruit plantings.

The pocket gopher gets its name from the fur-lined, pocket-like cheek pouches in which it carries food. It lives in an underground burrow system, often a network of several hundred feet ranging in depth from a few inches to several feet. Several gophers may inhabit a single burrow system. Soil removed from newly-made burrows is pushed into mounds on the soil surface.

Some gophers may make 100 or more mounds in a season. Most mounds are made in late summer and fall, when digging shallow burrows to get roots for winter. Roots are usually stored in small chambers, often a few inches deep and containing a quart or two of food.

Control - Control methods are more effective during the spring and fall when pocket gophers are most active. This activity can be noted by the presence of fresh mounds of dirt.

Traps and poisoned baits are the most practical methods of control. On small areas with a few animals, trapping or hand baiting is effective. Over large and heavily infested areas, baiting with a burrow builder is more efficient.

Control by Trapping - To locate the runway use a stout garden trowel or shovel. Scrape the dirt from a fresh mound until a round circle of fresh dirt is found plugging the lateral runway. Open the lateral and place one trap with the claws away from the opening. However, it is usually better to dig down the lateral into the main runway and then place two traps with a piece of flexible wire attached to a stake. The hole can be left either open or closed.

Control with Poisoned Bait - There is one toxicant registered for use in treating bait materials for the control of pocket gophers. It is Strychnine at 0.25-0.6 per cent.

Two baiting methods are effective. One method involves dropping baits by hand into the underground runways. With the other method, a tractor-drawn machine called a "burrow-builder" is used to make artificial burrows and automatically drop baits into them.

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Burrow Builder - On large and heavily infested areas, use a burrow builder to make artificial burrows 20 feet apart across the field at the same depth as the natural burrows. Drop strychnine baits mechanically at 9-12 inch intervals in the artificial burrow. One to 2 pounds of this bait material will treat 1 acre.

Hand Baiting - Remove the earth plug from the lateral tunnel of a fresh mound of dirt. Insert a tablespoonful of strychnine treated bait into the main runway with a long handled spoon. Cover the opening to exclude light and loose dirt. The main runway also can be located by probing with a stick or metal rod about 8-18 inches back from the plug in the mound.

When the runway is found, enlarge the hole to put in the bait and cover as before. After 48 hours, scrape over mounds and re-treat those still active. One pound of strychnine bait material will treat 5 to 8 acres.

For extensive hand baiting, good probes can be made of 3/4-inch pipe welded to a blunt point and cut to 34 inches in length. A foot rest can be made 6 inches from the end.

Leonard B. Hertz

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Extension Horticulturist

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