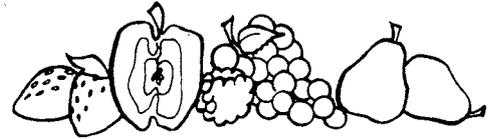


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AGRICULTURAL EXTENSION SERVICE • UNIVERSITY OF MINNESOTA

FRUIT GROWERS' LETTER



May 1980

THE USE OF BEES IN STRAWBERRY PRODUCTION

Much has been written on pollination of strawberries by honeybees. Most researchers agree that maximum yield and fruit size can be obtained only when adequate bee pollinators are present in or near strawberry plantings.

The next question is, "Can the yield and quality of Minnesota-grown strawberries benefit from placing additional honeybees in the field? Should we make available, for example, one hive of honeybees for each acre of strawberries, as is commonly done in Minnesota apple orchards?"

The answer at this time is no. We should not place additional honeybees in the field because in most strawberry growing areas of Minnesota the local bee populations are adequate.

Strawberry growers may someday have to provide colonies of honeybees for optimum fruit yield. However, unless the honeybees are completely excluded from a strawberry planting, yield and quality of fruit are not affected.

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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; with brassy appearance. Adults overwinter in weeds and 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.

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

Strawberry Fruit Rot

The most important disease of strawberries 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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MINNESOTA APPLE VARIETIES

The leading apple variety in Minnesota in terms of number of trees (326,843) is Red Delicious (54,000), according to a Minnesota apple tree survey. Haralson is the second leading variety (53,000), followed by McIntosh (39,000), Regent (27,000), and Connell Red (20,000). For all apple varieties, 55 percent are on size-controlling rootstocks.

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SPRING CHORES FOR FRUIT TREES

Spring is usually the best time to straighten up leaning trees. Leaning can come about any time and with any rootstock. There is less chance of breaking roots if trees are straightened when the soil is wet. A small stake driven into the soil can be used for temporary anchoring. Put gravel or sand at the base of the trunk.

When the sap starts to flow in spring is a good time to start spreading branches of two to five year old trees. Newly planted trees are best spread in June with clothes pins when the young branches are about 12 inches long.

Branches are flexible early in the season and bending without breaking is much easier than at any other time, although it can be done at other times of the year also. The individual branch should be spread to an angle of 60 degrees from the central leader.

Wooden spreaders with a nail in each end are available. These also can be made by cutting laths in half and making a V-cut in each end.

(From Compact Fruit Tree)

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TEST PLANTINGS OF SIZE-CONTROLLING ROOTSTOCKS FOR APPLES

A test planting of size-controlling rootstocks will be set out at the Horticulture Research Center in Minnesota and 19 other states and Canadian Provinces in 1980 and 1981. Size-controlling rootstocks include EMLA 9, EMLA 27, EMLA 7, EMLA 26, MAC 9, MAC 24, OAR 1, Ottawa 3, and M 9. All are virus-free rootstocks, with the exception of M 9. The testing variety is a red sport of Red Delicious. The objective of the program is to evaluate the newer apple rootstocks under a wide range of different soil and climatic conditions.

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APPLE DEPTH OF PLANTING

When size-controlling (dwarfing) rootstocks are used, the graft union must be kept at a slightly above the soil line. If too much of the more tender rootstocks are exposed to freezing temperatures, injury often results. Check the trees following planting, particularly when they are machine planted, to see that the graft union is not below or more than two inches above the ground line. If trees are set too deep, scion (above ground) rooting often takes place, and the results can be larger-than-expected and non-uniform trees.

For standard size trees, the bud union (graft) can be placed at or slightly below the ground.

Don't forget at planting to prune whips to 30 inches from the ground. With branched trees, select 1 to 3 desirable branches (remove undesirable ones) and head-back leaders. (From Compact Fruit Tree)

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TREE SPACING HINTS

When determining the spacing for tree fruit, several factors must be considered. These include soil, variety, and rootstock. First, the soil. If the soil is fertile and deep, the trees are spaced farther apart. If, on the other hand, the soil is sandy, a closer distance between trees and between rows is desirable.

The vigor of the fruit variety also must be considered. For those varieties that tend to grow into large trees, such as McIntosh, increased tree spacing is necessary. For those varieties that develop into smaller-statured trees, such as Haralson or a spur-type, McIntosh, the planting distance should be reduced greatly. (Carlson of Michigan has suggested that spur-type trees will reduce vigor about 10 percent.)



Finally, the vigor of the rootstock is extremely important. The more vigorous the rootstock, the wider the tree spacing. For example, the rootstock M-111 with a McIntosh scion might require a spacing of 16' x 20'. A Haralson apple growing on M 26 would require 12' x 18'. So, plant your trees according to soil, variety, and rootstock and "be set for the next 25 years."

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