

3. **FRUIT GROWERS' LETTER**4. May 1975

By Leonard B. Hertz, extension horticulturist

STORAGE AND TRANSPORTING STRAWBERRY PLANTS

It appears the supply of strawberry plants for new plantings in Minnesota in 1975 will be adequate. However, demand for plants by both commercial growers and home gardeners is at an alltime high.

Spring Dug Plants

Plants obtained in the spring should be dug when dormant (no plant growth evident). Unfortunately, some plants are dug and sold when they are nondormant (actively growing) and thus their desirability as planting stock is limited because of their reduced chance for field survival. How can one tell if the plants have been damaged? Observe the growth of crown leaf buds as well as new roots. If plant growth is excessive perhaps the plants should not be purchased.

Commercial Cold Storage

Commercial cold storage of strawberry plants is not currently practiced in Minnesota on a large scale. However, when certain plant storage requirements are met, quality plants can be maintained. The following practices are suggested:

- Use quality, dormant, and properly cleaned plants.
- Pack in 1.5 mil polyethylene liners not sealed and without moss.
- Cool plants and store at 30⁰-32⁰ F.
- Avoid fluctuating temperatures.

Transporting Strawberry Plants

- Refrigerated transit at temperatures as near the storage temperature as possible is recommended.
- For unrefrigerated shipment, transit periods up to 3 days are acceptable if transit temperatures do not exceed 60⁰ F. When transit temperatures exceed 60⁰ F. limit shipping time to less than 1 day.
- Bus or air freight is the fastest way to ship plants.

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MINNESOTA BERRY GROWERS ORGANIZE

Minnesota's strawberry and raspberry growers need to be informed on cultural and management practices, pesticides, and varieties of fruit for Minnesota. They need to promote the sale and consumption of both strawberries and raspberries in Minnesota. They need to present a united industry in matters of legislation, insurance, taxes, and crop prospects. This, in short, is the role of the Minnesota Berry Growers.

This archival publication may not reflect current scientific knowledge or recommendations.
Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>.

The Association is governed by a board of directors composed of seven representatives from the berry growing areas of Minnesota.

The first president of the Association is Gene Kornder, Belle Plaine. Carole Johnson, Becker, is vice president and Martha Vogel, St. Paul, secretary-treasurer.

Anyone interested in membership is invited to contact Leonard B. Hertz, Horticulture Department, University of Minnesota, St. Paul, Minnesota 55108.

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BERRY GROWERS WORKSHOP WELL ATTENDED

Despite blowing snow and closed roads, the annual workshop for strawberry and raspberry growers in March was considered a success with about 60 growers present. The program included pest problems, weed control, fertilizer suggestions, soil fumigation, winter mulches, variety selection, farm labor laws, and pesticide applicator certification. A few copies of the mimeo handouts, "Strawberry Weed Control and Strawberry Variety Evaluation" and copies of the "1975 Commercial Fruit Spray Guide" are available. If you desire copies, contact Leonard B. Hertz, Horticulture Department, University of Minnesota, St. Paul, Minnesota 55108.

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STEPS IN CALIBRATING AN AIR-BLAST ORCHARD SPRAYER*

1. Fill the tank with water on a level site or mark identical site if not level.
2. Run sprayer briefly to fill pump, hoses, etc., and mark the water level.
3. Measure distance traveled at steady pace in exactly 1 minute while operating sprayer for exactly 1 minute in the orchard.

Drop a marker (small sandbag) when the sprayer is turned on and another marker when the sprayer is turned off after 1 minute.

Measure the distance between markers.

4. Return to fill site. Measure gallons to refill to marked level (see note on next page). A calibrated measuring stick or a slight gauge tube of translucent plastic to show water level will help.
5. Determine trees sprayed in 1 minute as follows:

$$\text{Trees in 1 minute}^{\dagger} = \frac{\text{feet traveled in 1 minute}}{\text{tree spacing in feet}}$$

(This need not divide to an even number.)

[†]Multiply by two if both sides are spraying at once.

6. Determine gallons per tree:

$$\text{Gallons per tree} = \frac{\text{gallons per minute}}{\text{trees per minute}}$$

If rate is higher than desired, try again at a faster travel speed, or use smaller capacity nozzles. Conversely, if rate is less, drive slower or use larger nozzles.

*By O. I. Berge, extension agricultural engineer, University of Wisconsin-Madison, University of Wisconsin-Extension.

NOTE: If it is difficult to accurately measure the gallons to refill the tank, the gallons sprayed out in 1 minute may be more accurately and easily determined by weighing the sprayer (unhooked from tractor) before and after 1 minute of operation.

Run sprayer briefly to fill hose, pump, etc., before taking the first weight. (Some fuel will be used by the power unit. A 100 HP engine would use about 1/6 gallon or 1 pound in 1 minute.)

$$\frac{\text{First weight} - \text{Final weight}}{8.34} = \text{gallons per minute}$$

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HONEYBEES AND MINNESOTA APPLE PRODUCTION

It is not too early to consider your source for honeybee colonies for the 1975 pollinating season. With higher honey prices, beekeepers may decide to keep their colonies at home and concentrate on heavy production, causing a shortage of bees for pollination.

Bees play a vital role in apple production in Minnesota. There are approximately 192,000 bearing apple trees in the state. The average annual production is between 500,000 and 750,000 bushels. The per tree production is not adequate. Perhaps the lack of proper pollination in some orchards is a contributing factor. Studies indicate that honeybees will account for over 80 percent of orchard's pollinating activity.

Many orchards are too far from a woods to depend on wild bees and insects to do the pollinating job. Often growers are inclined to string along with low yields, charging it off to frost damage, light bloom, or cloudy cool weather during the bloom period. The potentialities of a properly pollinated orchard are not always appreciated.

For orchards that do not contain enough pollinizers, the quickest way to correct the trouble is to graft a pollinizer branch in each tree. Yellow varieties will have the advantage of keeping the fruit separate at harvest time. Where there are missing trees in the orchard, this offers the opportunity of setting out pollinating varieties.

In new plantings, self-unfruitful varieties should never be more than four rows wide, with pollinators on either side. Plantings of Red Delicious or its red sports should not exceed two or at most three rows wide.

If you rent bees for orchard pollination, one of the first steps is to have an agreement with the beekeeper on the necessary arrangements. Agree on what the rental fee will be and have an understanding as to the strength of the colonies. A colony of bees will gather pollen in proportion to the number of combs of young brood in the hive. A weak colony with only two to four combs of brood is of little to no value for pollination.

It is important to set a time when the bees should be placed in the orchard. The best time is just as the very first blossoms start opening. If the hives are brought in earlier, this will encourage the bees to go elsewhere. If the hives are brought in later, you may miss the much needed fair weather during the bloom period. Studies have shown that if pollination does not take place within about five days after the blooms open, no set is likely to occur.



For young orchards it has been shown that one colony of bees for every 3-5 acres is sufficient. For mature trees, one colony per acre of trees is recommended. It is preferable to locate the hives in groups of 5-8. Temperature within the hive largely determines the activity of a normal colony. Location of the colony in the orchard therefore is very important. The best place is a sunny spot out of the wind with the opening to the south and east. Some fruit growers still keep their bees at the edge of the orchard throughout the season. A bee can make 3-4 short trips in a hour but can hardly make more than one long trip in an hour. Thus the proper placement of hives within the orchard is desirable.

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SOME PEST CONTROL MATERIALS MAY BE IN SHORT SUPPLY

Some of the chemicals often used for control of injurious pests in both orchards and strawberry and raspberry plantings will be in short supply in 1975. This means great care must be used when planning pest control programs and care in applying the pest control materials is essential.

Here are some suggestions for the 1975 season.

Check your spray equipment thoroughly prior to the spraying season. Are there any worn parts? Has the sprayer been calibrated recently?

Some materials can be used interchangeably, so check labels and your 1975 spray guide.

Spray mature, young, and dwarf apple plantings according to their size and the number of trees per acre.

Banded applications of weed control materials can often be used successfully.

The use of spreader stickers often aids in obtaining more effective coverage of the chemical.

Be sure to use the pest control chemicals wisely. Do not overspray.

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NEW HERBICIDE MIXTURE FOR APPLES

The DuPont Company has recently announced registration for tank mixes of terbacil (SINBAR) and diuron (KARMEX) for weed control in apples. The mixture should only be used on established trees at least 2 years old. The company suggests use of these chemicals in a 1:1 ratio from 0.8 lb/A of each on clay loams with more than 2 percent organic matter.

Research tests with these combinations have indicated a better safety margin on trees than when utilizing higher rates of terbacil alone. Excellent control of annual weeds and quackgrass has been obtained with rates of 1+1 lb/A.

(From Weeds, Michigan State University)

Trade names are sometimes used in this publication to clearly describe products. The use of a trade name does not imply endorsement by the Minnesota Agricultural Extension Service, nor does omission of other trade names imply nonapproval.

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