

PEAR GROWING *in* MICHIGAN

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EXTENSION DIVISION
EAST LANSING

PEAR GROWING IN MICHIGAN

LOCATION

Nearly all of the successful pear orchards in Michigan are located in the southwestern and western parts of the state near Lake Michigan, largely because of less trouble with fire-blight disease in those areas.

VARIETIES

Bartlett is by far the leading variety. Kieffer is in demand by canners. There is a limited market for Bose. Clapp Favorite is important in the South Haven area. It is an excellent early pear but very subject to fire-blight. There is virtually no demand for other varieties.

PLANTING

20 feet x 24 feet is a satisfactory planting distance. Never plant one variety alone. Use not less than 12 per cent of another variety as a pollinizer. Seckel and Bartlett should not be used as pollinizers for each other.

CULTURAL OPERATIONS

All cultural operations in the pear orchard should be conducted with the object in view of maintaining a moderate and uniform growth. Excessive growth is likely to result in the serious injury or death of the trees from fire-blight. Insufficient growth will result in unproductiveness.

FERTILIZATION

1. If young trees are making 12 to 16 inches of new terminal growth, and bearing trees are making 6 to 12 inches, without fertilizer, do not use it.

2. *Use only enough fertilizer to assist in making the required amount of new growth. Use no more. Do not give the same amount to each tree. Be guided by each tree's growth.*

3. Do not use manure in young pear orchards. To do so may cause a soft, late growth susceptible to fire-blight. Manure may be safely used in moderate amounts in mature orchards.

CULTIVATION

1. Newly planted trees make a better start if cultivated the first three years. Only a narrow strip along each row needs to be cultivated.

2. If desired, trees may be mulched after the third year. This would be especially desirable if soil erosion is serious.

3. If orchards are mulched, protect against fire, mice and rabbits.

4. Cultivation should cease early in pear orchards — preferably by June 15 — and a cover crop should be sown.

PRUNING

1. Select the scaffold limbs and central leader at time of planting.

2. Do only a very small amount of corrective pruning the second spring, so as to eliminate extra scaffolds and balance those remaining.

3. Do not prune the tree from the second year until the trees are in full bearing except to remove broken or dead branches. To do so may encourage fire-blight.

4. When the trees are in full bearing and growth has moderated, prune just enough by thinning out undesirable branches, together with a moderate heading back into two- or three-year-old wood to maintain new terminal growth at from 6 to 12 inches in length.

MAINTAINING ANNUAL BEARING OF MATURE TREES

As pear trees mature, they make less new terminal growth. If the new terminal growth is only 2 or 3 inches a year, the trees are likely to bear a very large crop of small pears one year and have practically no crop the next, and to continue this biennial bearing cycle unless growth conditions are improved.

This condition can be corrected by increasing new terminal growth to 6-12 inches per year. It may be possible to do this by generally improved cultural practices such as better psylla control. It may be necessary to use somewhat larger amounts of fertilizer. If these methods

fail, the trees should be given a moderate heading back, pruning into two- and three-year-old wood.

THINNING

Few growers in Michigan thin pears but some advocate it, especially with Bartlett, as a practical means of improving size.

TIME OF PICKING

Pears should not ripen fully on the trees because the fruits will become either mealy or gritty, depending on the variety. On the other hand, too early picking results in less volume and a smaller percentage of pears in the larger sizes.

HANDLING

Because of being firm and hard when picked, pears are commonly handled roughly and carelessly. Such handling is apparent when the fruit ripens and results in considerable loss to the commercial canner or housewife who uses them.

SPRAYING

Many Michigan pear growers are suffering severe losses from failure to control pear psylla and the late brood of codling moth which emerges in September.

SUPPLEMENTARY DIRECTIONS FOR PEAR SPRAYING

The three most important pests of the pear are pear psylla, scab, and codling moth.

Pear psylla:

1. Use a dormant oil spray in March or early April **before** egg laying begins. This application is often put on too late.

2. A home-made bordeaux emulsion prepared from oil having a viscosity of 175 to 250 seconds (Saybolt at 100°) is preferred. Most commercially prepared oils are of a lower viscosity and will not give so good control as the home-made emulsion. (See Michigan Extension Bulletin 154, sections 25 and 26 for instructions on making home-made emulsions.)

PEAR SPRAY SCHEDULE

APPLICATION	MATERIALS TO USE	PESTS CONTROLLED	REMARKS
DORMANT, apply with the first good spraying weather in March or early April	3% heavy oil emulsion. See section 56 in Mich. Extension Bul. 154	Peella Red mite Scale insects	An oil spray prepared from oil having a viscosity of 175-250 (Saybolt) will give best results. Apply early in spring before egg laying begins
PRE-BLOSSOM, when the blossom buds begin to separate in the cluster	*Bordeaux 3-8-100 Lead arsenate 3-100	Scab Leaf spot Curculio Bud moth	This spray should always be applied in districts where scab and leaf spot are prevalent. In years favorable for scab development an extra pre-blossom spray may be necessary
SPECIAL BLIGHT SPRAY, when ¾ of the blossoms are open	*Bordeaux 2-6-100	Fire blight Scab	This spray is necessary only where fire blight is a problem
PETAL FALL, or calyx, when the last of the petals have fallen	*Bordeaux 2-8-100 Lead arsenate 3-100	Scab, Curculio Leaf spot Codling moth, other chewing insects	
FIRST COVER, two weeks after petal fall	Bordeaux 2-8-100 Lead arsenate 3-100	Codling moth Curculio	The bordeaux may be omitted if scab or leaf spot are not present
SECOND COVER, four weeks after petal fall	Lead arsenate 3-100	Codling moth Curculio	If sold as fresh fruit, this schedule will make residue removal necessary. (See supplementary directions)
THIRD COVER, six weeks after petal fall	Lead arsenate 3-100	Codling moth Curculio	
SECOND BROOD SPRAY, time determined the same as for apples	Lead arsenate 3-100	Codling moth Curculio	The late brood often is responsible for late codling moth injury, especially on Kieffer in September

*See sections 9-10 in Michigan Extension Bulletin 154, for instructions on making bordeaux.

3. **Spray thoroughly**—It is imperative that all parts of the tree be covered.

4. If psylla is not entirely controlled by the application of dormant oil, spray later at its first appearance with $\frac{3}{4}$ pint of nicotine sulphate and 3 quarts of summer oil in 100 gallons of water, and repeat the application in 10 days if control is not obtained. *Thoroughness of application is essential to success in psylla control.*

Codling moth:

1. The spray schedule as outlined for codling moth control is written for the grower who sells his fruit to a cannery. If the fruit is sold on the fresh fruit market, residue removal will be necessary. If no washing equipment is available, the nicotine sulphate-oil spray referred to above, or a fixed nicotine-oil spray, may be substituted for the lead arsenate. Nicotine oil sprays are effective for only 7 to 8 days. Six to eight applications beginning with the second cover spray may be necessary for control. The number of applications should be based on the prevalence of codling moth in the orchard. Apply only the number of sprays necessary for control. Too many sprays containing oil may cause injury.

2. Kieffer pears are not harvested until late in September or the first half of October, and nearly all of them are sold to commercial canners. *Codling moth emerging in September have so thoroughly infested Kieffer pears in some orchards as to cause the rejection of the entire crop. One or two applications of 3 pounds of lead arsenate in 100 gallons of water in September, will save much of the Kieffer crop going to canneries.* Contact your County Agricultural Agent or the Agricultural Experiment Station, East Lansing, if in doubt about the time of application.

Pear scab:

1. Kieffer is quite resistant to scab. The schedule as outlined should give good control on this variety. Bartlett is somewhat more susceptible, and in years favorable for scab development an extra pre-bloom spray may be necessary.

2. Bordeaux is recommended as a fungicide on pears because it is less injurious to foliage than lime-sulphur, has some value in controlling fire-blight, and is compatible with oil.

FIRE-BLIGHT CONTROL

1. Reduce the chances of infection by maintaining a moderate and uniform growth. Avoid excessive growth.
2. Remove sources of infection near the orchard, such as neglected pear and quince trees.
3. *It is very important to remove blighted branches and cut out blight cankers.*

Contact the Botany Department, Michigan State College, for detailed instructions.

