

Asian Pears

Production of European pears in South Carolina has generally been unsuccessful because of their susceptibility to fire blight and failure to set crops. The Asian pear is also susceptible to fire blight but may have a greater resistance than the European-type pears, such as the Bartlett. A second factor limiting Asian pear production is that it sets too many fruit. Thus, heavy fruit thinning is essential to size the fruit and should be done within 6 to 8 weeks after flowering when the fruit is dime size. A third limiting factor to Asian pear culture in South Carolina may be the unavailability of labeled pesticides.

LOCATION

Asian pears should be planted in deep, well-drained soils in a location as frost-free as possible. Chilling requirements at 45 °F are approximately 900- 1,000 hours for the Japanese varieties and 300 hours for the Chinese varieties. Sites that are prone to late spring frosts should be avoided or provisions made for frost protection where late frosts are likely. It is probable that sites that set regular peach crops without frost protection would also likely set Asian pears.

Asian pears tolerate heavy soils better than most tree fruits, but they do not thrive where waterlogging occurs during the growing season. Pear buds and wood cambial tissue are more hardy than those of peach, but since pears flower early in the season, good air circulation is essential to prevent damage by late spring frosts.

More than one variety of Japanese pear should be planted to provide adequate pollination. Most varieties will pollinate each other provided their flower periods overlap and there is enough insect activity. The Japanese type of Asian pear flowers up to two weeks later than most other pears that are

commonly grown in this area. The Chinese type of Asian pear flowers earlier and should be planted with another Chinese variety or with a common variety grown in this area such as Kieffer, which usually flowers in the same period. A minimum pollinator-to-variety ratio of 1 to 8 is recommended.

ROOTSTOCKS

Presently, there is no local experience with rootstock selection for Asian pears in South Carolina. From the available literature, *Pyrus pyrifolia* seedlings are considered to be the most suitable rootstock in Japan, with *Pyrus betulaefolia* the most common rootstock available in the United States. This is also the main rootstock used overseas for Asian pear production outside of Japan. It is the preferred rootstock for use in California, Washington, and Oregon and is reported to show good tolerance to heavy and wet soils there.

Pyrus betulaefolia rootstock produces an exceptionally vigorous tree that can delay cropping a year when compared with other rootstocks. It will carry a heavy crop and maintain good fruit size on mature trees. There have been no reported rootstock/scion incompatibility problems with this variety.

Other rootstocks include *P. calleryana* and *P. communis* seedlings. *Pyrus calleryana* produces vigorous trees and grows well on poor soils. However, a lack of cold hardiness may limit its use in the northern United States. *Pyrus communis* rootstock will produce a vigorous but smaller tree than either *P. betulaefolia* or *P. calleryana*. It is not used extensively for Asian pears because of its susceptibility to fire blight and some incompatibility problems, but it is used occasionally to control excessive growth in vigorous varieties.

PLANTING

In South Carolina, climatic conditions permit either fall or early spring plantings. One- or two-year-old whips 4 to 5 feet in height and from 9/16 to 11/16 inch diameter are satisfactory. Central leader, nontrellised trees are usually set at 12 by 20 feet. Trellised trees are planted at an approximate spacing of 10 by 16 feet.

MULCHING

Clean cultivation or mulching is recommended for young pear trees. In many bearing orchards, trashy cultivation during the summer with a winter cover crop of rye or other nonlegume is an accepted practice. Sod or sod-mulch culture where the sod is kept short and adequate moisture is applied has also proven satisfactory for pear production.

FERTILIZING

Fertilizers are applied sparingly. Whenever young trees make 12-15 inches of new terminal growth and bearing trees are producing annually with 6-12 inches of terminal growth, the use of fertilizers becomes questionable. When using fertilizer, a complete fertilizer as required for the sod or cover crop is suggested. An application of Solubor during the spraying season is suggested for supplying the pears with boron.

PRUNING

The modified-leader-type tree is preferred. Pruning of Asian pears is similar to European-type pears but requires more training cuts. Young trees should be

pruned to leave four or five primary scaffolds in fire blight areas. Secondary and tertiary scaffolds should be developed during the second and third winter prunings. After the third year, a well-shaped tree would have 4 to 6 secondary and 8 to 12 tertiary framework branches. Tipping or heading back the long, leggy shoots will encourage development of side branches. The life span of spurs is 8 to 10 years, and the pruning of bearing trees is usually limited to removal of diseased and damaged branches.

DISEASE

Fire blight is the greatest problem limiting the production of Asian pears. Selection of tolerant varieties and rootstocks, adoption of good sanitary measures, and avoidance of any practice that induces excessive succulent terminal growth are of the utmost importance in controlling this destructive disease. Control of the green apple aphid also retards the spread of fire blight. Prune infected branches at least 18 inches below the fire blight strike and then burn or bury all infected material. It is best to remove blighted limbs during the dormant season.

VARIETY SELECTION

We are currently evaluating 13 varieties of Asian pears in South Carolina but do not have data to support the planting of any specific one. Selections that have shown some fire blight resistance in Alabama are Shinko (best), Ya Li, Shin Li, Daisu Li, Niitaka, and Chojuro. Commercial varieties such as Twentieth Century and Hosui are highly susceptible.