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Why We Prune*

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IN the management of fruit trees perhaps no other factor is of greater interest or more significant than that each section of country has a shape or ideal of its own to which each kind of tree is made to conform. We are struck by the differences between the low-growing fruit trees of the central-west and the lofty ones on the Atlantic coast; we contrast the dense heads, or branching system, of the west, and the more open, or spreading heads of the east. Still more striking are the espaliered trees of Europe, whose limbs are often trained like the ribs of a fan, in flattened form, upon a trellis or against the sunny side of a wall. Each of these different systems of pruning or shaping is a means of adapting the tree to its environment.

ADAPTING TREE TO ENVIRONMENT

In the foggy climate of western Europe it is desirable to admit all possible sunlight to the parts of the tree. The thin, open head exposes the fruit buds, flowers and ripening fruits to the favorable influence of the sun, thereby furthering what is secured in part by planting the tree on a south slope or on the sunny side of a wall.

In the dry, sunny, continental climate of the central-west of our country, a system of pruning quite oposed to that of western Europe is employed. Throughout the prairie section especially one is struck by the low, dense heads of the fruit trees. The trunks of the trees are usually from one foot to three feet high, thus securing low heads or branching systems. These low heads help to insure the trees against injury from prairie winds. They lessen the number of windfalls among the fruit. They shade the ground under the trees and prevent undue loss of moisture from the soil. Their shade keeps the soil from becoming too hot during intense sunlight in summer and opposes sunscald, which sometimes injures the exposed trunks and main limbs of high headed, open branched trees. Low heads also, in some degree, retard the blossoming period, rendering the flowers less liable to injury from spring frosts, which here so frequently follow the first warm, sunny days of early spring. The denser branching system aids in accomplishing the same purposes which are sought through the adoption of the low head.

In the various sections of the world where fruit growing is carried on, some intermediate form between the two above extremes is adopted to adapt the height and density of the head of the tree to climatic influences. Near the Atlantic coast, where there is brighter sunlight, more wind and less moisture than in western Europe and yet less sunlight, less wind and more moisture than in the continental climate of the west, the middle ground is adopted with respect to height and density of the head of the tree.

In extreme continental climates, the low, dense head is in keeping with the selection of a north or east slope for the orchard. This is an interesting contrast to the south slope, or sunny location preferred in western Europe.

Ten Years in Advance

I am glad that THE CANADIAN HORTICULTURIST devotes more space than formerly to the growing of flowers, in which I am much interested. I am sending $5.00 for my subscription up to the end of 1918.—Mrs. P. E. Harvey, Toronto.

FUNGOUS DISEASES AND PRUNING

In recent years attention is being given to shaping the tree so as to oppose fungous diseases. Leaf rust, fruit scab, many of the rots and many other maladies which affect fruit trees are now known to be due to parasitic fungi that attack the parts of the tree or its fruits. Many of these parasites thrive better in cool, damp, shady places than they do in sunlight, just as molds develop in cellars or damp places. In a foggy, humid climate the high, open head admits sunlight and air and opposes the development of these diseases. In a dry, sunny, or windy location it may not be necessary to maintain an open head to secure enough sunlight and aeration.

WOOD GROWTH AND FRUITFULNESS

In connection with pruning it should be borne in mind that other factors than merely shaping the tree to adapt it to climatic conditions must be taken into consideration. Fruit trees may be said to expend their energies in two ways—by producing wood growth and by producing fruit. It is a well known fact that a fruit tree may sometimes grow with exceeding luxuriance and fail to produce fruit. In fact, too much wood growth and leaf growth is opposed to fruitfulness. The orchardist often says of a vigorous tree that it is "running to wood growth" instead of to fruit. Anything which tends to check this excessive vegetative activity usually throws the tree into bearing, or favors reproductive activity. On the other hand, the production of a heavy crop of fruit opposes excessive wood growth.

A proper balance between vegetative and reproductive activity (or wood growth and fruit production) may in part be maintained by proper pruning. If a tree is pruned by cutting back or by removing some of its branches in winter, its wood growth will be accelerated during the following growing season. If a part of the buds which normally would have been pushed into growth in spring are removed, there will be correspondingly greater growth from the fewer buds which remain. If this length growth is excessive, and if it continues too late in the season, few or no fruit buds may be formed for the next year's crop. As a rule, length growth of limbs is continued at the expense of diameter growth and storage of plant food in the twigs and buds. Fruit buds usually begin to form in early summer, for the coming spring, about the time rapid growth ceases. The maxim, "prune in winter for wood but in summer for fruit" is an old one.

Cutting out or shortening limbs in summer, when the leaves are elaborating plant food, usually checks wood growth and thereby often favors the formation of fruit buds. Whether to prune more in winter or in summer depends much upon the vigor of the tree. If vegetative activity is weak and the energies of the tree too low for the maturity of a good fruit crop, winter pruning tends to increase its growing energy. If the tree is making too luxuriant wood growth, summer pruning (checking this growth) may result in the formation of fruit buds.

*An address delivered at the last convention of the Illinois State Horticultural Society. Its principles may be applied in the orchards of Canada.