

BUDS

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Buds represent the resting stages in tree growth and in fruit production, and from that part of the tree which develops into the fruit and branches. Because of this importance attached to buds it is quite essential for any fruit grower to have an adequate knowledge of where blossom buds are situated on the tree, and also to have some idea of the kinds of buds. Such knowledge will enable him to better judge what treatment is necessary to maintain his trees in a profitable condition.

A few explanations of terms generally used will be attempted before considering the differences in the fruiting habits of trees. Buds are grouped usually in three classes, according to their positions, as, terminal buds, lateral buds and spur buds. Terminal buds are found at the tips of new shoots. Lateral buds are formed at the sides of new shoots, developing during the growing season in the axils of the leaf stems, hence they are also called axillary buds. Spur buds are found on spurs. Spurs are generally defined as short branches, usually developing from lateral leaf buds. Spurs may occur on one-year, two year, or older wood. One-year wood represents wood of the past season's growth as distinguished from new shoots of the growing season.

Buds are also classified according to the kind of growth produced, as leaf buds, and blossom buds. Leaf buds produce leaves and vegetative growth. Generally the term "blossom buds" is used synonymously with the term "fruit buds." In this discussion, the term "blossom buds" will be used, which will include two types: 1. A simple blossom bud which produces only blossoms, such as we have in the case of plums and cherries. 2. A compound blossom bud which produces both blossoms and vegetative growth such as is found in apples and pears. It is important to remember that the fruit produced on a tree may not represent more than about one-fourth of the blossom buds which the tree bore, since the larger percentage of blossoms usually set no fruit. Either leaf buds or blossom buds may occur later-

ally, terminally, or on spurs. With some fruits, it is comparatively easy to distinguish a leaf bud from a blossom bud merely by the different size, shape and color of the blossom bud. Such a situation exists with the plum buds. The surer way of identification is to cut the bud lengthwise and note the structure. A leaf bud consists of only scales and rudimentary leaves, whereas a blossom bud possesses the beginning of flower parts. In this connection it is well to note that flower parts usually become evident in the new buds during July and August. In the following spring when the buds swell, these differences become very well marked.

FRUITING HABIT OF APPLE

The fruiting habit is fairly definite since most of the blossom buds of the apple are borne on spurs. A spur is usually a short growth at the end of its first year and increases yearly in length from a fraction of an inch to several inches. When a fruit is borne, a "secondary growth" is made at a sharp angle to the previous growth, and a large scar is left when the fruit is removed. When a blossom only is borne, the secondary growth makes less of an angle with the previous growth and a smaller scar results when the blossom drops off. When either a blossom or fruit is borne on a spur, the cluster base becomes much thicker than the adjoining growth of the spur, and it usually is found that a cluster base on which a fruit was borne is larger and thicker than one on which a blossom was borne. Usually a bearing spur fruits every other year although sometimes bearing successively, but often bearing only once in several years. A bearing spur, therefore, becomes angular and crooked with occasional thickened portions. After a number of years, the spurs become weak and fail to bear.

While generally apples bear on spurs, some varieties produce most of their fruit by terminal buds. Such varieties as Jonathan, Peerless and others have this terminal fruiting habit.

FRUITING HABIT OF CHERRY

The cherry produces its fruit buds laterally on one-year wood, and on relatively short-lived spurs. The buds on the spurs are quite plump, and arranged in a group of several buds. The terminal bud of the cluster may be a leaf bud which forms a new

vegetative growth. It has been found by Roberts¹ that the fruiting habit of cherry trees is directly related to the amount of annual growth made the previous season. If the annual growth is short, that is, under 6 inches, the lateral buds will be mostly blossom buds, and a lateral fruiting system results since there are few leaf buds to make spurs. On the other hand, if the annual growth is long, that is, over 12-14 inches, the lateral buds will be mostly leaf buds with a consequent spur fruiting system. The variety modifies the above figures slightly, since the Montmorency is found to have more leaf buds per given length of growth than the Early Richmond variety. The season, age of tree and part of tree are also considered as factors affecting the ratio between length of growth and blossom bud formation.

The spur fruiting system is recommended by Roberts as the better fruiting system, because of the greater hardiness of spur buds, and the possibility of production for more than one season on the same spur.

FRUITING HABIT OF PLUMS

European and American plums produce blossom buds laterally on one-year wood, and on spurs borne on two-year wood. The lateral blossom buds occur either singly with a leaf bud or in a group with one leaf bud between two or more blossom buds. The spur blossom buds are formed laterally along a short spur. The spur has no true terminal bud, but sometimes the "end bud" of the spur continues in vegetative growth. If no vegetative growth is made the spur dies after fruiting and becomes a short stiff spine.

Japanese varieties of plums produce blossom buds largely as lateral buds.

MARKETING OF WISCONSIN APPLES

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I have no idea of discussing this question entirely as related to the technique of marketing methods. The past reports of the Society show able discussion of many of the factors of handling

¹Roberts, R. H.—"Prune the Cherry Tree." Wis. Agr. Exp. Sta. Bulletin 298, 1918.