

CITRUS FRUIT GROWING IN RHODESIA*

How to Apply Manures.—Manures and fertilisers may be applied by —

- (a) broadcasting ;
- (b) placing in furrows or trenches ;
- (c) mulching.

With mature groves the broadcast method is almost exclusively adopted, for if the manure or fertiliser is evenly distributed over the whole grove and is well turned under, all of the spreading roots can draw upon it and so nourish the growing trees. But when manuring a young orchard it is generally best to spread the manure only over a slightly larger area than the zone actually occupied by the roots of the trees ; if spread too distant from the root zone, a large amount of the manure may be lost.

Trench or Furrow Method.—It is claimed that this method has an advantage over the others, in that the manure will be placed directly in the root zone area and that it will induce deeper rooting. The latter claim is possibly correct, but on the other hand the tree's root system is encouraged over a more limited feeding area than is the case when the broadcasting method is adopted. It is true that with the broadcasting method there is some danger, especially where deep furrow irrigation is practised, of causing soluble plant foods to rise above the root system of the trees midway between the irrigation furrows. This objection may, however, be overcome by shallow furrow or basin irrigation to drive the plant foods down within reach of the roots.

If the trench method is adopted it should be commenced when the trees are still small. The first trench is then made fairly near the tree and is about one-quarter filled with manure and then closed. The next year, the trench is made on the opposite side of the tree, but at slightly greater distance away than the first, and the manure is similarly filled in and covered. Presuming that during the first two years these trenches have been made on the north and south sides of the trees, in the third year the trench may be placed on the east side and in the fourth year on the west side. Thus every year one side of the tree is manured. The trenches each season are made at an increased distance from the tree until the centre between the tree rows has been reached, when the manuring may be continued down the centres of the rows for the rest of the applications.

Mulching.—When citrus trees are very closely planted and the soil over the roots is of no great depth, mulching with vegetable matter and manure will often be found advantageous.

* By G. W. Marshall, Horticulturist. Extracted from the Rhodesia Agricultural Journal, Vol. XXXI., No. 6, June, 1934. The first part of this article was reproduced in this Journal for March, 1934.

Cover Crops.—It should be the aim of every citrus grower to put in annually a leguminous summer cover crop between his trees to supply the soil with the necessary humus and nitrogen. Previous mention has been made of when to plant and plough under the cover crop, and there is no necessity to repeat this here.

Clean cultivation throughout the whole year is objectionable, and under such treatment poor results may be expected as compared with groves regularly cover-cropped.

There are many legumes which may be used for the purpose — sunn-hemp, kaffir, velvet, dolichos and other beans, also peas, etc. Bush varieties of beans are preferable to climbers, and care must be exercised that the crop planted is not subject to the attack of insect pests, which may later turn their attention to the fruit trees.

Pruning.—While the orange tree requires less pruning when once established than most other fruit trees, it is yet necessary to attend to this constantly in the early stages of its life in the grove. Young trees growing isolated as they do, with free access to light on all sides, should shape themselves perfectly in accordance with their own demands. If the prunings of young trees is correctly performed, the work will be limited to the removal of all sprouts that appear on the tree trunk and to the cutting out of cross, broken or diseased branches. The fact must not be overlooked that the leaves are the part of the plant that manufacture the carbohydrates necessary in the growth of all parts of the tree; thus when the trees are heavily pruned a setback will occur and the normal growth will be adversely affected.

On the trees reaching bearing age, pruning should be confined to the cutting out of the dead, damaged and diseased or decadent limbs and to the removal of branches likely to touch the ground. This permits of implements working slightly under the trees. All water shoots must be cut off when they appear on the trunk or other part of the tree.

The lopping off of the bottom branches should not be excessive, the aim being merely to prevent the fruit carried on such branches from rubbing on the ground. When large limbs are to be removed, owing to disease or some other cause, the limbs should be cut off well against the remaining wood without leaving a stub. These stubs cause endless water shoot growths, or they may die back and so impair the general health of the tree. Wounds of one-half inch in diameter and over should be neatly trimmed with a sharp knife and then painted with an oil paint similar in colour to that of the bark of the tree; huge white or red blotches on the tree are unsightly and should be avoided.

The best period within which to prune orange trees is from the time harvesting is completed up to the first signs of spring growth; if this practice is followed, little or no damage will occur to the fruit crop.

The foregoing remarks regarding the pruning of orange trees apply equally to grape fruit and naartje trees; lemons may be pruned more heavily.

Spraying and Fumigating.—It should be clearly understood that spraying and fumigation are just as much an essential part of the curriculum of citrus grove work as any of the cultural operations. Some growers are under the impression that there are more pests to contend with in this country than elsewhere, but this is not so, and provided reasonable attention is given, it is no more difficult to control attacks here than in other parts of the world. In all countries where fruit growing is carried on commercially, spraying or fumigation of the trees is recognised as part of the regular grove routine and is considered a form of insurance against loss. If trees are neglected through want of cleansing from either insect or fungus troubles, it cannot be expected that returns from the grove will be satisfactory.

Of recent years considerable improvements have been effected in regard to appliances and remedies necessary for spraying, and it is now possible to procure effective pumps for small or large groves, as well as the spray mixtures, with full directions on their containers for mixing, etc.

When purchasing a spray pump to be worked either by hand or power the outfit should be capable of thoroughly atomising the spray mixtures, failing which efficient results will not be obtained. High pressure pumps give the best results and should be equipped with good quality high pressure hose pipes with suitable rods and nozzles.

When once a spray pump is purchased it must be well cared for; leaky joints must be remedied, for they not only waste material, but may injure the operator. The pumps must be regularly washed out with clean water after use, and they should then be placed under suitable cover. The hose pipe should be kept in a dark place when not in use and should never be allowed to lie about in the hot sun during breaks when spraying is in progress.

The aims and objects of spraying are to destroy, prevent or control the injurious pests and diseases that may be troublesome in any given locality. If a pest is found to be increasing in the citrus grove and the natural enemies are unable to deal with it, and if it is possible to effectively destroy or control it by spraying, the spray outfit must at once be brought into action, weather permitting. The necessary spray material should always be kept in readiness, and the mixing and application should be thoroughly done under competent supervision.

Mix the spray as directed on the container, then before spraying, thoroughly agitate it by placing the nozzle in the mixture tank and pump for a few minutes; this prevents the mixtures that settle quickly from being sprayed on the trees at varying strengths.

When applying spray mixtures which destroy the insects by poisoning their food or kill them by suffocation or absorption, the trees must first be sprayed in such a way as first to cover the under side of the foliage and subsequently the upper surface of the leaves. If sufficient pressure is used and the spray rods are well handled, the tree may be completely covered with a thin film of spray material without unnecessary loss by dripping from the foliage.