

HILLSIDE PLANTING OF AVOCADOS

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A request from President Sallmon that I tell the Association my experiences of two and a half years as an avocado planter on hillside lands, is the cause of this attempt. Please remember that I am making suggestions, not giving advice, for the coming years may prove that our experiments should have been conducted on very different lines.

Many prospective growers on hillside will confine their activities to property already owned, but to others who expect to acquire sites I would say that probably the limit of the steepness of the natural slope should not exceed thirty per cent, except for a short distance.

The so-called contours on which the trees are to be planted are in reality terraces and should have a slope along their length of from one to two and a half per cent, the greater the distance the water has to run, the greater the fall. The ground should be laid out by some competent person and if it is of any great extent, a surveyor's instrument is almost indispensable. A reversible hillside plow should next be run along the line of stakes set and, when a few furrows have been plowed, V shaped and other grading tools will be called for to complete the work. It is wise to make the terraces almost as wide as the lay of the land will permit, for the cost (which may well be considered as part of the land) is less if the work is done at one time and especially before there are any trees to interfere. When the terraces are made the slope should be carefully tested by running water and all inequalities remedied. If possible, a delay in planting until after a winter's rains have settled the ground and brought out the defects will be of advantage. Any neglect to attend to the perfecting of this slope will increase the expense of irrigation materially. Roughly, the terraces may be made thirty feet apart. The lay of the land will sometimes bring two terraces much nearer together or much farther apart than this distance, but where they approach nearer than twenty feet, one may be discontinued and when they draw apart as far as—say fifty feet—a new terrace, short or long as the ground permits, may be inserted.

Water is preferably supplied from a large service pipe running along the upper terrace and from this smaller pipes should cross the lower terraces at their highest point, where a tap should be provided. Under a sixty foot pressure, a three quarter inch pipe should be sufficient for the lines crossing the terraces. If these terraces are longer than three hundred feet it will be necessary to have an additional up and down supply pipe and tap.

When the ground is considered ready for planting the trees should be set out at a point on the terrace about where the original surface of the ground lay, thus giving to the growing roots the benefit of a larger supply of well cultivated top soil. However, should

the hillside be quite steep, it is well to plant the young tree from six to fifteen inches inside the line of the original surface.

Concerning the important point as to how far apart on the terrace the trees are to be planted, the principal consideration is whether the tree has an erect, medium, or spreading habit. The extremes I should say would be about fifteen feet for trees like the Lyon and fifty in the case of those like the Taft. Some growers may choose to plant alternately different kinds quite closely, with the intent of eventually eliminating the less desirable.

The proper irrigation seems to be by furrows. Where the terraces are so wide that the water can be run both inside and outside the line of trees, this plan may be resorted to, care being taken to raise the outer edge of the terraces. Where the hillside is so steep that the terraces are necessarily narrower, one or two furrows should be run inside the line of trees. If the terraces have been carefully graded, the water may be regulated so as to merely run slowly and only in such volume that on arriving at the end of the terrace there will be no waste.

Hillside lands run great risk from wash in heavy rains. At any point where water is liable to congregate some run-off must be provided and cement or other pipe so placed that a slide may be unlikely. In this connection alfalfa, lippia or some other growth with roots which have a tendency to hold the soil will be advantageous. At this point it may be well to say that a good supply of lima bean straw as a mulch is exceedingly useful on the terraces in case of heavy rains in helping to control the unruly rush of storm waters. Not only this, but the mulch will act as a saver of irrigating water by preventing evaporation of moisture, it will obviate the necessity of much cultivation, prevent the growth of noxious weeds, and finally by its decay will provide the humus and nitrogen so necessary for the replenishment of the soil, which will naturally be exhausted by such vigorous feeders as producing avocado trees.

The care of hillside planting is more expensive than that of level or nearly level ground and because of the inability to plow up and down the hill, more hand work is necessary. In order to obviate this last, I am experimenting in making small terraces between the larger ones, which can be cultivated lengthwise with facility and which will allow the growth of cover and other crops while the trees are young. A friend of Mr. Sallmon, Mr. R. C. Allen, has made a hillside planting by leveling a circle wherever he desires to plant a tree. This basin he filled with mulch and irrigates from above, giving no other care. With a very large supply of bean straw, this might be done on terraces and the slight cultivation now necessary after irrigation be largely avoided.

The protection against frost afforded by many hillsides is very considerable, the thermometer readings varying as much as six degrees on cold, calm nights, where the points of observation differ about 125 feet in elevation. In this connection I may say that the cost of the terraces and the greater expense of cultivating the trees on a hillside, if any, should be looked upon as an insurance against frost, which it is to a very considerable degree, in my opinion.