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**Dewberry Growing**

BY

O. B. WHIPPLE

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# Dewberry Growing.

BY O. B. WHIPPLE, B. S.

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As Colorado is noted for its variety of climates so is it remarkable for its diversity of products. We are fast learning that certain localities are best adapted to growing particular kinds and even varieties of fruit and the grower is to be commended who adapts himself to his environment and becomes a specialist. We have our recognized peach sections and we might, if we do not already, have our recognized dewberry sections. Probably the dewberry growers of the Plateau valley, a valley tributary to De Beque, Colorado, and the Grand Valley proper, have gained a greater name for their dewberries than have those of any other part of the state and it is the purpose of this bulletin to outline their method of culture for the benefit of those similarly situated. Here, dewberries are grown at an elevation varying from 5500 to 6500 feet and surely finer berries cannot be grown anywhere. Lower elevations, at least in the western part of the state, are not well adapted to the culture of this fruit on account of the extreme heat of summer, the berries are short and seedy as compared with the long luscious berries grown at higher altitudes. The fruit seems to develop best where the maximum temperature is not above 90°, and probably maximum temperature is a better guide than elevation. It must not be inferred, however, that dewberries may be grown in all localities favored with such summer temperatures; severe, drying winters may prove too trying for dewberries in localities otherwise well adapted to their culture.

That dewberries may be grown profitably in localities where the maximum temperature often runs above 95° in the shade, during the picking season, is proven by the returns from a plantation near Fruita, Colorado, in the season of 1908. Here three-quarters of an acre produced 345 crates of berries and brought a gross return of over \$650. The berries were not as large as those grown at higher elevations. The variation in season in different localities is better understood when we say the picking season at Fruita extended from July 7 to August 1, while at Plateau City, Colorado, Mr. Baldridge's patch was at the height of its season on August 1.

Although Card in his "Bush Fruits" seems to doubt the value of the dewberry and suggests that its place may yet be taken by some early ripening blackberry, there is no danger of such a change of favor in Colorado. It ripens earlier than most blackberries and the plantation is much more easily handled. It is in a class by itself and unfruitfulness due to lack of proper fertilization or other causes is a misdemeanor of which the Colorado dewberry, in suitable locations, is not guilty. At present, however, the acreage of dewberries that can be profitably grown will no doubt be limited by the short life of the berry in transit and hence the accessible markets. As yet we have not learned to ship the fruit any great distance—it may almost be said that they must be on the market within thirty-six hours after picking. Unless by

some means we can lengthen the life of the fruit in transit, over-production may easily take place. For this reason it is encouraging to think that the industry is new and that probably much is to be learned about the proper handling of the fruit for shipment.

Quite a variation in season may be found in different sections and altitudes, and all dewberries do not necessarily come into competition.

*Soils and Locations.* In its wild state the dewberry is found growing on comparatively light sandy soil and if this is significant it would suggest that our sandy mesa soils are the best adapted to its culture. Yet in Colorado, the dewberry, like our tree-fruits is grown on almost any kind of soil. Considered from the standpoint of both ease of culture and adaptability, however, sandy soils free from rock or gravel are best adapted to dewberry growing. Since the plants must be covered for the winter, and as they are generally covered with the soil about them, any considerable amount of gravel or rock is undesirable. In the introductory remarks it has been suggested that the dewberry does not develop well in a hot climate and here it may be said that much may be gained by choosing a northern exposure upon which to set the dewberry patch. The best growers recognize this as an important point, the fruit not only develops better but the vines get through the trying days of winter and spring with less injury.

*Propagation.* The dewberry may be propagated by layering the tips or from root cuttings. In fact the plants are so easily secured that one may generally get them from his neighbors plantation more easily than from a nurseryman. If plants are required by the wholesale a good plan is to plow a furrow along the row, place the tips of the runners in this and turn a light furrow back upon them; the tips must be actually covered. This work should be done before the opening of the picking season in most altitudes, and the plants will be ready for next spring's setting. Deep cultivation that will disturb or break large roots will cause many new plants to start. If an old bed is to be discarded, a good crop of plants may be secured by thoroughly plowing and working down the bed in the spring allowing the young plants to spring up from the broken roots the following summer. Root-cuttings, from roots the size of a lead pencil, may be taken in the fall, stored in moist sand over winter and planted out in nursery rows the following spring. If these root-cuttings are well cared for during the winter and planted three inches deep in a good soil, kept well moistened, a fair percent will produce plants. Root-cuttings taken in the spring and planted in the same way will also give fair results. The dewberry does not sucker as freely as the blackberry, neither does it root as readily from root-cuttings.

*Preparation of Land for Planting.* In an irrigated section the first step in the preparation of land for any crop is proper leveling, low spots where water settles or high spots difficult to irrigate materially cut down the dewberry yield. Best stands are secured when the ground has been deeply plowed, well worked down and pulverized; no doubt fall preparation is advisable for spring setting.

*Planting.* The majority of our dewberry beds are from spring settings but many of our experienced growers seem to be of the opinion that fall setting would prove as satisfactory and would bring quicker returns. I see no reason for not setting in the fall, the plants would necessarily be quite tender the first winter but could be well protected and should suffer no injury. Planting in the fall should be done in early September and spring planting as soon as the ground can be worked. As to distances for planting there is still some dispute, but, if the plants are to be allowed to grow prostrate, setting 5' x 5' seems to be the most satisfactory system. They can be pruned accordingly and cultivated either way. If grown on a wire trellis, rows six feet apart with plants three feet in the row would no doubt be a better system. When planted in the young orchard, the distance can be made such as to best utilize the space. There is no particular objections to planting dewberries in the young orchard but the grower is to be cautioned about crowding the trees and advised that in most cases it is not a crop for the old orchard.

For planting, the ground is furrowed out one way and cross marked. The plants are dropped in the furrow at its intersection with the cross-mark, and partially covered with the foot. The furrow is turned back, the plants straightened up, the soil firmed about them, and the job of setting is completed by running water down the row. As with any other plant, the top should be cut back at setting time to offset the loss of roots in digging.

*Cultivation.* The cultivation of the dewberry patch should not be unlike that for any other bush-fruit. It should be well-cultivated in the early part of the season to keep down the weeds and conserve the moisture. Cultivation stops at the opening of the picking season and is resumed again at its close, continuing until the end of the growing season. Since deep cultivation which disturbs or breaks the roots tends to start objectional plants in the middles, the early cultivations and possibly the later ones should be rather shallow. If the plants are allowed to run for the purpose of being trained on a trellis, cultivation must be in one direction; when checked equal distance each way the general plan is to keep the middles open only one way. While it may be possible to overgrow the plants by continual cultivation, it is better to counteract this by withholding water rather than by discontinuing cultivation. Good cultivation is no doubt conducive to vigor, but not necessarily to rampant growth.

*Irrigation.* There are really no tricks in irrigating dewberries. The ground should be kept moist and in good condition during the early part of the growing season. The young plants will stand a good deal of water the first season. During the picking season it is the common practice to water after each picking, just a light surface watering. This supplies the roots with the needed moisture to swell the berries to good size and by keeping the surface of the ground moist the berries ripen better, there is less loss from the drying of the fruit. It would be a good plan, no doubt, to try to induce early maturity of the canes by withholding water after the close of the picking season. In localities where the winter snowfall is not great the dewberry patch should be given a late fall irrigation.

*Fertilizing.* The grower of dewberries cannot expect that the plants will continue bearing good annual crops without fertilization. If properly cared for, there seems to be almost no limit to the duration of the plantation. Good stable manure is one of the best fertilizers for our Colorado soils. It may be applied in early spring before uncovering the plants and the uncovering process as well as early cultivations will help incorporate it

with the soil. Frequent light applications are preferable to heavy and irregular ones, as they tend to promote more uniform growth and yields.

**Pruning.** In western Colorado at least, dewberries are allowed to grow prostrate, growers say it is too expensive to trellis them and it might be added that the present system seems highly satisfactory. No doubt, under certain conditions, trellising would be advisable but surely could not increase the yield any considerable amount. Where the plants are grown on a trellis, they receive no summer pruning as a rule; the new canes are allowed to trail on the ground under the trellis while the fruiting canes are tied to the wires. The only pruning the plant requires—unless it be a clipping back in August to induce early maturity—is cutting out the old canes in the fall or spring and shortening the new ones to three or three and one-half feet. A two-wire trellis is generally used, the top wire being about three feet from the ground. The training of the dewberry without the trellis requires a little more care in pruning but saves the labor of tying up and allows of early cultivation either way. The first pruning consists in tipping the new growths when they have attained a length of twelve or eighteen inches, the canes then stand upright above the old wood and the tips may be mowed off with a sickle or large knife. It is important that this pruning be done at the right time, do not wait until the canes are longer and then cut back to eighteen inches or weak lateral canes will be the result. This early pruning forces out lateral canes and thus increases the bearing surface as well as stiffen the lower part of the cane, making it support itself better. The general practice is to prune the second time just before picking begins. The main object of the pruning seems to be to get the new wood out of the way of the pickers. At this time the lateral canes forced by the first pruning are cut back to two or two and one-half feet, they should be left long enough to shade the old wood and the fruit, yet short enough to be easily lifted by the pickers. This pruning must not be delayed too long as it starts new growth which should have time to mature, at its best it is not satisfactory and it is probable that the growers will yet learn to avoid this pruning. The third pruning is administered the following spring, and consists in removing all old canes and shortening-in the new canes that may have grown too long. There seems to be no reason why this pruning may not be done before covering in the fall other than that the foliage makes the pruning more difficult.

**Winter Protection.** The dewberry is not hardy in most parts of Colorado, consequently the canes must be covered during the winter. The difficulty seems to be that the canes do not mature well before frost and they tend to dry out during the dry winter weather. Just before the ground freezes it is the common practice to bunch together the canes from each plant and cover them with a light covering of soil. Where the vines are allowed to grow together in the rows, they are kicked apart, strung out, and covered in the open middle. The covering of dirt need not be heavy, just enough to hold the plants down throughout the winter. There is danger in covering the plants too deep, especially if they carry heavy foliage, as the canes are liable to become heated. The bare bases of the canes should be well covered. Most growers cover with a shovel, one man covering about 1500 plants in a day. The vines must be uncovered in the spring before growth starts. The canes are not injured by light spring freezes, and the new growth that starts while the vines are still covered is either knocked off in the process of uncovering or is killed by the hot sun afterward.

The canes may be lifted with a fork and the dirt scraped away from about the crown, leaving the rest of the leveling to the cultivator.

**Picking.** In growing dewberries on a large scale one of the serious problems is that of securing pickers. The average picker will pick from five to seven crates a day, and this means that it will take from eight to ten average pickers to pick an acre per day. The general practice is to pick every third day, and the large patch may be divided so as to furnish the pickers employment every day.

The pickers must at least wear a glove on the hand used to lift the vines and most of them wear a glove with the tips of the fingers removed on the picking hand. Some growers supply the pickers with a twelve-basket carrier, or two if the pickers are fast and able to carry them. Others advocate the use of the regular shipping crate holding twenty-four baskets. A bale may be made of heavy wire bent in a way to clamp into the grooves that serve as handles in the end of the crate. Of course crates used to pick in cannot afterwards be used as shipping crates. The deck boards and baskets for the second tier are carried along and placed in position when the first tier is filled. In this way the picker carries a full crate in one hand and at the same time does not expose them to the sun for any length of time. A piece of heavy cloth large enough to cover half the crate may be tacked by two corners across the center of the crate and used to shade one end of the crate while the other is being filled. The pickers should be made to grade the fruit, and the best way is to have them put the culls in certain boxes and pay them for picking these the same as first-class fruit. This plan provides a place for fruit the picker gathers and hates to throw away because it fills up. Dewberries should be picked when a full glossy black. Berries which have gone beyond this stage and turned a dull or more ashy color are too ripe to ship. The cull box is the place for over-ripe, dry, and poorly colored berries. Ripe berries start mould if packed for shipment.

Dewberries should not be picked when moist, as after a heavy dew or rain. Pickers are paid by the crate, thirty cents, if they pick part of the season, and thirty-five cents if they finish the season. If the grower does not protect himself in this way, some of the pickers will leave him when picking gets poor.

**Packing.** Since dewberries were first grown in Colorado several styles of packages have been used, but the crate known as the Double-deck Raspberry Crate and now commonly used comes as near perfection as any. This crate holds twenty-four pint veneer boxes, two in each deck. When the bottom tier of boxes is in place a second bottom similar to the first is dropped in—the ends of the crate being supplied with grooves to support it—and the second tier rests upon this. The crate is arranged in a way to give perfect ventilation, and good ventilation is essential in shipping dewberries. The general practice is for the pickers to sort the berries and then all the packer has to do is to see that the boxes are full and not overfull, and possibly throw out a few defective berries overlooked by careless pickers. When packed and covered the crates should be ricked up end to end, preferably under an open shed, and allowed to thoroughly air out before shipping. If possible, it is a good plan to let them air over night and ship in the morning; unless well aired out the fruit molds in transit. Shippers should also insist on the car being well ventilated; icing only seems to aggravate molding.

As in the packing and grading of any fruit, the berry grower has an opportunity to establish a reputation for his product. So long as the number of dewberry growers is limited and the matter of grading and packing is not an association problem, the individual grower should put up a pack that he is not ashamed of and stamp his name and address upon the crate. Mr. Jas. P. Baldridge, the veteran dewberry grower of the Plateau Valley, and to whom I am indebted for much valued information and help in the preparation of this bulletin, has adopted this plan and is known the state over for his dewberries. He could dispose of the entire output of his five-acre patch through mail and telephone orders but prefers to let a Producers' Association handle the bulk of the crop. Such a plan relieves the grower of much responsibility and associations are better collectors than individuals. The man who receives the fruit from the pickers and crates it for shipment should always be on the lookout for poorly colored, defective, or over-ripe berries. Pickers often pick small, dry berries and these should not be allowed to go in a first-class pack. The packer also sees that the boxes are well filled but not overfull.

**Varieties.** In spite of the fact that most eastern growers advise inter-planting of different varieties to insure perfect fertilization we see no need of taking such precautions in Colorado. The Lucretia is practically the only variety grown in our best dewberry sections, yet we see no tendency toward imperfect fertilization. The variety seems perfectly satisfactory and there seems to be little occasion for testing new ones. The Lucretia stock varies considerably and could no doubt be improved by proper selection. From the literature on the subject it would seem that only one other variety, the Mayes, gives promise of equaling the Lucretia.

**Insects and Diseases.** So far the dewberry in Colorado is exceptionally free from the attacks of insects or plant diseases. No insects have been reported as doing serious damage. The common leaf spot of the rambles has been observed in only a few plantations, and here it seemed to be doing no serious damage. The work of this parasitic fungus is first indicated by purplish spots which appear on the leaves. These spots later dry out and turn a lighter color and show a few dark pustules in the center. Still later the diseased tissue may drop out entirely giving the leaf the appearance of having been riddled with shot. Should it become necessary to spray for this it could no doubt be controlled with one of the standard fungicides.

**Yields and Returns.** A dewberry plantation in good bearing will yield from three hundred to four hundred crates of berries per acre. Mr. Balridge's patch, set on four and one-half acres of ground but with enough plants for five acres, was set in 1903. In 1904 it yielded 125 crates of berries, in 1905, 1800 crates; in 1906, 1800 crates and in 1907, 2000 crates. It would probably be hard to give a satisfactory estimate of the cost of production of dewberries. The crate costs the grower 27 cents and picking 35 cents per crate, plus probably 5 cents for overseeing and crating the fruit. Estimating the cost of production at \$1.00 per crate this would leave 25 cents per crate for other work. With a yield of 350 crates per acre this would mean an allowance of \$80.50 for other labor, irrigations, cultivating, pruning, covering etc. Possibly this is not high enough; but granting that the cost of production is \$1.25 per crate, which is surely high enough, the grower still nets a return of \$1.00 per crate. At present the average price paid for dewberries has been \$2.25 per crate F. O. B. the nearest shipping point.

## The Loganberry.

In some of our best berry sections, the Loganberry is sharing popular favor with the dewberry. This berry is supposed to be a hybrid of the red raspberry and the Western dewberry, and it resembles both. The fruit is almost identical in shape with the dewberry, possibly a little shorter, but has the color and flavor of the raspberry; in foliage it resembles the raspberry and in growth it has a trailing habit midway between the two. It has the advantage over the dewberry in that the canes stand up better, but it is not generally conceded to be as good a producer. When fully ripe the berry is a little softer than the dewberry but apparently ships well, and so far it has sold for the same prices. Comparison of flavors is largely a matter of personal likes and dislikes, but in the raw state it is doubtful whether its flavor is as pleasing to most tastes as is that of the dewberry. Its flavor is improved by cooking and it makes a very fine sauce. As it is grown in a limited way, it is impossible to say whether it will prove as popular when grown more generally, or whether the demand is limited. It surely deserves a place in the home garden at least.

Its culture is practically identical with that of the dewberry. The plant is a little stronger grower and may profit with a little more room. It is possible that the first pruning may be omitted, but, on the other hand, this pruning may materially increase the yield by multiplying the number of fruiting canes. The fruit is a little harder to pick on account of a tendency for the calyces to cling to the fruit. It is picked, packed and handled for market as is the dewberry.