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RASPBERRIES AND BLACKBERRIES.

O. M. TAYLOR.

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* In Second Judicial Department.

POPULAR EDITION *

OF

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RASPBERRIES AND BLACKBERRIES.

O. M. TAYLOR.

Culture. In discussing the growing of these fruits the work is not taken up in detail to give full and explicit directions, but attention is briefly called to some of the most important subjects connected with the successful growing of these crops. The details will vary to suit the different conditions under which the plants may be grown.

Soil. Raspberries and blackberries are nearly as cosmopolitan as strawberries in regard to adaptation to soils. Deep, moderately sandy loams or clay loams containing an abundance of humus usually give best results with raspberries, while blackberries are often at their best on a slightly heavier soil. It is important that the soil be not too wet as this condition often increases the amount of winter injury.

Fertilizers. There is no one brand of fertilizers best suited to raspberries and blackberries under all conditions. The kind of plant food to use depends on the amount and kind already in the soil and on the physical condition of the soil. Some soils lack nitrogen, others potash or phosphoric acid and many are deficient in humus which not only

* This bulletin gives in abridged form the matter presented in Bulletin No. 278 of this Station, by the same author, omitting only the detailed descriptions of the varieties tested. Those interested in these descriptions will be supplied, on application, with a copy of the complete bulletin. The names of those who so request will be listed to receive future bulletins of the Station, popular or complete as desired. Bulletins are issued at irregular intervals as investigations are completed, not monthly.

supplies plant food but also aids greatly in the retention of moisture. Stable manure and cover crops are available for supplying humus. Care must be used in making applications of nitrogenous fertilizers or the resulting growth will not mature, a condition which may cause severe winter injury. If the soil is already rich in humus, it would appear desirable in some cases to avoid the use of stable manure, using commercial fertilizers in its place. Wood ashes, muriate of potash, acid phosphate, etc., are valuable where needed. The best way to determine the kind and amount to use is by trial, leaving check rows for comparison.

Preparation of land. Raspberries and blackberries, unlike strawberries, occupy the soil for a number of years, and for this reason the preparation should be very thorough. If too wet the land should be underdrained. If for one or two years preceding, hoed crops have been used, there will be fewer weeds to fight. The land should be well plowed and thoroughly fitted to receive the plants.

Selection of varieties. Plant mainly only those kinds that appear to succeed in the immediate locality, testing newer ones in a small way. The varieties best suited for one set of conditions may be failures elsewhere. In another part of this bulletin are given lists of varieties found desirable in many parts of the State, but it cannot be expected that all will do equally well in the same locality.

Propagation and selection of plants. Red raspberries are usually propagated by transplanting the numerous suckers which come up freely around the original hills. Black raspberries are increased by rooting the tips of the nearly mature canes in late August or early September. The ends of the canes are covered lightly with earth, and by late fall a large mass of fibrous roots will be formed with a well developed crown. Varieties of purple raspberries are hybrids, produced by crossing red and black raspberries, and some of them may be propagated either by using suckers or by rooting the tips of the canes. Blackberries do not sucker as freely as the red raspberries. These suckers have but few fibrous roots and as a rule do not make such good plants as

those started from cuttings of the blackberry roots. The roots may be dug in the fall, cut into two or three inch lengths, stratified over winter and sown in nursery rows in the spring and most excellent plants are usually obtained after one season's growth. Only strong, healthy plants should be selected, and it is often an advantage to choose these from a younger plantation rather than from an old bed the plants of which may have deteriorated in vigor and may be infested with various insects and diseases.

Setting the plants. Blackberries and red raspberries may be set either in the fall or in the early spring. If set in late October or early November the rows should be plowed up to, making a back furrow along each row of plants. This will be a great protection against winter injury. The earth should be taken away from the hills as soon as the ground is in working order in early spring. Such plants, as a rule, start into growth earlier than those set in the spring. These plants should be set as deep, or slightly deeper, than they were in the original beds. Black raspberry plants and the purple kinds rooted from the cane tips should be set in the spring instead of the fall, not covering the crown too deeply, and spreading the roots in a circle about the center of the crown. It is an advantage to set the plants in the bottom of a shallow furrow, filling in as the plants develop. Under these conditions they withstand drought better and the canes are not so easily blown over by the wind.

The distance apart of rows and of plants depends on the system of cultivation, the varieties, the natural richness of the ground and the location. In general the plants should not be crowded. Red raspberries may be set closer than black raspberries and blackberries should be set the farthest apart. These distances may vary from three by six feet to four by eight feet depending on conditions.

Subsequent treatment. The ground should be kept well cultivated and the plants hoed as occasion requires. In young plantations, if the plants have been set properly, cultivation may be given both ways thus reducing the expense of keeping down the weeds. The cultivation should

be shallow as the roots lie near the surface. On heavy clay soils it may sometimes be desirable in some seasons to plow early in spring, following with the cultivator till fruiting time. During the picking of the fruit there is little opportunity to cultivate, but the ground should be thoroughly stirred as soon as the harvest is over. If desirable a cover crop may be sown in late August or early September.

During the first two years it is not always necessary to give the land solely to the berry plants. Potatoes, cabbages, strawberries, etc., are often grown with advantage between the rows so that a considerable income from this source may be obtained before the berry plants fully occupy the ground.

Pruning. Summer pruning is not generally practiced with red raspberries but may often be done with advantage to black raspberries and blackberries. It consists in pinching or cutting off the tender ends or tips of the new shoots at a height that may vary from eighteen inches to twenty-four or even thirty, the blackberries usually being pinched somewhat lower than the black raspberries. The result of this pruning is the formation of rather low stocky plants with numerous lateral branches which will not require a trellis. As the young plants do not all develop at the same time it is necessary to go over the plantation several times in order to pinch the growth at the proper height.

The canes growing one summer, bear fruit the next season and then die, while new canes develop each year for the succeeding year's crop. Frequently the canes which have fruited are allowed to remain until the following spring before removal, but better results are usually secured by cutting them out and burning as soon as the berry crop is harvested. By this method the insects and fungus diseases frequently infesting those canes may be destroyed, and the young canes have more room to develop. Each spring the plants should be gone over, cutting off the weak ends of the canes and thinning out some of the smaller ones where the growth is too dense. From three to five canes per hill are usually preferable to a larger number.

Winter protection. The winter protection of the plants is largely confined to the colder climates, only those kinds being grown in this State commercially that withstand fairly well New York conditions. Blackberries are usually much more tender than raspberries. Winter protection consists in laying down the canes and covering them with a thin mulch of straw and earth.

Red Raspberries.

Brief notes. Among red raspberries *Bradley No. 1.* and Brilliant have not been fully tested but appear to be of doubtful value. Cline is valuable only on account of earliness. The fruit is small and the plants unproductive. Cuthbert is still the most popular variety throughout the State. Herbert has made a good record and is wortny of testing. King and Royal Church are inclined to crumble. Loudon is desirable but is quite variable in growth of cane. Marlboro canes are rather dwarf but are very productive. Pomona lacks productiveness on some soils. Turner is an old variety, hardy and productive, but the fruit averages too small.

Hardiness. Records have been made each spring in regard to the amount of winter injury. This varied considerably from year to year, depending upon the severity of the winter, and on the condition of the wood when it went into winter quarters, ranging in some cases from 0 to 75 per ct. In the following lists, those varieties not injured over 25 per ct. in any year, and with an average considerably below that number, have been marked as hardy or nearly so, and those injured over 25 per ct. as not hardy.

Hardy or Nearly Hardy.		Not Hardy.
Bradley No. 1	Marlboro	Brilliant
Carleton	Miller	Great American
Cline	Olathe	Naomi

Coutant No. 2	Phoenix	Pride of Kent
Cuthbert	Pomona	Superlative
Eaton	Pride of Geneva	
Gault	Royal Church	
Herbert	Superb	
Kenyon	Talbot	
King	Thompson	
Koch No. 1	Turner	
Loudon	Viking	

Earliness. The value of the time of ripening varies in different locations depending on the market, some growers finding the early varieties most profitable while others secure the greatest returns from late-fruiting kinds. While the relative time of ripening of varieties may not vary much from year to year, the dates of ripening for any one sort may be quite different depending on local conditions. No clear cut division can be made in regard to season of ripening; some varieties have a very long season of fruiting, while with other varieties the reverse is true. For several years the Cline, Giant, Marlboro and Pomona were among the first to produce ripe fruit while the following varieties were among the latest to produce good pickings:

Bradley No. 1	English Giant	Phoenix
Coutant No. 2	Herbert	Pride of Kent
Cuthbert	Loudon	Royal Church

Desirable kinds. Many of the varieties tested were found to be worthless in this locality. Some were too tender, or not productive; others produced fruit too small and too soft for shipment, or the color was unattractive, and the flavor and quality inferior. The following list, however, includes those varieties that have made the best showing, and under conditions at the Station are of value commercially and are worthy of testing elsewhere:

Cline	Loudon	Pomona
Cuthbert	Marlboro	Turner
Herbert		

Purple Raspberries.

Good canning berries. Varieties of this type are intermediate in character between red raspberries and black raspberries. They are supposed to be hybrids between these two species. They show all gradations in habit between the two parent types, some being propagated by suckers, others by tips, and still others by either tips or suckers. The color of the fruit is usually a light or dark purple. Of the varieties described, only two, Columbian and Shaffer, at the present time appear to have any commercial value. Haymaker promises to be productive and firm but the fruit does not average as large as that of Columbian or Shaffer.

The purple raspberries are unexcelled for canning purposes, being superior in flavor and quality to the red raspberries, but the unattractive purplish color is a great drawback to their sale and in many markets they are sold only in limited quantities unless their real value is fully known.

Black Raspberries.

Varietal hints in brief. Black raspberry plantations should be frequently renewed on account of injury from anthracnose. Beyer is a new kind ripening its fruit on the current season's growth; requires further testing, as yet does not show many desirable characters. Black Diamond is variable, being worthless on some soils. Cumberland, Gregg, Mills and Onondaga produce fruit of excellent size and color. Eureka, Mohler and Palmer are among the most desirable early kinds. Ohio is not grown as extensively as formerly, and is used more for evaporating than for market purposes.

Hardiness. During the past five years the winter injury to most of the varieties was not due so much to their lack of hardiness as it was to the weakened condition caused by the destructive work of the fungus disease, anthracnose, already referred to. For this reason lists are not given although the average rating in regard to winter injury is in most cases recorded in the descriptions of each variety in the complete bulletin which this summarizes.

Earliness. The season of black raspberries is considerably shorter than that of the red varieties, a larger percentage of the crop being usually secured at each picking. The following lists indicate the varieties which begin to ripen early and those which give good yields late in the season.

EARLY.	LATE.
Eureka	Mills
Hopkins	Onondaga
Mohler	Palmer *
Palmer *	Pioneer
Poscharsky No. 9	

Desirable kinds. The following list includes the varieties which have made a good record at this Station for several years and which can be recommended for trial where they have not already been tested. During some years, however, the best of these kinds were severely injured by anthracnose. It appears desirable to depend upon new plantations, as already indicated, rather than to look for anthracnose-proof kinds, although such varieties would be a great boon to the fruit grower, and possibly by careful selection and breeding, sorts immune to anthracnose may be developed.

Black Diamond	Hilborn	Mohler
Cumberland	Lawrence	Onondaga
Eureka	Livingston	Palmer
Gregg	Mills	

BLACKBERRIES.

Hardiness. Blackberry culture is of comparatively little importance in New York. Blackberry growing largely resolves itself into an effort to grow only those kinds fairly hardy under New York conditions. It is probable that in a few sections of the State winter protection of a few desirable kinds would prove profitable, as several most excellent sorts are somewhat tender. The following is a list of the hardy and tender sorts. Observations were made for several years; the list of hardy sorts includes those not injured

*Unusually long season.

over 25 per ct; the list of tender ones, those injured severely, in some cases as high as 90 per ct.

HARDY OR NEARLY SO.	NOT HARDY.	
Agawam	Allen	Florence
Ancient Briton	Black Chief	Ida
Chautauqua	Bow Cane	Kittatinny
Eldorado	Childs Tree	Lovett
Fruitland	Clark	Mersereau
New Rochelle	Clifton	Minnewaski
Ohmer	Dorchester	Rathbun
Snyder	Early Harvest	Reyner
Stone Hardy	Early King	Success
Taylor	Early Mammoth	Wilson Jr.
Tyler		
Wachusett		

Earliness. The time of fruiting varies so much that no very satisfactory list as to season can be given. Some varieties have a long season, others ripen early or late, depending on character of soil and exposure. The following is a list of those varieties from which fruit was picked early in the season and those giving good yields near the close of the season.

EARLY.	LATE.
Agawam*	Agawam*
Allen	Ancient Briton
Early Harvest	Chautauqua
Early King	Childs Tree
Eldorado	Florence
Minnewaski	Mersereau
Rathbun	Ohmer
Wilson Jr.	Success
	Taylor
	Tyler

Desirable kinds. Not all of the varieties in the following list are hardy nor is the fruit of some of the kinds very large. The varieties, however, have made good records for several years in some parts of the State and are worthy of consideration although it cannot be expected that very many of them will be entirely satisfactory in the same locality.

*Long season.

Agawam and Ancient Briton produce large crops of berries, medium to above in size. Chautauqua and Florence are new, and although rather promising requires further testing. Eldorado, Mersereau, and New Rochelle produce fruit large in size. Rathbun is somewhat tender. Snyder is the most cosmopolitan of all the varieties, and although the fruit is small the canes are hardy and very productive.

Agawam
Ancient Briton
Chautauqua
Early Harvest
Eldorado
Kittatinny
Mersereau
Minnewaski
New Rochelle
Ohmer
Rathbun
Snyder
Success