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This Dormanred Cane tip (above) rooted, then produced a new cane or shoot the next spring.

DORMANRED RASPBERRY: NEW VARIETY FOR MISSISSIPPI

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A new cultivar (variety) of red raspberries is being released to nurserymen and home owners for propagation and distribution. This cultivar is well adapted in Mississippi. It makes large, healthy plants with trailing canes which produce abundant, terminal fruit clusters of large berries the second year after planting.

Dormanred has been tested as a selection at Mississippi State University and observed at other locations in Mississippi, Alabama, Louisiana, and Georgia. Plant vigor, fruit size and productivity have been reported favorable in all locations. It is now recommended for trial in home gardens throughout Mississippi and in neighboring states with similar climatic conditions.

The Dormanred raspberry is named after Dr. Clarence Dorman, a former Director of the Mississippi Agricultural and Forestry Experiment Station, who proposed that the author initiate a breeding program to develop red raspberries adapted to southern growing conditions. A pint basket of this attractive, large-fruited cultivar is shown on the cover.

Raspberry plants have perennial underground crowns which produce biennial above-ground canes. A new shoot growth from the crown is called a cane, and it may grow to as much as $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter near its base by the end of the first growing season. Dormanred canes often grow 6 to 10 feet long in one growing season.

The second spring, flowering shoots arise from lateral buds on these canes and produce fruits. After the fruits are ripe, the cane dies and should be cut out and removed. New canes arising from the crown in early spring or summer will produce fruit the next year.

Ancestry of Dormanred

When the early settlers arrived in North America from Europe, they commonly brought with them seeds, cuttings or trees of the fruits which they were accustomed to growing in Europe. Botanically, the European red raspberry belongs to the species **Rubus idaeus**, and was brought to the northern part of the United States by early settlers, where it was fairly well adapted.

In 1865 a chance seedling was found in the area of present-day New York City and was named Cuthbert. It was believed that the female parent was the European cultivar, Hudson River Antwerp, and the male parent was the wild native American red raspberry of the R. **strigosus** species, which was growing nearby. This cultivar was eventually involved in the Mississippi breeding program.

Cultivars of raspberries commonly available in recent years from commercial fruit plant nurseries in the United States have not proven suitable in Mississippi. The native red raspberries of North America are of the R. **strigosus** species and are found growing wild throughout the northeastern United States and at higher elevations in the mountains as far south as North Carolina.

Neither the plants of this wild species, the European cultivars or the hybrids of these red raspberries grow well in the southern states.

Plant breeders of the United States Department of Agriculture, during the period 1920 to 1940, collected raspberry species indigenous throughout the world in climates similar to the southern states. Some of the species exhibited excellent plant growth and vigor. But, the fruit qualities were inferior to those of the native American or European red raspberries, or their hybrids.

In 1928, Mr. C. F. Williams began a hybridization program with red raspberries at the North Carolina Agricultural Experiment Station. Then the raspberry testing and breeding program was started

in Mississippi in 1946, and a number of species and hybrids which had shown good climatic adaptation to eastern North Carolina were obtained. These became the foundation for a breeding program.

Many interspecific hybrids were produced and grown until they fruited. The good plant vigor exhibited by several species from the Orient was easy to maintain in hybrids with named cultivars of commercial American raspberries, but good fruit qualities proved more difficult to obtain in hybrids.

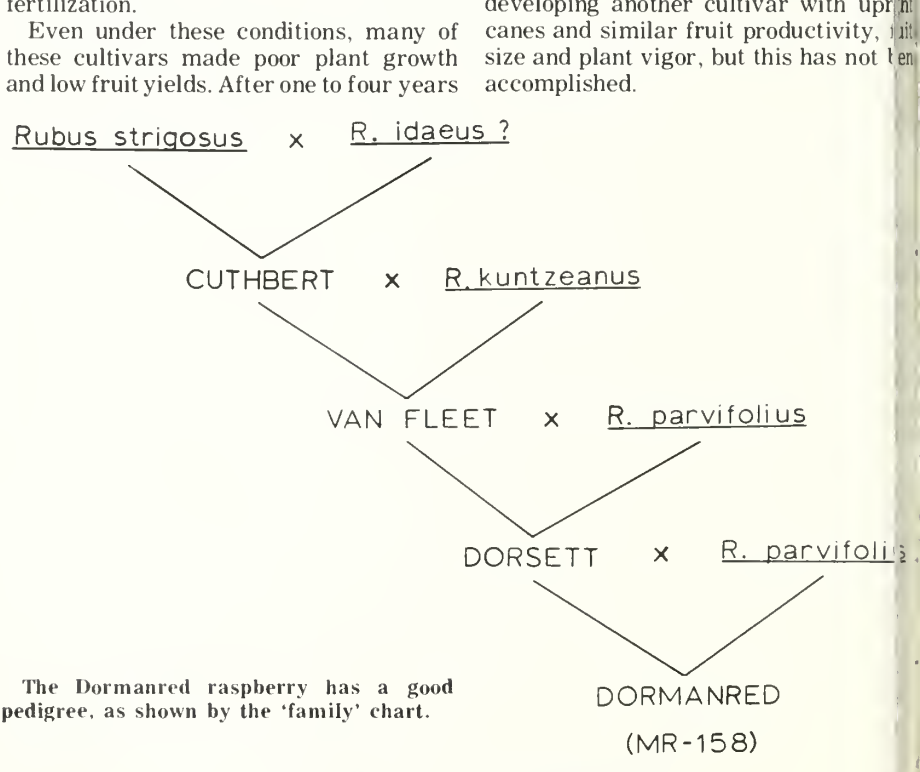
Cultivar tests were conducted for several years with clones such as: Chief, Cuthbert, Early Wonder, Flaming Giant, Indian Summer, Latham, Lloyd George, Milton, Newburgh, St. Regis, Sunbeam, Sunrise, Tahoma, Taylor, Washington and Willamette. These were grown under ideal conditions with straw mulches, fungicide and insecticide sprays and adequate fertilization.

Even under these conditions, many of these cultivars made poor plant growth and low fruit yields. After one to four years the stand of plants diminished and y lds were unacceptably low. The hot wea ier and periods of summer drought st ess apparently contributed to their oor performance and decline.

In 1949 a cross was made between he species, **R. parvifolius** (N. C. 60), and he Dorsett (USDA) cultivar. The pedi ee included several red raspberry spe ies and is shown below.

Plants of both parents in this cross h ve trailing canes. Many hybrid plants v re vigorous and had varying degree of coherence of the drupelets (segme s) which make up the berries.

One hybrid was numbered Mississ pi Raspberry No. 158 (MR 158) and as subsequently propagated and teste in field plots. It is now being named or- manred. The naming and release of his cultivar were delayed in hopes of developing another cultivar with upr ht canes and similar fruit productivity, uit size and plant vigor, but this has not en accomplished.



The Dormanred raspberry has a good pedigree, as shown by the 'family' chart.

Figure 2. Pedigree of the new Dormanred raspberry.

Raspberry plants trained on a two-wire vertical trellis give a comparison between two rieties. At left is the largest of three Latham variety raspberries which survived, of 30 anted. At right are vigorous, heavily-leafed Dormanred raspberries.

Raspberries, or blackberries, with rocumbent (trailing) canes are)mewhat more difficult to manage in eld production than those with upright anes. The trailing canes must be tied to a ake or trellis as they grow, so the soil can e cultivated or mulched. Futhermore, ven under mulch management the canes eed to be up in the air to protect the fruits 'om the soil and soil-borne pathogens.

The Dormanred cultivar has been grown 1 several replicated tests, beginning in 964. Raspberry plants in these tests were rown in rows 6 or 8 feet apart to make ultivation easier. Plot length was 15 feet nd plant spacing was 3 feet in the rows. Three wire, vertical trellises about 5 feet all were provided to support the plants as eeded. Thin pliable wire or cotton string vas used to attach the canes. These tests nvolved other promising selections from he breeding program and one or more amed, commercially available cultivars. Latham was the only cultivar used in all tests and comparisons of plants and fruits of Dormanred, and it will be discussed in this bulletin.

In one test with six blocks of five plants each (spaced three feet apart in the row) plots were planted with three varieties and two selections. After 18 months in the field, 100 percent of the Dormanred variety plants were alive and healthy, but only 10 percent of the Latham plants were alive, and all the plants of the other two varieties had died.

At that time there was an average of 8.5 canes per hill of Dormanred, but only 3.5 canes per surviving hill of Latham. The average length of canes for Dormanred was 87 inches; for Latham, the canes averaged only 43 inches. Total length of canes per hill for Dormanred was 2,793 inches, for Latham only 282 inches. The Dormanred canes were limber and had to be tied to a trellis regularly throughout the

Table 1. Production, in pints, per 15 feet of row, of 2 raspberry cultivars in a test with 6 replications at State College, Mississippi.

Fruiting Season	Latham	MR 58
1st year	.2	.2
2nd year	.1	.8
3rd year	.2	1.8
4th year	--	1.7

summer while the Latham canes were upright and needed tying only twice in a typical summer. The picture on page 5 shows size comparisons of the best Latham planted and a Dormanred plant in June of the second summer in the field.

Fruits of the Dormanred were very large, with an average diameter of 1.86 centimeters, whereas Latham fruits averaged only 1.3 cm. (a centimeter is about two-fifths of an inch.) Fruits of both cultivars are somewhat flattened with a height of 1.24 cm. for Dormanred and .9 cm. for Latham.

A pint of Dormanred raspberries weighed about 340 grams (three fourths of a pound) and contained about 150 fruits while a pint basket of Latham weighing 340 grams contained about 230 fruits. Fruits of Dormanred are usually borne in terminal clusters of 8-20 berries as shown here. The fruits have a glossy, deep red color.

The raspberry fruit has a hollow core when it is picked or removed from the receptacle of the fruit stem. The fruit is botanically called an aggregate and is composed of drupes each of which has a seed in a fleshy segment. Dormanred fruits averaged 44 drupes per fruit while Latham fruits averaged 65 drupes.

Latham plants seldom survived in test plots and the yield per plot was very low. Even the more vigorous Latham "hills" seldom produced more than a pint per hill. Table 1 gives yield from a test in which three plants of Latham lived through the third fruiting season. Thirty Dormanred plants maintained good plant vigor and fruit productivity.

European, as well as native American red raspberries produce suckers (new shoots) arising from roots. These suckers form a hedge row in a field for fruit production, but can be dug and transplanted

Right: A terminal fruit cluster of Dormanred raspberry, with the leaves removed to show the fruits.

ted to a new field. The Dormanred berry does not ordinarily form ers and the plants remain in hills like erry plants. The propagation of anred is either by "tip layering" in all or from leafy stem cuttings in the propagation bed throughout the mer.

e natural propagation of Dormanred rs in late September or October. The of the canes become somewhat ened and the tip may become as thick n ordinary lead pencil, while the al leaves remain small like a mouse They will root readily if exposed to t soil for a few days.

e picture on the inside front cover s a typical rooted tip which has uced a new shoot from its crown . For propagation purposes, a grower et plants in the spring for propagation utting them in rows and pinching the out of the canes every one to three s, to induce the maximum number of iple branches. In the fall, the ready- ot tips can be covered with moist soil isten rooting.

oting may begin in September and nue throughout the fall and during n periods in winter. Roots on in- ual plants may become six inches or longer, by spring. The old cane can t six inches long for a bundle and the plants are dug and transplanted in h or early April before the new shoots . The roots will continue to grow and a cane will form from the crown of the plant and make rapid growth.

ie second method of propagation is by inal, leafy stem cuttings beginning in or June and continuing throughout summer and fall. These should be 5 or 6 es long, with one or two immature es left at their terminal. The basal cut ld be just below a a leaf attachment on the stem.

ttings should not be permitted to wilt, should be spaced 1 to 3 inches apart in sandy medium under intermittent . The basal area may be treated with t promoting" chemicals. Under good pagating conditions, from 90 to 100 percent of the cuttings will form roots in 4 to 6 weeks, as shown on this page. They are then transplanted to pots and grown there for the rest of the summer and transplanted to the field the next spring.

Nurserymen or home gardeners who are interested in growing this new raspberry may contact the author at: Department of Horticulture, Mississippi Agricultural and Forestry Experiment Station, State College, Mississippi 39762. A limited supply of small plants are available this spring.

Dormanred raspberry cutting after six weeks in a mist propagation bed.