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Blueberries Under Mulch

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During recent years many persons who have been interested in the cultivated blueberry for the home garden have refrained from planting because they thought their soil was not adapted to this species. The experience with a small planting on the Horticultural Farm at New Brunswick may be helpful to people who are trying to grow this fruit on upland loam soil.

Eight blueberry varieties were established on the Horticultural Farm in 1929 to furnish material for class exercises and similar purposes. The soil in this plot is a very stony, Bermudian loam merging at the upper end of the block into a Sassafras loam. It is at the foot of a gentle slope to the south and receives some water as run off and seepage from that slope. The acidity ranges from pH. 5.0 to 5.5.

Poor Growth Under Cultivation

During the first few years the blueberry plants were cultivated the same as raspberries or other small fruits but the growth was very poor. By 1933 the best plants had reached a height of about 2 feet and the smaller plants had made very little growth since they were first planted. In June of 1933 it was decided to put the whole area under a permanent mulch. This seemed desirable because the shallow roots of the blueberry plants were being injured by cultivation which could not be very shallow and still control weeds in this stony soil. The method of cultivation being practiced was permitting some erosion which was carrying away the organic matter and the finer soil particles. Furthermore, the high bush blueberry grows best under natural conditions where the soil is cool and moist and covered with a layer of organic matter; but under cultivation the soil varied from very wet to very dry several times each summer.

Salt hay was used as a mulch at the rate of about 6 tons per acre but later applications have included other materials such as leaves, rye straw, and sudan grass. As the principal purpose of the mulch is to keep the soil cool and moist any kind of strawy material should be satisfactory. Since the summer of 1933, mulch has been added whenever it seemed to be needed. Usually some material has been added at the end of the picking

season as the mulch wears through in spots where traffic is heaviest.

Better Growth After Mulching

By the spring of 1934 the plants began to make a much more satisfactory growth than they had made during previous years. Since that time the growth has been good as to amount and type on most of the plants. Yields have been as much as the plants could well mature, and rather heavy pruning has been necessary to prevent over-bearing. Some of the varieties, at least, are apparently growing and producing as well as they do on soils that are commonly considered to be better adapted to the blueberry.

Varietal Response to Soil Conditions

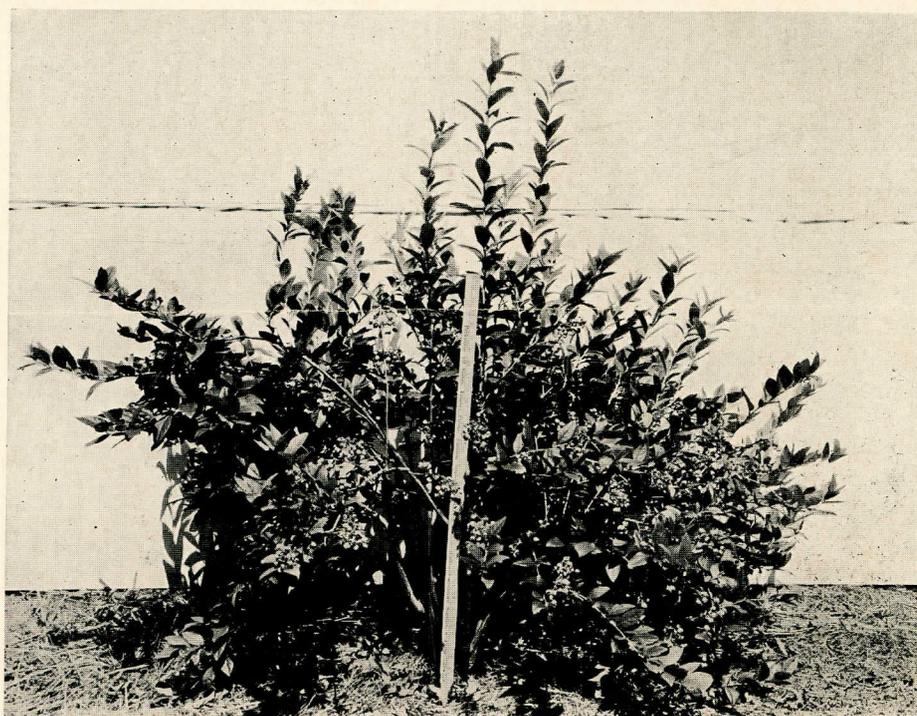
The results obtained in this plot may throw some light on the adaptability of various blueberry varieties to upland loam soils. The table in the next column gives the average yields per plant for some of the varieties in 1936.

The Adams variety has consistently made a very good growth and has yielded more than

the others. This variety, no longer being planted in the commercial blueberry producing sections, may prove to be desirable for growing on upland loam soil. One of the reasons why Adams has a good average yield is that the plants have grown quite uniformly in different places in the blueberry

Variety	No. Plants	Ave. Yield per Plant	Yield of Best Single Plant
Adams	26	2.41 qts.	3.50 qts.
Rubel	26	2.29 "	5.00 "
Rancoca	25	2.06 "	4.00 "
Pioneer	23	1.86 "	2.50 "
Cabot	25	1.71 "	4.75 "
Sam	23	1.61 "	2.25 "
Jersey	8	1.61 "	2.50 "

plot which includes an area that is rather wet and poorly drained, another that is stony and rather dry, and still another that is well drained Sassafras loam. Some other varieties, such as Rubel, have made very good growth in one spot but seem to vary a great deal with variations in the soil. Jersey and Rancocas have made rather uniform growth and appear promising in this planting. The yields for Jersey as shown in the table are a bit low because the latest berries were not picked due to the fact that a Japanese beetle



A Plant of the Sam Variety Making Shoots Three Feet Long

spray was applied and picking was stopped.

Plants on Wet Soil Suffer from Drouth

It is of interest to note that the greatest injury caused by the extremely high temperatures and dry weather experienced during July, 1936, occurred in that part of the planting where the soil is naturally rather wet. This was undoubtedly due to the fact that the plants in this area had developed a very shallow root system which was protected by the mulch so that during normal seasons there was no injury. The recent extremely dry weather, however, dried out the surface soil even in the moist locations under the mulch with the result that the shallow rooted plants suffered. On the drier areas, the plants had rooted much deeper and even though the surface soil dried out under the mulch, the roots were deep enough to maintain an adequate supply of moisture. Where blueberries are to be grown on upland loam soils, therefore, it would seem desirable to choose a site for planting that receives some surface run off and that is retentive of moisture but also fairly well drained.

The blueberries have been fertilized much the same as other small fruits on the Horticultural Farm, receiving approximately 800 pounds of a 4-8-4 fertilizer each spring broadcast on top of the mulch. A moderate application of a readily available nitrogenous fertilizer is usually applied near the end of the blooming season. There is no difficulty in getting fertilizer down through the mulch provided it is applied early enough so the spring rains can wash it through.

So far no mouse injury has been observed in the plot under discussion, although there are many runways under the mulch and mice are undoubtedly present in considerable numbers. There has been no great difficulty with

Poultry Flock Production-Behavior

Willard C. Thompson, *Poultry Husbandman*

From a business point of view, two things are necessary in order that present-day egg farmers may be reasonably sure of winning some margin of profit under current production costs; first, a high level of egg yield, and second, such production maintained without serious break over a prolonged season. Either of these depends upon what the birds in the flock do collectively, or as a group.

The flock owner soon comes to realize

weeds, either, although occasionally certain species grow through the mulch and have to be pulled by hand. Ordinarily when weeds begin to show through, it is an indication that more mulching material is needed.

Mulch Suited to Home Garden

The results obtained on the Horticultural Farm indicate that a satisfactory growth and production of some varieties may be had on upland loam soils of adequate moisture holding capacity provided the plants are grown under a permanent mulch system. This system would seem to be especially well adapted to the home garden where the elimination of cultivation is desirable from the standpoint of saving labor as well as from the standpoint of the effect on the plant. If only a few plants are grown in the home garden, however, it would not be sufficient to mulch only under the individual plants. Where possible the plants should be set in a block rather than in a single row and the mulch should cover the entire block and extend out from 4 to 6 feet beyond the plants on the outside rows.

that he must consider his poultry flock as a whole, even though in the process of having bred and developed it, he did give primary attention to individual records and to pedigrees of selected breeders. Just as soon as the pullet, or table egg-producing flocks, are made up in the fall of the year, however, they assume a flock or group character which, from an economic point of view, at least, is of paramount importance. The poultryman must provide suitable housing space and facilities for all the fowls in the flocks. He must prepare to handle, feed, and manage all birds comprising those flocks. He must pay feed bills and the cost of maintenance for the flocks in their entireties. He cannot segregate the layers each day and confine his managerial attentions to them alone. He likewise finds that it is the gross egg yield of those flocks which will become his source of revenue or income. It is, therefore, of considerable interest to the owners of poultry laying flocks to know something about the flock production behavior which characterizes the average poultry flock. It helps to keep normal expectations within the realm of probability.

Many Things to Consider

It must be realized that poultry flock egg production will always be a response to several factors, all working together and not independently. Years of experience have proved that heredity is one of the strongest elements in determining flock egg yield levels. Back of every laying flock must have gone more or less attention to breeder selection. But, in any fall, like this present season of 1936, the laying flocks are at hand. No change in their inherited character or nature is now possible. The flocks must be dealt with as they are, the results of whatever breeding program may have been employed in their production. Poultrymen must realize that even the best of their pullet flocks, taken as a whole, will be found to be constituted of individuals of widely varying powers of egg production, day by day, and week by week through the year.

For any given day, week, month, or season the total yield of salable eggs gathered from a given flock will depend upon the combinations of these widely varying individual egg production performance tendencies which happen to take place. In any one chosen period of time within the year there will be found to be individuals of low, medium, and high egg yield tendencies. It is of interest and practical usefulness, therefore, to know approximately what must be expected in this matter of egg production behavior by the average pullet flock. In the production of technical Bulletin 596, of this Station, this writer presented a series of tables illustrating this point. One of these, giving the distribution of various egg yield levels in an average White Leghorn pullet flock, season by season, and for the first laying year,



Blueberry Plants Growing on Upland Loam Soil Under a Permanent Mulch