

Fat and Luscious Blueberries Now Blush on the Once Waste Land of the Pine Barrens

Patience of a Decade Produces a Fruit of Note

Even if they had not been devotees of huckleberry pie or extra fond of a dish of fat blueberries and cream, the hundred or more Short Course students who had the privilege of attending the weekly assembly on February 2, would have been delighted by what they heard and saw. For one of the most interesting industries of New Jersey, blueberry culture as carried on at Whitesbog, was explained in an illustrated lecture by Miss Elizabeth C. White, who, in cooperation with Frederick V. Coville, of the United States Department of Agriculture, has made a study of the fundamental laws regarding blueberries, has experimented patiently for 10 years and as a result was able to throw on the screen pictures of berries large enough for the proverbial three bites, beautiful fruit $\frac{5}{8}$ to $\frac{3}{4}$ of an inch in diameter, all grown at Whitesbog. It was a fascinating tale and one to thrill any Jerseyman.

Miss White offered her cooperation to the United States Department of Agriculture 10 years ago, after reading Mr. Coville's bulletin "Experiments in Blueberry Culture," feeling that a family such as hers which has grown cranberries for three generations, until they can almost imagine "what the cranberries are thinking about," could offer some experience that would be of value in growing a crop as closely related as blueberries. Then too, she felt that blueberries might prove to be a valuable secondary crop to the cranberries—and they did. Miss White explained that her part in the plan consisted chiefly in the selection of fine wild plants, in developing methods of field culture and of propagation on a commercial scale.

Finding Big Fellows to Start With

"In locating good bushes I have depended almost entirely on the people who pick wild berries for market, and large size of the berry was the only point considered in making the first selection. Over a hundred plants were found within 20 miles of my home in New Jersey nearly all of which bore berries five-eighths of an inch across and having some berries three-fourths of an inch in diameter."

Miss White is now making an effort to get plants from outside the state, but as she says, "If you are inclined to help in this search, please remember that only plants with berries nearly or quite three-fourth of an inch are wanted; and don't, oh! please don't inspire all your friends with an ambition to send

samples of the best berries they ever saw; even when said berries are less than one-fourth inch across.—It takes too much time to carry out the remains." Which would seem to indicate that there are plenty of enthusiasts who want to help the work along.



Not Quite An Inch In Diameter, But Pretty Close To It—Typical of the Kind of Berries They Grow at Whitesbog

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Based on Four Principles

Four fundamental principles governing blueberry culture are, according to Mr. Coville, the necessity of acid soil, preferably one composed of peat and sand, a well controlled water supply, the need of cross pollination—as many blueberry plants are entirely sterile to their own pollen, and finally, what is generally not realized, the importance of chilling the plant. It is upon these principles, then, that the present success of the blueberry industry at Whitesbog is based.

"Of the hundred-odd plants originally selected from those sent in, only 6 proved worthy of propagation for commercial fruit production. These are known as the Rubel, Harding, Sam, Dunfee, Adams and Grover, each name perpetuating that of the discoverer of the original plant.

"Mr. Coville is using these selected plants as parents in his breeding work. His methods of carrying on this work in the greenhouses at Washington are very interesting. The plants which he desires to cross are chilled, either in a refrigerator or out-of-doors in winter. They are then forced in a house with carefully regulated temperatures. If one plant develops faster than its destined mate, it is held back by being placed

in a frame where the temperature is kept slightly above freezing by an electrically controlled refrigerating machine.

"The flowers are hand-pollinated. A careful record of date, pollen parent, etc., is written on a tiny tag which is attached to each cluster of pollinated flowers. The seedlings are cared for in Washington until a year old. They are then sent to the trial grounds at Whitesbog and set in the field about September first. The second summer in the field they usually produce a few berries, and the third summer a crop worth picking for its commercial value."

Miss White tells of valuable hybrids that show great promise, particularly what are known as 620 A and 830 C, selected from about 3,000 seedlings of the Brooks-Sooy cross. Here are berries of 18 millimeters (nearly $\frac{3}{4}$ inch) diameter, but crosses of better wild berries found later have produced berries as large as 20 millimeters (nearly $\frac{5}{6}$ inch) in diameter, and the investigators are looking forward to blueberries that measure an inch across.

Waste Acres Put to Use

Twenty-five acres of the so-called Pine Barren region at Whitesbog, land which has never been cultivated before and was considered useless, are now set in blueberries. It is a sandy soil overlaid with a peaty layer from 2 to 8 inches thick and covered with a nondescript variety of bushes. A year or more before it is to be used, this soil is plowed, which turns the peat turf under and throws the white sand on top. The irrigation system in use for the cranberry bogs comes in handy for the blueberries also, and this is one reason why the two crops work together so successfully.

Of course there are fertilizing problems and insects and diseases to watch. Likewise, the somewhat tedious job of pruning has to be considered. Again we see the advantage of growing this crop in conjunction with cranberries, for the regular cranberry fertilizer, such as has been made up by the New Jersey Agricultural Experiment Station, when applied to the blueberries at the rate of 500 pounds to the acre, has produced excellent results. The pest and disease problems have not assumed serious proportions as yet, and if studied as carefully as they are at present by the entomologists and plant pathologists of the United States Department of Agriculture, will probably not soon get much of a foothold.

Who Eats Them?

But what of the finished product, the luscious $\frac{3}{4}$ -inch berries? How are they picked and packed and marketed—and finally who is fortunate enough to have them

put before him on the table—covered with rich cream and a sprinkling of sugar?

Wives and children of the Italian laborers who take care of the cranberry fields pick the blueberries directly into quart baskets, which are graded according to the size and color of the berries on top. The boxes, in turn, are packed in 32-quart crates and shipped to hotels, restaurants, steamship lines, etc., which last summer had a regular season's order of one or two shipments a week. A commission house in New York took the poorer berries not sent to the regular customers. Taken all in all, the crop last summer averaged about \$12 a bushel f. o. b.

Berries Might be Grown at Our Own Back Doors

Miss White is emphatic in her belief that blueberries make a desirable crop for the home garden, not only for the berries, but for the beauty of the bushes. She explains how the conditions of peaty soil can be artificially produced by the use of partially rotted sawdust, oak leaves or pine needles.

"In lighter well drained soils the addition of 6 to 8 inches of this partially decomposed vegetable matter dug into the soil would be sufficient preparation. The peaty material provides both plant-food and the required acidity. In heavy soils it is safer to dig a trench 3 or 4 feet wide and about a foot deep and fill with a mixture of two-thirds sand to one-third of the peaty material.

As for the ornamental side of blueberry culture, Miss White gives a charming description of the bushes as they appear the year round, telling of the rich autumnal coloring and the red tints of winter twigs and early spring foliage.

"Then, in early May, perhaps, comes a day as warm as midsummer, and as with a touch of magic all the blueberry plants assume their workaday dress of green. For a few days longer the air is filled with an elusive spicy fragrance and the fine high orchestra of the bees; then the plants settle down to the serious business of perfecting the fruit."

Short Courses Graduate 113

The Short Courses closed February 24 with the graduation of 113 students—55 from the course in General Agriculture and Dairy Farming, 22 from the course in Fruit Growing and Market Gardening and 36 from the course in Poultry Husbandry.

Prof. Fred Rasmussen, Commissioner of Agriculture of Pennsylvania delivered an address at the closing exercises and an inspiring message from Prof. F. G. Helyer was read by President Demarest. Papers were presented by Dr. Wm. H. Lowe, Paterson; Miss Henriette Bancroft, Rutherford, and Chas. D. Gray, New York City. The prize for the highest average in all courses was won by Frederick H. Miller, West Hoboken, and the prize for the highest averages in the different sections by Samuel C. DuRie, Rahway; Miss Henriette Bancroft and William E. Witte, Camden.



Picking blueberries is a healthful life, and is great fun, especially when a "nice lady" is waiting to receive the filled baskets at the busy packing shed

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Potato Wart Is Destructive But Not Widespread

Symptoms of Disease as Reported by Dr. Cook

Potato wart is one of the most destructive of the potato diseases and is now recognized as a threatening enemy of our potato-growing industry. It was introduced from Europe in 1911-12, just before the Federal Quarantine west into effect.

Since most of the diseased potatoes were sold and consumed in mining and industrial districts, the disease was not discovered until 1918. Although very few of these potatoes were planted, the peelings and wash waters occasionally were thrown into the gardens and in some cases led to infection the following season.

Thorough scouting by the federal and state governments has resulted in the finding of the disease in 781 gardens in 53 towns and villages, in 9 counties of Pennsylvania, in 3 villages in the northwestern corner of Maryland and in 2 villages a little farther south in West Virginia. Only one of these points is near an important agricultural district. Fortunately, less than 100 acres are involved and strenuous efforts are being made to eradicate the disease. Work leading to the discovery and development of resistant varieties is being carried on, and the results are very encouraging. Among the resistant varieties are the Irish Cobbler and the Green Mountains which are grown extensively in New Jersey.

The disease is due to a fungus which attacks the underground parts of the plant, causing an abundance of unsightly, rough and irregular warts and frequently destroying practically the entire crop. It is known that the fungus will live for a number of years in the soil and that it will also attack tomatoes and other related plants. Although it does not appear to be an important disease on any plants other than the potato, the other plants aid in perpetuating its existence.

The disease may be readily carried on slightly infected seed potatoes, in soil around root crops and trees, in manure from animals fed on potatoes or peelings, on farm tools and in surface water after rains. Al-

though our farmers are not likely to go into the infested areas for seeds of any kind, there is a very great possibility of the disease being carried from place to place by the inhabitants of these villages moving from one locality to another and carrying a few potatoes with them. In fact it is very probable that it has been distributed to some extent in this manner. Several families from the infested districts have moved to New Jersey and at least two of them brought potatoes which were planted in gardens. We located as many of these families as possible and the potatoes in the garden were inspected and found free from the disease.

There is a greater possibility of this disease being introduced into a New Jersey garden than into a farm, but there are many ways by which it can be spread from garden to farm. Therefore, it is very important that we should all be on the lookout for it.

The department of plant pathology of the New Jersey Agricultural Experiment Station will examine any potatoes sent in and make reports on them.

Farmers Express Views

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plan, most of them by a small margin, but Somerset and Hunterdon registered a strong opposing vote. Middlesex and Salem gave the largest affirmative majority—164 and 120, respectively.

On the question of immigration, the sentiment is for restriction as opposed to either a free or a prohibitive policy. The results stand: for free immigration, 283; for prohibitive immigration, 828, and for restricted immigration, 3064.

The views of the farmers have been vigorously presented to the Legislature at hearings on the various bills. A strong fight has been made against the daylight-saving law and for the state constabulary. The Federation has also supported two bills designed to prohibit the use of substitute fats in ice cream, condensed milk and other dairy products. They have endorsed the bill to legalize the insurance of crops, and opposed as too drastic the measure requiring the pasteurization of all milk except that produced by accredited herds.