

Old Crop, New Ways

THE CRANBERRIES you eat this Thanksgiving and Christmas were probably grown within a few miles of the bogs and marshes which produced the wild berries enjoyed by Indians long before our early American ancestors reached these shores. They may even be the same variety of bouncy berry that graced the first Thanksgiving tables almost 350 years ago. Some berries available today are grown on plants started a hundred years ago. But science now takes a hand.

The berries were probably harvested, by machines developed in the last 10 or 20 years; protected from insects and fungi by the latest chemicals; and saved from frost damage by a new water sprinkler technique.

The tangy berry is appearing on tables throughout the world in a variety of guises ranging from sauce to juice (low-calorie and otherwise), to cranberry-nut bread. Once served on clipper ships to prevent scurvy, the red berry has become a year-round treat.

A record crop of almost 78,000 tons of cranberries is being harvested in the United States this fall. Early varieties are usually gathered beginning right after Labor Day, and late, late cranberries are harvested about Thanksgiving. The 21,000 or so acres devoted to raising cranberries, however, are located chiefly in only five states.

Almost as many cranberries are produced in Massachusetts as in the rest of the world combined. Last year, 73.5 million pounds (735,000 barrels) of cranberries were harvested in southeastern Massachusetts. Latest estimate for the 1966 crop is 76.5 million pounds. The state's raw cranberry crop last year netted the growers more than \$10.5 million, and the wholesale value of cranberries and cranberry products in Massachusetts will probably reach \$40 million this year.

Wisconsin, where the Algonquin Indians once enjoyed the wild berries, had the second largest crop last year—44.1 million pounds. This year more than 49 million pounds of cranberries are being harvested there.

New Jersey ranked third last year with 15.3 million pounds. This year's crop is expected to be slightly less.

Washington State is next and finally Oregon, where members of the Lewis and Clark expedition enjoyed cranberries some 160 years ago.

Cranberries are truly a North American dish. These five states produce most of the world's supply. Canada also grows cranberries in the Maritime Provinces, in Ontario, Quebec and on one British Columbian island.

The only other place where cranberries are grown in quantity is Holland. On the Netherlands island of

Terschelling, 125 tons of cranberries are produced each year. These grow here by accident, for they are descendants of American cranberries washed ashore in a shipwreck more than 120 years ago.

Demand for the ruby berries has spread far beyond American shores. Fresh cranberries are shipped to England, Ireland, Belgium, the Netherlands, Venezuela, West Germany and Saudi Arabia. Frozen cranberries are sent to Australia, and cranberry products go to dozens of foreign countries.

Leader in the field of new cranberry products is Ocean Spray Cranberries, Inc., a national farmer cooperative of more than 1,000 growers, which handles more than 80% of the U.S. cranberry crop.

Recently the cranberry has gone scientific. In fact, cranberry research is making such progress that last winter Dr. Chester Cross, head of the University of Massachusetts' Cranberry Experiment Station, invited the state's cranberry growers to a series of lectures and discussions at Buzzards Bay, Mass., to bring them up-to-date on cranberry production. This seminar, an expansion of annual reports to clubs of cranberry growers, is expected to be repeated every four or five years.

How to starve weeds or overfeed them without hurting the cranberries is a pet project of Dr. Malcolm Dana of the University of Wisconsin. He has found that cranberries, which need relatively little fertilizer, are tolerant of such minor elements as manganese, aluminum and iron. If experiments show that the vines continue to produce excellent cranberries even when the plants are sprayed or the soil is treated with one or more of these elements, relatively small quantities of these elements may eventually be used to help control weed growth.

Several fungi, previously thought to be either rare or nonexistent on cranberries, have been found by Dr. Donald Boone, plant pathologist at the University of Wisconsin, who has also developed a fungicide spray schedule to successfully control some of them. He is also working with a cranberry malady that is believed to be viral in nature, and hopes eventually to determine how the disease spreads and what methods may be used to control it.

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Ocean Spray

CROPS IN!—But it's not done the way it used to be now that science has stepped in with a helping hand.



Ocean Spray

SPLASH!—Cranberry marshes are usually flooded at harvest time. Floating ripe berries can be scooped up.

A hovercraft developed at Princeton University is being tested in New Jersey under the direction of Dr. Allan Stretch, plant pathologist with the U.S. Department of Agriculture. Effective fungicides are pretty well known, he points out, but applying them is a problem. It takes several men to work the long spray boom used in New Jersey, and airplanes and helicopters are not always effective. Dr. Stretch feels the air car is the best machine to date, but will need improvement.

A hunt for even safer pesticides, for use when the insects inevitably become resistant to the present ones, is being conducted by Prof. William Tomlinson of the Massachusetts Cranberry Experiment Station and Prof. Philip Marucci of the Rutgers University College of Agriculture. Several formidable cranberry insects, if not controlled, could seriously reduce the crop.

Some of these pests were so destructive in the early days of cranberry culture that they were named "fireworms," because when they finished feeding on a bog it looked as if it had been destroyed by fire. Control of these insects is now possible with safe in-

secticides which are entirely dissipated at harvest time. Prof. Tomlinson and Prof. Marucci also are studying non-chemical methods of combatting insects, such as flooding the bogs and male sterilization techniques.

Cranberry growers in each of the five states are issued pest control instructions, which suggest chemicals to apply for control of specific pests and when to use them. The charts recommend only those practices and materials that have been approved for use by the Federal and state authorities.

Most growers keep written records of the pesticide used and exact date applied, plus quantity used and exact fields covered. These records proved vitally useful during the amino triazole scare of 1959, when cranberries treated with this chemical were recalled from the market.

Water sprinklers concern Dr. Charles Doughty of Western Washington Research and Extension Center at Puyallup and Azmi Shawa of the Coastal Washington Research and Extension Unit at Long Beach. Sprinkler systems are used during critical cold periods to keep cranberry buds from freezing.

These scientists have determined just how cold the cranberry bud in its various stages of development can become without injuring the fruit bud. Now they are studying what protection against freezing is given maturing buds by water that is frozen on the vines. They are also investigating new ways to develop early coloring of the berries by treating them with chemicals including insecticides.

The word "cranberry" was not taken from one of the many Indian names for the berry but it is a contraction of "crane" and "berry." Early settlers called the plant "cranberry" because its pale pink mid-summer blossoms curve like the neck of a crane, often seen in the lowlands enjoying the ripe fruit.

On Cape Cod, Mass., just 150 years ago, Henry Hall noticed that wild

cranberries grew larger and juicier where sand from the dunes blew over the vines. He sanded his bog and thus began the cultivation of cranberries. Today most cranberry bogs or marshes are sanded every few years. Sand stimulates new root formation and anchors vines more securely, facilitating the use of mechanical harvesters.



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