YIELD LOSSES IN CRANBERRY IN NOVA SCOTIA, 1969-72[1]

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Abstract

Over a 4-year period, 1969-72, in two cranberry (Vaccinium macrocarpon) bogs in Nova Scotia the percentage of fruit lost at harvest ranged from 1.9 to 5.7 from green berries, 1.4 to 4.3 from small berries, and 1.2 to 16.3 from decay. Sterile breakdown accounted for 21% of the loss from decay in 1970 and 46% in 1972. These data are discussed in relation to cultural practices.

Introduction

Field decay losses in cranberries in Massachusetts were 2.2 to 3.89% in 1917 (1) and 5.2% in 1969 (7) and were as high as 50% in New Jersey in 1940 (8). Gourley and Harrison (4) reported that fruit rots seldom occur under field conditions in Nova Scotia.

This report presents data yield losses at harvest in two bogs that accounted for more than half of the cranberry production in Nova Scotia during 1969-72.

Materials and methods

Through the cooperation of a local grower we obtained information for the crop years 1969-72 on the total yield of freshly harvested cranberries, the quantity of marketable fruit packed, and the amount of fruit lost during cleaning and because of greenness, small size, and decay (Table 1). The cranberries (Vaccinium macrocarpon Ait.) were a native selection and came from a total of 14 acres in two bogs.

In 1970 and 1972, 5 kg samples of cranberries that had been discarded by the packing crew were examined and the decayed berries picked out. A section of each decayed berry was plated on potato-dextrose agar (PDA) to identify any fungi and bacteria present (Table 2).

Results and discussion

Over the 4-year period, 1969-72, the average loss of cranberries at harvest time from decay was slightly larger than the combined average losses from green and small fruit and from cleaning (Table 1). The highest loss from decay occurred in 1969 and the lowest in 1972; in those years the percentages of berries marketable were 79.5% and 91.9%, respectively.

The average losses of cranberries from decay in Nova Scotia (Table 1) were similar to those reported for the Cape Cod area in Massachusetts (7). The increased use of

Table 1. Yield losses in two cranberry bogs in Nova Scotia, 1969-72

Year	Total yield (lb/acre)	Marketable yield (%)	% fruit loss at harvest from				lb fruit cleaned/hr
			Green	Small	Decay	Cleaning	
1969	53,412	79.5	2.2	1.4	16.3	0.6	19.5
1970	66,500	84.5	5.7	2.3	7.5		67.6
1971	48,390	88.6	1.9	4.3	5.2		98.8
1972	85,195	91.9	2.9	3.5	1.2	0.5	84.3*
Avg	63,374	86.1	3.1	2.8	7.5	0.5	67.5

* In 1972 the time required for placing fruit in cold storage was included in the cleaning time.

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Table 2. Incidence of fungi isolated from decayed cranberry fruit at harvest

Fungus	Percent incidence in 1970	Percent incidence in 1972
Acanthorhynchus vaccinii Shear	0	1
Diaporthe vaccinii Shear	0	3
Godronia cassandrae Pk. f. *vaccinii* Groves	21	21
Glomerella cingulata-vaccinii Shear	0	6
Guignardia vaccinii Shear	0	8
Monilinia vaccinii-corymbosi (Reade) Honey	25	0
Penicillium spp.	21	11
Pullularia pullulans (de Bary) Berkh.	4	0
Sporonema oxycocci Shear	0	4
Unidentified fungus	8	0
Sterile breakdown	21	46

fertilizer for high production, especially those containing a high percentage of N, will result in heavier vine growth, and growers may be faced with an increased incidence of field rots. In years in which prolonged wet periods are forecast during the bloom period growers should consider the use of a fungicide. In Wisconsin, Carlson and Boone (2) reported that rots can be controlled by spraying with fungicides at 10-day intervals from mid-July to mid-August. Ferbam (76% WP) at the rate of 6 lb per acre was applied during bloom to the two Nova Scotia bogs in 1969 on July 2, 19, and 31. There were 4 days of wet weather on July 11-14 and the plants were largely unprotected for most of this wet period. Cross (3) states that fungicides applied during the bloom period were the only ones to have given significant reduction in the number of rotted berries, both field and storage rots.

Berries from the 1971 and 1972 crops were much easier to clean than those from the 1969 crop (Table 1). The higher percentage of rots in 1969 was largely responsible for increased cleaning time. The organisms isolated from decayed berries are shown in Table 2. These organisms are all generally associated with decay of cranberries (4,6).

The increased incidence of sterile breakdown in 1972 can be associated with several frosts in late September and in October. Frosts occurred on September 21, 22, 24, and 29 and October 3 and 4, with three heavy frosts of 23°F (-5.0° C) in mid October; in 1970 the same periods were relatively free from frosts.

The marked decrease in yield (Table 1) for 1971 was due to a heavy frost on June 27. In one of these bogs the irrigation system failed completely resulting in extensive injury to growing shoots (5) and to developing blooms.

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