Small fruits / Petits fruits

Crop / Culture: Cranberry

Location / Emplacement: British Columbia

Name and Agency / Nom et Organisation:
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Title / Titre: CRANBERRY FRUIT ROT SURVEY IN B.C., 1990

METHODS: Thirty-two cranberry bogs from twenty-two farms were sampled at harvest and the percent fruit rot, types of fungi causing the rots and their frequency of occurrence were determined. Samples were taken from the tote boxes as they were delivered to the receiving station.

RESULTS AND COMMENTS: The amount of pre-harvest fruit rot was relatively high, ranging from 19.8% in one Stevens bog to 1.5% in a Ben Lear bog, with an overall average of 7.7%. Average rot for the different cultivars was Crawley 11.0%, Stevens 10.8%, MacFarlane 6.0%, Bergman 4.9%, Ben Lear 4.5% and Pilgrim 3.1%. Viscid rot, caused by the fungus Diaporthe vaccinii, was the most prevalent rot, making up 52% of the total. Early rot, caused by the fungus, Phyllosticta vaccinii, which was the most prevalent in 1989, caused 26% of the total. End rot, caused by Godronia cassandrae, caused only 6% of the rot, unlike 1988 when it was the major cause of both pre-and post-harvest fruit rot. Other minor rots identified were black rot caused by Apostrasseria lunata and Strasseria oxycocci, yellow rot, caused by Botrytis cinerea and Botryosphaeria fruit rot, caused by Botryosphaeria vaccinii. Viscid rot was the main fruit rot in 1987. Blotch rot, caused by Acanthorhynchus vaccinii, which has been reported as causing a storage rot in the eastern U.S., was not found in berries sampled at the receiving station, but was found sporulating on berries in the field.

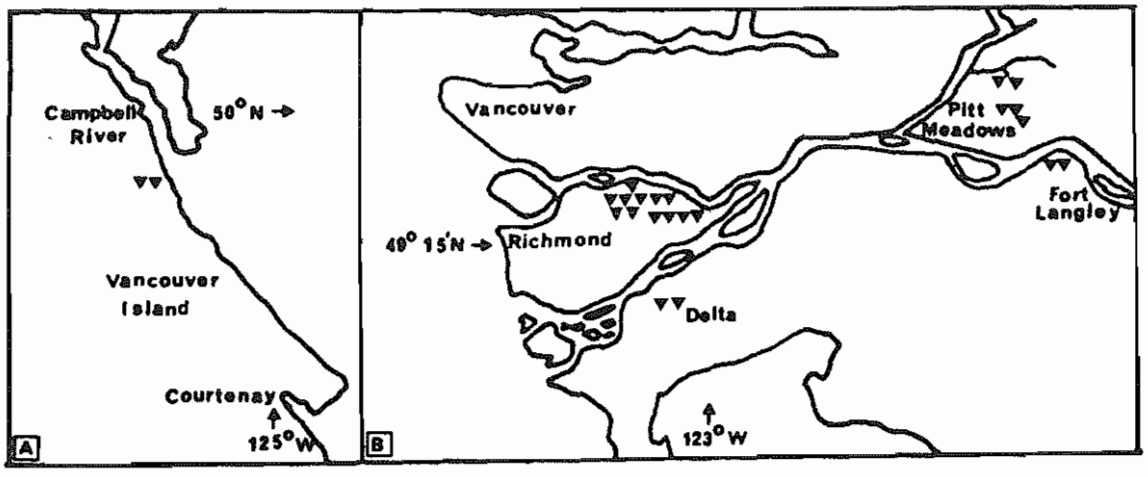

Fig. 1. Maps of locations of cranberry bogs sampled. A, Vancouver Island. B, Lower Fraser Valley.

Crop / Culture: Cranberry

Location / Emplacement: British Columbia

Title / Titre: CRANBERRY TWIG BLIGHT SURVEY IN B.C., 1990

Name and Agency / Nom et Organisation:

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METHODS: Thirty-two cranberry bogs from eleven farms were surveyed in June for twig blight incidence and causal agents determined. Percent disease was estimated by throwing thirty cm squares at random in 10 different locations per bog. Total uprights and diseased uprights were counted and averaged.

RESULTS AND COMMENTS: Percent disease ranged from 3.3.% to .1% in thirty of the bogs. The other two bogs were significantly more diseased being 7.1% and 20.2%, respectively. Cultivar did not affect disease incidence. Diaporthe vaccinii was the main cause of twig blight (ca 99%) with a few twig deaths being caused by Lophodermium hypophyllum.

Crop / Culture: Saskatoon

Location / Emplacement: Alberta

Title / Titre: EPIDEMIC OF ENTOMOSPORIUM BERRY AND LEAF SPOT OF SASKATOONS THROUGHOUT ALBERTA IN 1990

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METHODS: Samples from 19 commercial and 4 domestic saskatoon orchards throughout Alberta were collected or submitted. Collection dates ranged from June 15 to August 5th, 1990. Samples ranged from diagnostic specimens only to systematic sampling of 10% of the bushes. The systematic survey of 5 orchards in central Alberta is reported in detail separately by Pesic-Van Esbroeck, Bains and Motta: only the totals are used here so as to provide an Alberta-wide summary. Fourteen of the orchards were examined by one or more of the authors. In 2 orchards samples were taken in association with spray trials. Sampled orchards ranged from near Calgary to Manning in the northern Peace River region.

RESULTS: Disease incidence was 100% of bushes at all locations examined. Leaf incidence varied from about 30% to 100%. The lower levels were at the younger orchards and/or the drier, more exposed sites. Petiole lesions occurred in all substantial samples, ranging from trace to 100%, and appeared to be the main cause of defoliation, although severely blighted leaves also dropped. Defoliation was present at all sites examined, ranging from trace to quite severe. Complete defoliation of volunteer seedlings was noted at 3 orchards. No resistant commercial cultivars were noted this year. In 1988 some differences were recorded between progeny at Beaverlodge Research Station of Agriculture Canada.

Berry spot incidence was 100% of bearing-age orchards examined. In most cases, it was also 100% of the bushes; and for berries it ranged from trace to 100%. Spots occurred ou rachises, pedicels and berries. The number of spots/berry ranged from 0 to 11, but only one spot was required to spoil a berry. Lesions on pedicels and rachises were evident as early as June 15th, and often resulted in fruit drop. At 2 orchards, one between Red Deer and Calgary and the other west of Grande Prairie near the B.C. border, essentially 100% of the fruit dropped prior to ripening (N.B. Over-ripe saskatoons do not drop, they shrivel on). At others, from about 5 to 100% of ripe fruit was marked at harvest. At the Peace Country Fruit Producers' Cooperative processing plant, marked fruit was downgraded from fresh or fresh frozen grades to the processing-only grade. Fruit lots with more than 10% marked berries were downgraded as a whole because that was too many to separate. Observations indicate that the disease was just as prevalent in the British Columbia portion of the Peace River region, but no samples were taken.

It occurred on cultivated saskatoon bushes from 1 to at least 43 years of age. There was no correlation observed between age and disease severity exeept insofar as age affected density bushes. Increased bush and/or row density increased severity, but appeared less important than site factors: the more sheltered the site, the more severe the disease, presumably because of greater humidity and less evaporation. The oldest row samples was one of the least affected because it was also quite exposed to wind: it had a bumper crop.

COMMENTS: This is the first report in CPDS of Entomosporium spot, caused by Entomosporium mespili (DG ex Duby) Sacc., on saskatoon berries, but it has been reported elsewhere recently (1,2,3,4). As a problem on cultivated saskatoons, it was first found in nursery beds at PFRA, Indian Head, Sask., in 1980, where it caused severe defoliatiou (2). In 1981, the senior author couducted an informal survey of orchards and wild stands from Ft. Vermilion, AB, to Edmonton, and found the leaf spot and blight phases at all locations examined (2). The leaf spot and blight phases have been widely found in North America and are reported in host-range publications. There is some evidence that Entomosporium blight is a range-limiting disease for saskatoons in the humid midwestern states (1). It was noted this year at 2 locations that where the lower foliage of bushes had been pruned, there was much less disease despite heavily infected neighboring plants (2,3). This may offer a means of practical reduction of this disease.

Berries with spots were collected at several locations in Grande Prairie county in 1984 at harvest by which time all samples were heavily contaminated by secondary fungi. Berry spot was not collected again until 1988 when it cansed significant economic loss at the Sexsmith Test Orchard (STO), near Grande Prairie, by marking enongh berries (about 20%) that the whole crop was downgraded to processing grade, althongh there was little loss of yield. In 1988 the berry spots were correctly diagnosed and reported for the first time (1). It caused much smaller losses at the other, mostly young, orchards in the same connty. In 1989, it caused similar % losses at STO, bnt there was little actual crop because of severe frost at flowering, and none was harvested. At STO there has been significant loss of grade due to Entomosporium, therefore, for 3 years in a row; bnt in the third year, 1990, there was also a loss of yield, with about half the berries unnsable.

Entomosporium spot is evidently very weather dependant and requires both high humidity and warmth. In 1990, the exceptionally wet weather in late May - early June throughout Alberta was also warm enough to bring on this disease and enable it to cause its first province-wide epidemic on cultivated saskatoons.

This disease was also universally present in the wild, and caused serious losses with some areas reporting no ripefruit despite a good fruit set.

E. mespili occurs wherever saskatoons are cultivated in the Canadian prairies. Disease incidence on established bushes is probably 100% every year, and likewise in the wild. Usually it has stayed on the lower parts of the bnsh, only moving np to a significant degree as a resnlt of both warm and humid conditions. Inocnlnm bnild-up appears to have occurred over the last 3 or 4 years throughont Alberta, and is certainly at an exceptionally high level now, posing a very serions threat to the newly developing commercial saskatoon indnstry.

REFERENCES: 1. Davidson, J.G.N. 1989. Saskatoon berry spot. Fruit Grower 5(2): 6-7.
2. Davidson, J.G.N. 1990. Entomosporium leaf and berry spot of saskatoons (Abstr.) Proc. Plant Pathol. Soc. Alberta. 11: (in press).
3. Davidson, J.G.N. 1990. Entomosporium leaf and berry spot of saskatoons in Alberta 1990. Frnit Grower: (in press).
4. Pesic-Van Esbroeck, Z. and P. Bains. 1990. Study of common leaf spot, blight and berry spot of saskatoon cansed by **Entomosporium mespili**. (Abstr.) Proc. Plant Pathol. Soc. Alberta 11: (in press).

Crop / Culture: Saskatoon, Amelanchier alnifolia (NUTT)

Location / Emplacement: Central Alberta

Title / Titre: SURVEY FOR COMMON LEAF SPOT, BLIGHT AND BERRY SPOT OF SASKATOON IN CENTRAL ALBERTA

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Methods: Saskatoon is becoming a commercially important fruit crop in Alberta. There are approximately 700 acres of saskatoon in Alberta and out of these, 125 are of producing age (1). A survey was conducted to determine the incidence and severity of common leaf spot, blight and berry spot of saskatoon caused by **Entomosporium mespili** (DC ex Duby) Sacc. Five orchards in central Alberta were surveyed in the summer of 1990. Depending upon the size of the orchard, 5 - 10% of saskatoon bushes were examined. A total of 100 leaves and 20 racemes with berries were collected at random from the top, middle and bottom of each bush. Berries were collected from commercially producing orchards only. Disease severity was rated numerically according to the number of leaves and berries per bush affected: 0 - no disease; 1 = 1-25%; 2 = 26-50%; 3 = 51-75%; 4 = 76-100%. Random samples of leaves and berries from each site were used for isolation and identification of the pathogen.

RESULTS AND COMMENTS: See table 1. The incidence of common leaf spot, blight and berry spot was 100% in all orchards surveyed.

The symptoms of the disease ranged from a few spots to a severe blight followed by an early by an early defoliation, in some cases as early as the middle of August. Racemes with 100% of the berries infected were freqnently observed. Berry infections first observed in early July caused shrivelling, disfiguration, discoloration, cracking and the abundant presence of conidia on the berry snrface. Isolations from infected leaves and berries and microscopic examination of the organism revealed the presence of hyaline, 4-celled conidia of **E. mespili**.

Table 1. Incidence and severity of common leaf spot, blight and berry spot of Saskatoon in central Alberta in 1990.

Orchard No.	No. of bushes surveyed	Incidents (%)	Severity (% of leaves and berries infected per category) 0		1		2		3		4	
			B	L	B	L	B	L	B	L	B	L
1	23	100	0	0	0	0	0	0	13	0	87	100
2	27	100	0	0	18	4	26	11	30	48	26	37
3	108	100	*	0	-	22	-	42	-	19	-	17
4	97	100	-	0	-	0	-	0	-	4	-	96
5	25	100	-	0	-	20	-	28	-	32	-	20

+ Disease severity rating: 0=no disease; 1-1-25%; 2=26-50%; 3=51-75%; 4-76-100%.
B and L represent berries and leaves, respectively.
* Berries were not available.

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1. Hausher, L. 1990. Personal Communication. Alberta Speeial Crops and Horticulture Research Station, Brooks, Alberta.