Small fruits / Petits fruits

Crop/Culture: Saskatoon, *Amelanchier alnifolia* (Nutt.)

Location/Emplacement: Alberta

Title/Titre: EVALUATION OF ELEVEN SASKATOON CULTIVARS FOR RESISTANCE TO POWDERY MILDEW

Name and Agency/ Nom et Organisation:
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METHODS: Incidence of powdery mildew [*Podosphaera clandestina* (Wallr.:Fr.) Lév.] on saskatoon was visually rated in two variety trial orchards in Alberta in 1991. Both orchards had the same ten cultivars, except that Pearson II replaced Moonlake in Edmonton. The orchards were planted in a randomized complete block design with four replications and four bushes per replication in Brooks and three replications and five bushes per replication in Edmonton. The orchard at Brooks contained bushes ranging in age from 8 to 14 years. All of the bushes were bearing fruit at the time of disease assessment on July 17 and 18. In Edmonton, the orchard was three years old and not all of the bushes were bearing fruit at the time of disease assessments on July 24 and September 24. At Brooks, mildew incidence was assessed on both the foliage and fruit. On the foliage, the percentage mildew was determined by counting the number of leaves with the disease on each of four branches per bush. One, chest-height branch was selected per compass point (N, S, E, & W) on each bush and, starting at the tip and progressing basipetally, the number of leaves with mildew out of 25 was recorded. The percentage of mildewed leaves per cultivar per replicate was calculated by pooling the data for the four bushes in each replicate. The percentage of mildewed berries was measured by sampling two to three fruit clusters per branch at each compass point and counting the number of mildewed berries out of 100 per bush. An average disease incidence was determined for each replicate by pooling the individual data for the four bushes examined. The data were arcsin-transformed and subjected to ANOVA. In Edmonton, the disease incidence was assessed by observing the presence or absence and severity of mildew infection on leaves and berries (when available).

RESULTS AND COMMENTS: At Brooks, mildew was generally distributed throughout the orchard. It was more severe at the tips of branches and on the north side of the bushes. Mildew incidence was higher on the foliage compared to the fruit (Table 1). Cultivars Parkhill, Success and Forestburg had the highest incidence of mildew on the leaves and berries. Moonlake, Honeywood, Thiessen and Regent exhibited significantly less foliar mildew than the other cultivars. Moonlake, Honeywood, Thiessen, Smoky and Pembina had significantly fewer mildewed berries than the remaining five cultivars.

In Edmonton, Parkhill exhibited a severe infection of leaves and a 100% incidence of powdery mildew on berries. Leaves of Success were also severely mildewed, but its berries were not as severely affected as those of Parkhill. Powdery mildew was also observed on the leaves of Forestburg, Northline, Pembina and Smoky, but it was much less severe than on Parkhill and Success. Observations done late in the season (September 24) revealed that the leaves on all of the bushes of all ten cultivars were affected by mildew.

Of the eleven cultivars evaluated, Parkhill and Success had the least and Honeywood, Thiessen and Moonlake the best powdery mildew resistance.

Table 1. Incidence of powdery mildew on the leaves and fruit of ten saskatoon cultivars at the ASCHRC, Brooks, in 1991.

	Powdery mildew incidence (1%) [1]	
Cultivar	Leaves	Berries
Moonlake	15.3 b	0.8a
Honeywood	4.6ab	1.3a
Thiessen	10.5ab	0.1a
Smoky	36.2 c	0.1a
Northline	44.6 c	4.0ab
Forestburg	83.3 d	51.3 c
Pembina	39.0 c	0.4a
success	94.2 de	66.7 cd
Regent	1.5a	10.4 b
Parkhill	98.4 e	72.5 d

[1] Each figure in this table is the mean of four replications. Mildew incidence data were arcsin-transformed prior to ANOVA. Detransformed means are reported here. Numbers followed by the same small letter are not significantly different according to a Duncan's Multiple Range Test ($P<0.05$).

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