

Although 'Regal' and 'Splendor' did not differ in initial frost tolerance ratings compared to 'Koralle' and 'Erntedank,' subsequent field observations suggest the clones of Finnish origin including 'Regal' and 'Splendor' are noticeably more frost tolerant with less injury to fruit buds and blossom before and during bloom than the few other lingonberry cultivars presently available for cultivation.

Anthocyanin pigment in fruit of 'Regal' and 'Splendor' is comparable to that for 'Erntedank' and much higher than for 'Koralle' (Table 2). Fruit quality constituents including ascorbic acid for these clones are typical of other lingonberry cultivars presently available.

'Regal' and 'Splendor' are released for potential use in breeding programs and to provide additional adapted and productive lingonberry germplasm for potential producers in North America. These clones are the first named culti-

vars of Finnish origin presently available in North America. Among the limited lingonberry germplasm currently available, 'Regal' and 'Splendor' appear to provide superior fruit size and quality, productivity and adaptability to North American climatic conditions.

#### Availability

'Splendor' and 'Regal' are propagated under an exclusive royalty agreement with DeGrandchamp's Blueberry Farm, 15575 77th Street, South Haven, MI 49090. Interested nurseries and individuals should contact DeGrandchamp's directly concerning availability.

#### Literature Cited

1. Fernald, M. L. 1970. *Gray's Manual of Botany*. 8th ed. D. Van Nostrand Co., New York.
2. Stang, E. J., G. G. Weis and J. Klueh. 1990. Lingonberry: potential new fruit for the northern United States. In J. Janick and J. E. Simon, ed., *Advances in New Crops*. Timber Press, Portland, Oregon. pp. 321-323.

Fruit Varieties Journal 48(3):184-185 1994

## Early Redhaven Peach, A Host of Cherry Short Stem Virus

THOMAS S. C. LI<sup>1</sup>

### Abstract

Cherry Short Stem virus (SSV) was bud grafted onto peach cultivars 'Early Redhaven' and 'Fairhaven.' There were no leaf symptoms on either cultivar. 'Early Redhaven' fruits showed uneven bumpy surfaces with mosaic coloration, and the texture of the fruits was harder than normal. There were no visible fruit symptoms on 'Fairhaven.' Back check on woody indicator sweet cherry cv. 'Bing' confirmed that the fruit symptoms on 'Early Redhaven' were caused by SSV, and that 'Fairhaven' is a symptomless carrier. Both Cherry Necrotic Ring Spot virus (NRSV) and Prune Dwarf virus (PDV) failed to produce any fruit symptoms on either peach cultivar.

<sup>1</sup>Agriculture Canada Research Station, Summerland, British Columbia, V0H 1Z0, Canada. Contribution No. 861.

### Introduction

Cherry Short Stem virus (SSV) was discovered in Montana in 1958 (6), and later was identified by Afanasiev (1) and Afanasiev and Mills (3). The symptoms on cv. 'Bing' occur on leaves, fruit and fruit stems. Leaf midrib curl downward from the tip, resembling the effects of aphid feeding. The fruits are misshapen, sometimes dappled and bumpy (2). The most characteristic symptoms of this virus are shortened fruit stems (5, 6), about 1-2 cm in

length. The growth of infected trees are less vigorous than control (2).

### Materials and Methods

Budwood samples were collected from an 8 year old SSV infected sweet cherry cv. 'Bing' grown in an experimental plot. Two buds were grafted onto four each of fruiting 'Early Redhaven' (ERH) and 'Fairhaven' (FH) trees. Non-inoculated ERH and FH trees were served as control. This field experiment was repeated two years later with additional bud inoculation of Cherry Necrotic Ring Spot virus (NRSV) and Prune Dwarf virus (PDV) onto two trees each of ERH separately to determine whether the symptoms showed on this peach cultivar were also caused by NRSV or PDV. To confirm the infection on peaches, budwood samples were collected from ERH and FH trees and bud inoculated onto SSV indicator fruiting sweet cherry 'Bing'.

### Results and Discussion

The fruit symptoms on SSV inoculated trees first appeared on two out of twelve fruits on one of the four ERH trees two years after the inoculation in early August just before harvesting. It has uneven bumpy surface with pink and cream-yellow mosaic coloration. The texture of the fruits with symptoms was harder than the control and remain firm after harvesting while fruits from control started to turn soft. The fruits with SSV symptoms are not marketable.

The other three SSV inoculated ERH trees showed symptoms in the third year after inoculation and fruit symptoms gradually spread over the whole tree. 'Fairhaven' trees remained symp-

tomless. Similar results were obtained from the repeated treatment. NRSV and PDV failed to produce any fruit symptoms on neither ERH or FH two years after inoculation. Fruit and leaf symptoms showed on 'Bing' later were those typical of the SSV infection, confirming that the fruit symptoms on ERH were caused by SSV.

It has been reported that SSV caused leaf symptoms on 'Abundance plum' (*Prunus salicina*), and seedlings of *P. maackii* and *P. davidiana* (5, 6). *P. besseyi*, *P. capuli*, *P. pennsylvanica* and *P. serotina*, 'Drake almond' (*P. amygdalus*), 'Riland' and 'Tilton' apricot (*P. armeniaca*), 'Elberta' and 'J.H. Hale' peach (*P. persica*) were symptomless carriers (4, 6). This is the first report of SSV causing fruit symptoms on peach cv. 'Early Redhaven'. This virus spreads naturally in the field from sweet cherry to sweet cherry, and the vector is not known (6). Although there is no evidence of spreading SSV from cherry to peach in the orchard, it could be economically important if it happens.

### Literature Cited

1. Afanasiev, M. M. 1963. 'Short stem' conditions in Lambert cherries. *Phytopath.* 53:1137.
2. Afanasiev, M. M. and Hamilton, R. I. 1965. 'Short stem' virosis of sweet cherries. *Pl. Dis. Repr.* 49:253-5.
3. Afanasiev, M. M. and I. K. Mills. 1961. Short stem virosis of sweet cherries. *Northwest Assoc. Hort. Ent. and Plant Path. Repr.* 22:8.
4. Cheney, P. W., Parish, C. L. and Coyter, D. L. 1970. Host range studies of the cherry short stem virus from Oregon. *Pl. Dis. Repr.* 54, 651-5.
5. Nemeth, M. 1986. Virus, mycoplasma and rickettsia diseases of fruit trees. *Akademiai Kiado, Budapest.* 841p.
6. Parish, C. L. and P. W. Cheney. 1976. Short Stem. in: *Virus diseases and noninfectious disorders of stone fruits in North America*, U.S.D.A. Agr. Handbook No. 437. p. 250-1.

## Rootstocks on Fruit Growth Rate

'Delicious' and 'Granny Smith' trees produced larger fruit on MM.106 and M.7a than on seedling rootstock. Rootstocks had no affect on fruit diameter of 'Gala.' From: Hussein and Slack, 1994. *HortScience* 29:79-81.