

Apple Scab on Crabapple at Secrest Arboretum: 2004

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Introduction

Apple scab pressure was high at the Secrest Arboretum of the Ohio State University's Ohio Agricultural Research and Development Center in 2004, as wet spring and early summer weather provided multiple infection periods for the *Venturia inaequalis* pathogen. Yet, even under this considerable disease pressure, 24 of the 64 taxa showed no evidence of apple scab in 2004, and a total of 30 never received a rating that exceeded 1 (no aesthetic impact) on any evaluation date. Nineteen taxa received a rating of 3 or higher on at least one date in 2004, indicating substantial defoliation and aesthetic impact (Table 1).

Materials and Methods

Sixty-three crabapple taxa were planted in 1997-1998 at OARDC's Secrest Arboretum in Wooster, Ohio, in a completely randomized design. One taxon, 'Cardinal,' was planted in 2003. There are five replicate plants for most but not all taxa, though fewer replicates

exist currently due to a variety of factors, including inadequate original numbers (e.g., 'Hamlet'), death due to fireblight (e.g., 'Golden Raindrops'), and other attrition such as deer damage.

Plants are mulched with composted yard waste and were irrigated as needed during the year of transplanting. Weeds are controlled with spot applications of glyphosate. On June 9, July 16, and August 18, 2004, all trees were rated on a scale of 0 to 5, with 0 = no scab observed; 1 = less than 5% of leaves affected and no aesthetic impact; 2 = 5 to 20% of leaves affected, with some yellowing but little or no defoliation, moderate aesthetic impact; 3 = 20 to 50% of leaves affected, significant defoliation and/or leaf yellowing, substantial aesthetic impact; 4 = 50 to 80% of leaves affected, severe foliar discoloration and defoliation, severe aesthetic impact; and 5 = 80 to 100% of foliage affected, with 90 to 100% defoliation.

Results and Discussion

Results of the 2004 trials are presented in Table 1.

1. Despite significant scab pressure (19 taxa with apple scab ratings indicating significant symptoms and aesthetic effects), more than 1/3 of the crabapple taxa at Secrest Arboretum exhibited

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no scab for the 2004 season. This provides horticulturists with many crabapple selections with excellent scab resistance, from pink-flowered weepers ('Louisa') to white-flowered dwarfs (*Malus sargentii*), from golden-fruited crabapples ('Holiday Gold') to red-fruited trees ('Red Jewel').

- Results over the past several years show that, for some taxa, scab incidence is changing, presumably due to the development of new races of the *Venturia inaequalis* pathogen.

Apple scab was not observed on 'Prairifire' crabapple for several decades at Secrest until 2000 and 2001 when it first was noted, though at very low levels. Now in 2004, scab on

'Prairifire' is more noticeable, with its rating of 2 indicating moderate aesthetic impact on all replicates for the first time.

Scab was found on 'Bob White' in 2004 for the first time, though only on one replicate and only to a minor extent.

- Bacterial fireblight incidence at Secrest was low in 2004, presumably due to lower temperatures during bloom than in the peak fireblight years of 2001-2002. It was a problem on fireblight-sensitive taxa such as 'Silver Moon' and 'Golden Raindrops.' Cedar rusts have not been significant on crabapples at Secrest in the past, and this year was no exception, except for moderate rust levels on 'Calloway' and 'Brandywine.'

Crabapple Taxon	Aug 18	Jul 16	Jun 9	No. of Reps
'Adirondack'	0.00	0.00	0.00	5
'Callaway'	0.00	0.00	0.00	4
'Camelot'	0.00	0.00	0.00	5
'Canterbury'	0.00	0.00	0.00	4
'Cardinal'	0.00	0.00	0.00	3
'Cinderella'	0.00	0.00	0.00	4
'Dolgo'	0.00	0.00	0.00	5
'Excalibur'	0.00	0.00	0.00	4
'Firebird'	0.00	0.00	0.00	5
'Foxfire'	0.00	0.00	0.00	5
'Golden Raindrops'	0.00	0.00	0.00	2
'Hamlet'	0.00	0.00	0.00	2
'Holiday Gold'	0.00	0.00	0.00	5
'Jackii'	0.00	0.00	0.00	5
'Lancelot'	0.00	0.00	0.00	5
'Lollipop'	0.00	0.00	0.00	5
'Louisa'	0.00	0.00	0.00	5
'Prairie Maid'	0.00	0.00	0.20	5
'Rawhide'	0.00	0.00	0.00	4
'Red Jewel'	0.00	0.00	0.00	5

Table 1 (continued). Apple Scab at Secret Arboretum in Wooster, Ohio, in 2004.				
Crabapple Taxon	Aug 18	Jul 16	Jun 9	No. of Reps
<i>M. sargentii</i>	0.00	0.00	0.00	5
'Silver Moon'	0.00	0.00	0.00	4
'Sinai Fire'	0.00	0.00	0.00	5
'Strawberry Parfait'	0.00	0.00	0.00	4
'Tina'	0.00	0.00	0.00	5
'Guinevere'	0.20	0.20	0.20	5
'Bob White'	0.40	0.40	0.60	4
'King Arthur'	0.50	0.00	0.00	2
'Brandywine'	1.00	1.00	1.00	4
'David'	1.00	1.00	1.00	4
'Candy mint'	1.40	1.00	0.40	5
'Purple Prince'	1.40	1.00	0.80	5
'Pink Princess'	1.50	1.00	0.50	3
'Coralburst'	2.00	2.00	1.00	5
'Manbeck Weeper'	2.00	1.50	1.50	5
'Mary Potter'	2.00	1.00	0.75	4
'Prairifire'	2.00	1.60	0.80	5
'Professor Sprenger'	2.00	1.50	1.25	4
'Red Jade'	2.20	2.40	1.00	4
'Silver Drift'	2.20	2.00	1.00	5
'Sugar Tyme'	2.20	2.00	1.00	5
'Doubloons'	2.40	2.00	1.00	5
'Molten Lava'	2.40	2.00	1.00	5
'American Salute'	2.80	1.80	0.80	5
'Canary'	2.80	2.00	1.60	5
'Harvest Gold'	2.80	3.00	2.80	5
'Adams'	3.00	3.00	2.60	5
'Donald Wyman'	3.00	2.00	1.80	5
'Red Splendor'	3.00	2.40	1.00	5
'Sentinel'	3.00	2.00	1.00	5
'Jewelberry'	3.50	3.00	1.50	4
'Royal Fountain'	3.60	2.80	1.80	5
'Indian Magic'	3.75	3.00	2.75	4
'Spring Snow'	4.00	2.80	2.00	5
'Snowdrift'	4.00	3.40	2.80	5
'White Cascade'	4.00	3.00	3.00	5
<i>M. floribunda</i>	4.20	3.20	3.00	5

Crabapple Taxon	Aug 18	Jul 16	Jun 9	No. of Reps
'Weeping Candied Apple'	4.20	4.00	3.00	5
'American Spirit'	4.25	3.00	2.00	4
'Thunderchild'	4.60	3.60	3.00	5
'Royal Scepter'	4.75	3.20	2.00	5
'American Masterpiece'	4.80	4.00	3.00	5
'Pink Satin'	4.80	4.00	2.40	5
'American Triumph'	4.80	3.40	2.40	5

* 0 = no scab observed; 1 = less than 5% of leaves affected and no aesthetic impact; 2 = 5 to 20% of leaves affected, with some yellowing but little or no defoliation, moderate aesthetic impact; 3 = 20 to 50% of leaves affected, significant defoliation and/or leaf yellowing, substantial aesthetic impact; 4 = 50 to 80% of leaves affected, severe foliar discoloration and defoliation, severe aesthetic impact; and 5 = 80 to 100% of foliage affected, with 90 to 100% defoliation.

** Means in a column with the same letter are not significantly different (LSD test, p<0.05).

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