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**CONTENTS**

FROM THE PRESIDENT .....	2
CHAPTER 1 CRABAPPLE DISEASE RATINGS - OVERVIEW .....	3
CHAPTER 2 DISEASES DESCRIBED .....	5
CHAPTER 3 DISEASE AND AESTHETIC RATINGS .....	8
CHAPTER 4 DISCUSSION OF DATA .....	12
TABLE 1 AESTHETIC RATING .....	15
TABLE 2 SCAB RATING .....	22
TABLE 3 CEDAR/APPLE RUST RATING .....	29
TABLE 4 FIRE BLIGHT RATING .....	36
TABLE 5 POWDERY MILDEW RATING .....	43
TABLE 6 FROGEYE LEAF SPOT RATING .....	50
APPENDIX A NOTES DESCRIBED .....	57

## FROM THE PRESIDENT

It is with pleasure that IOCS is able to present this issue of MALUS. Rather than containing articles about and relating to crabapples, this time there is a compilation of information on the effects of various diseases and on crabapple quality. This is a summary of data gathered over a period of many years. Much more data were collected than are actually presented here. The data herein apply only to those crabapples that could be expected to be found in the trade.

The collection of these data began with Les Nichols about 1964, and was continued by Tom Green after Les Nichols' death. Many other people were also involved in collecting these data and, although their names are not enumerated here, we are grateful to all of them for their efforts. Special recognition is given to John den Boer, Editor for IOCS, who brought all these data together and produced the information in this issue.

Data on all the crabapples evaluated are expected to be made available sometime in the near future. Some of that data will be in the same form as presented herein. That data may also be in the form of information recorded on specific crabapples with the data identified as to the location where the tree was growing (time zone and USDA Hardiness Zone). In the meantime, should you have any questions about data on any specific crabapple, you may direct your questions to the Editor of MALUS.

Dr. John C. Pair, President, IOCS

## CHAPTER 1

### CRABAPPLE DISEASE RATINGS - OVERVIEW

Dr. Thomas L. Green

I had the pleasure of working with Professor Les Nichols for several years as he rated crabapples. What he taught me about this marvelous tree and its diseases cannot be measured easily. When it comes to crabapples and whether they are resistant or susceptible to disease, the diseases cannot be treated equally.

**Fire Blight.** To me fire blight is the most serious disease of crabapples. It is capable of killing a tree; the rest really do not, under normal landscape conditions. One of the trees rated as the best year-after-year almost everywhere throughout the United States, 'Zumi Calocarpa,' is at the very bottom on the fire blight list. It could be placed at the bottom because one tree out of all of its hundreds of observations died of fire blight. All of the other trees could have rated 0, *i.e.*, no fire blight, and this cultivar would still be on the bottom. Does this mean it shouldn't be used? No. This means that where fire blight is a serious problem, such as in the Rocky Mountain region, then look at selecting more resistant cultivars. Otherwise, 'Zumi Calocarpa' would be an excellent crabapple for almost everywhere else.

**Scab.** This ranks number two; however, it is much more prevalent than fire blight. In the high and dry states such as in the Rocky Mountain region, it is not much of a problem, and even scab susceptible cultivars can be used there (but not fire blight susceptible). In most of the rest of the United States, scab tends to get worse as you travel toward the east coast. Total scab resistance is rare in crabapples, so infection, and in some susceptible cultivars, premature defoliation, occurs when spring weather has lots of moisture. Those found to show scab resistance year-after-year in Illinois, Ohio, Pennsylvania, and New England can be used about anywhere in the United States where crabapples are grown. However, the Pacific Northwest is the place to test for scab resistance. The spring wetness conditions there will overcome the resistance in all but a few. Therefore, use of crabapple cultivars in the Pacific Northwest should be based upon the performance of the cultivars tested at J. Frank Schmidt and Son, Inc. in Boring, OR and the Cooperative Extension Research Unit in Mt. Vernon, WA.

**Cedar/Apple Rust.** This ranks number three. This disease can cause defoliation when conditions are ideal. However, defoliation is rare, and when it occurs, it may be in combination with scab infection. Cedar/Apple Rust attacks native crabapples and their hybrids. There are so few native crabapple cultivars sold in the nursery trade that this disease is usually of minor consequence. The good quality ornamental crabapples tend to be very resistant to this disease.

**Powdery Mildew.** Serious injury because of this disease is very rare. About the only time that I have seen this disease causing defoliation is once in the National Arboretum. This disease can be very severe in greenhouse situations on young seedlings and cuttings. Otherwise, I have not seen any cultivars with consistent problems with this disease, so I consider it of minor consequence.

**Frogeye Leaf Spot.** This disease has perhaps the most interesting name, but is the least damaging of all crabapple diseases. Spores of this pathogen can attack branches, fruit, and leaves. Where the 17-year cicada attacks and causes considerable injury to the tree, this fungus comes in and gains a foothold in weakened branches. Spores from the branch cankers cause spots on the leaves. A lot of frogeye leaf spot can be reduced by the removal of dead and dying branches. I have never seen any tree defoliated or really lowered in aesthetic value because of this disease. One of my favorite trees, 'Professor Sprenger', seems to always have it more than other cultivars, but it usually rates 0 or 1 aesthetically year-after-year with its frogeye leaf spots. I hope this compilation of mostly Les Nichols' data is of value to you. Be sure to read the footnotes that will provide information about specific locations and potential usage.

## CHAPTER 2

### DISEASES DESCRIBED<sup>(1)</sup>

John H. den Boer

While crabapples can be subjected to more than five diseases, only five have been monitored for this study. What follows is a short description of each of these five diseases and steps that can be taken to minimize their effect.

**Scab (*Venturia inaequalis*)** Scab is the most serious of the diseases from the standpoint of affecting the appearance of the trees. It appears as olive-green lesions on both the lower and upper surfaces of the leaf. Extensive infections can cause early defoliation. This disease can form small dark lesions on the fruit, generally near the calyx end of the fruit. The disease overwinters on fallen leaves on the ground. In the early spring, the fungus produces spores which are blown on the leaves and fruit of the trees. Leaf infections can occur in as few as 8 hours under favorable temperature and wetting conditions. Recently expanded leaves are more susceptible than older leaves.

Fungicides are available for control of Scab. Removing as many leaves as possible that are lying on the ground in the fall will reduce the amount of overwintering inoculum and aid in control. Spraying the leaves with a solution containing urea will speed up the decomposition of the leaves which will remove the source of protection of the inoculum.

**Cedar/Apple Rust (*Gymnosporangium juniperi-virginianae*)** This disease spends part of its life on Eastern red cedars and the other part on apples and crabapples. This disease forms golf-ball-sized galls on cedar branches. Spores are produced on gelatinous orange-colored protuberances, which extrude from the gall during wet weather in the spring. The spores infect the leaves of the crabapples, forming pale yellow spots on the upper surfaces of the leaves. These spots enlarge and become orange with age.

One method of preventing Cedar/Apple Rust is to remove the source of the spores by removing all cedar trees within 1/2 mile of the crabapple trees. Another method is to apply fungicides.

<sup>(1)</sup> Source: "A Grower's Guide to Apple Insects and Diseases In The Southeast" Alabama Cooperative Extension Service, Auburn University, Alabama

**Fire Blight (*Erwinia amylovora*)** Blossom blight is usually the first symptom observed in the spring. A single blossom or the entire flower cluster may be diseased. Flowers are first water-soaked; then they wilt, shrivel, and turn brown or black. The bacterium moves down the peduncle into the fruit spur or stem, killing these tissues. Young fruits become infected, turn black, dry, shrivel, and remain attached to the tree. Symptoms on succulent twigs, water sprouts, and shoots are similar to those on flowers, but the pathogen moves more rapidly. Six to 12 inches of tissue can be killed in only a few days. Shoots can also be killed by infections that occur some distance back from the tip, killing all tissue beyond that point.

The fire blight bacterium passes its entire life in direct association with the host. In the spring, holdover cankers from previous years exude bacteria, which are dispersed in the tree by splashing rain and insects. Infections can recur as long as the weather is favorable. Contaminated pruning tools can spread these bacteria.

Temperature and weather conditions appear to have a significant effect on fire blight. The presence of dew or rainfall, average daily temperatures of 60°F or greater, and at least 198 degree-hours greater than 65°F collectively will lead to the development of fire blight.

The first step in controlling fire blight is to prevent rank, vigorous growth. This includes proper fertilization and pruning. All fire-blight-affected tissues, including cankers, need to be cut out, and removed from the area. Cuts to remove fire blight should be at least 8" below the diseased tissue. Pruning shears need to be dipped in a 10-percent household bleach or Lysol® between cuttings to prevent spreading the bacterium.

**Powdery Mildew (*Podosphaera leucotricha*)** Infected leaves are stunted, distorted, and covered with a silvery-gray mat of mycelium. Powdery Mildew does not require rain or dew for infection. Infections can continue through summer until the terminal buds are set.

Fungicides can be used for control. However, if used, they need to be used throughout the summer.

**Frogeye Leaf spot (*Botryosphaeria obtusa*)** Leaf infection can occur during the bud stage or any time during the spring or summer when foliage is wet. Leaf infections are brown, circular, 1/8 to 1/4 inch in diameter, and often bordered by a purple halo. Removing all dead wood from the tree and on the ground around the tree will help in controlling this disease. Chopped wood should not be used as mulch until it has been thoroughly composted. Frogeye leaf spot can be controlled with application of fungicides every 10 to 14 days from petal fall to time of ripening of fruit.

A more detailed discussion on diseases and insects can be found in the referenced source of information for this chapter. It can be purchased for \$4.00 from:

Alabam Cooperative Extension Service  
Auburn University, Alabama 36849-5612

Request Circular ANR-838

This circular has many colored photographs. It describes these diseases and insects and provides detailed information on the control of them. Anyone having any interest in the culture of apples and crabapples should have a copy of this 70 page circular.

## CHAPTER 3

### DISEASE AND AESTHETIC RATINGS

John H. den Boer  
&  
Dr. Thomas L. Green

There are two types of ratings used in this publication. The first rating refers to the rating given by the evaluator when the observation was made of the crabapple. The second rating relates to the desirability of the crabapples. The bases for these two ratings are shown below.

The observers were provided a guide for rating each tree for each of the diseases to be evaluated. The following is the guide:

#### AESTHETIC RATING

**0 = Perfect Tree:** A tree that is without serious flaws and has a little something extra such as perfect, dark-green foliage, early coloration of fruit, vivid fruit display, abundant and persistent fruit, attractive form, and possible excellent fall foliage color (e.g., Donald Wyman, Mary Potter).

The perfect tree stands out from all the rest. It **MUST** have abundant, and vivid fruit.

**1 = Highly Ornamental:** Nearly perfect foliage may be dull green (common to red-flowering cultivars), or some scab may be present, fruit fairly abundant, but less than 0 rating, fruit color less vivid or maybe not persistent, form still attractive, and may or may not have excellent fall color (e.g., *M. floribunda* [abundant fruits turn from yellow to brown, soften, and fall], Mary Potter the year it doesn't bear fruit, David with moderate scab, Adams with slight scab on dull green leaves and dark red fruit, fall color of *M. tschonoskii*).

**2 = Ornamental:** An acceptable tree but less than perfect; leaves with slight to severe scab, some insect (e.g., leaf miner) or mite injury, fruit not abundant or particularly ornamental (e.g., Indian Magic prematurely defoliated by scab but orange fruit very ornamental, Liset, which has very dark green but disease-free foliage and very dark and not abundant fruit).

**3 = Barely Ornamental:** This is essentially a green plant with very little ornamental value. Fruit may be dull, too large, and/or not persistent; foliage may be moderately infected with scab or cedar/ apple rust or moderately damaged by insects or mites but still green and not apparently defoliating.

**4 = Undesirable:** This tree is undesirable at this time because of defoliation from disease, ugly or messy fruit, or poor form. Trees with large-sized fruits that drop in the late summer or early fall are rated as a 4.

**5 = Unacceptable:** Consider replacing this with another cultivar. Trees that have messy fruit and totally defoliate because of scab fall into this category.

#### SCAB

**0 = No Disease:** No evidence of symptoms.

**1 = Slight:** Scab detectable, usually not found on most leaves.

**2 = Moderate:** Scab readily found on most leaves; no defoliation.

**3 = Severe:** Scab abundant and found on nearly all leaves; causing defoliation.

**4 = Very Severe:** Tree nearly defoliated.

**5 = Extremely Severe:** Tree totally defoliated.

#### FIRE BLIGHT

**0 = No Disease:** No evidence of symptoms.

**1 = Slight:** One or few branch tips showing symptoms.

**2 = Moderate:** Numerous branch tips showing symptoms, few major branches infected.

**3 = Severe:** Several major branches infected, considerable dieback.

**4 = Very Severe:** Major portion of the tree infected.

**5 = Extremely Severe:** Tree killed.

## CEDAR/APPLE RUST

**0 = No Disease:** No evidence of disease.

**1 = Slight:** One or few leaves with symptoms.

**2 = Moderate:** Most leaves lightly infected.

**3 = Severe:** Most leaves heavily infected; some spots coalescing; leaves not defoliating.

**4 = Very Severe:** Leaves heavily infected; spots coalescing; defoliation.

## POWDERY MILDEW

**0 = No Disease:** No white mycelium evident.

**1 = Slight:** White mycelium observed on leaves or other plant parts; no (apparent) loss of plant tissue.

**2 = Moderate:** White mycelium very obvious on leaves or other plant parts; no (apparent) loss of plant tissue.

**3 = Severe:** White mycelium very obvious on leaves or other plant parts; obvious loss of plant tissue.

**4 = Very Severe:** White mycelium very obvious on leaves or other plant parts; significant injury to plant parts observed throughout most of the tree.

## FROGEYE LEAF SPOT

**0 = No Disease:** No disease evident.

**1 = Slight:** One or few leaves with symptoms.

**2 = Moderate:** Most leaves lightly infected.

**3 = Severe:** Most leaves heavily infected; some spots coalescing; leaves not defoliating.

**4 = Very Severe:** Leaves heavily infected; spots coalescing; defoliation.

The appendices contain the listings for each of the five disease ratings and the ratings for the aesthetic appearance of the crabapples. The evaluations are all done in the fall when the fruits were fully ripe. In the listings, the lowest and individual highest ratings for each disease are shown for each crabapple. The average value for each rating is also shown. These data are grouped as shown below. The identity of each group and the ranges of the individual ratings in each group are as follows:

### DESIRABILITY RATING

### INDIVIDUAL RATING

#### **Aesthetic Ratings:**

**Outstanding:**

Average 0.0 through 0.9

**Very Attractive:**

Average 1.0 through 1.9

**Attractive:**

Average 2.0 through 2.9

**Less Attractive:**

Average 3.0 through 3.9

**Unattractive:**

Average 4.0 through 5.0

#### **Scab Ratings:**

**Highly Resistant:**

Average 0.0 through 0.9

**Resistant:**

Average 1.0 through 1.9

**Moderately Susceptible:**

Average 2.0 through 2.9

**Very Susceptible:**

Average 3.0 through 3.9

**Extremely Susceptible:**

Average 4.0 through 5.0

#### **Cedar/Apple Rust Ratings:**

**Highly Resistant:**

High Value = 0

**Fairly Resistant:**

High Value = 1 or 2

**Susceptible:**

High Value = 3 or 4

#### **Fire Blight Ratings:**

**Highly Resistant:**

High Value = 0

**Very Resistant:**

High Value = 1

**Moderately Resistant:**

High Value = 2

**Slightly Susceptible:**

High Value = 3

**Moderately Susceptible:**

High Value = 4

**Very Susceptible:**

High Value = 5

#### **Powdery Mildew Ratings:**

**Highly Resistant:**

High Value = 0 or 1

**Fairly Resistant:**

High Value = 2

**Susceptible:**

High Value = 3 or 4

#### **Frogeye Leaf Spot Ratings:**

**Highly Resistant:**

High Value = 0

**Fairly Resistant:**

High Value = 1 or 2

**Susceptible:**

High Value = 3 or 4

## CHAPTER 4

### DISCUSSION OF DATA

John H. den Boer

The late Dr. Les Nichols is to be credited with starting the study of disease resistance of crabapples in the mid 1960's. After his death in 1986, Dr. Thomas L. Green, Executive Director of IOCS, continued collecting these types of data by use of the National Crabapple Evaluation Program (NCEP) that started in 1988 and continued through 1993. During this period of time, 50,121 observations were recorded from 646 different crabapples. Of these crabapples, 162 were identified by the Board of Directors of IOCS as being "commercial" crabapples. There were 1,116 observations recorded on these commercial crabapples. This issue of MALUS presents the summary of those 1,116 observations. These crabapples were located in areas from the west coast to the east coast, and from Wisconsin to Alabama.

The observers gave a rating for each crabapple observed, based on the appearance of the tree. They were given guidance in making these ratings. That guidance is presented in Chapter 3, Disease and Aesthetic Ratings. Their ratings were recorded on forms provided for this purpose. The forms were collected by Dr. Green and forwarded to me. The data, which included the identification of the crabapple, the rating, and the location at which the evaluation was made, were entered into a database. Additionally, the Time/Hardiness zone where the crabapple grew was also entered.

Computer programs were written to manipulate the data and to determine the lowest and highest values reported, and the average value was calculated. These high, low, and average values were calculated for each Time/Hardiness zone and for all zones collectively. A report was prepared, but not included in this issue, that presents the data for each crabapple by Time/Hardiness Zone as well as collectively for all reported zones. For some crabapples, there are data available for all 9 zones for which data are available; but for a few, there are only data available for one zone.

As the average was calculated, another rating was applied, this one to indicate the desirability of each crabapple. In two cases, the desirability was based on the calculated average values (Aesthetic and Scab ratings) and in four cases the desirability was based on the highest rating reported (Fire Blight, Powdery Mildew, Cedar/Apple Rust and Frog-eye Leaf Spot). This rating is discussed in Chapter 3, Disease and Aesthetic Ratings.

Partial results of the above efforts are reported in TABLE 1 through TABLE 6. Only those crabapples which have been classified as "commercial" by the Board of

Directors of IOCS, and for which data exist, are included in these Tables. In each of these tables, the crabapples are listed alphabetically within each group by botanical name. The trade name is indicated within parentheses following the botanical name. Following the name is the lowest and highest rating reported, the calculated average value, the total number of readings or observations, and in the final column, the identity of the notes. The notes apply to either where there are instances of an average value for a specific Time/Hardiness Zone differing from the over-all average by 1.0 or more or to instances where data are reported for only one Time/Hardiness Zone. These zones, along with the note numbers, are identified in Appendix A. Where no note exists, it can be interpreted that data were collected from at least two different Time/Hardiness Zones and that the average values for all the Time/Hardiness Zones for which data were available did not differ by 1.0 or more from the over-all average.

Care must be taken in making conclusions from these data for the reason that there were few observations recorded for some crabapples. Those crabapples for which there were 100 or more observations will provide reasonably reliable average values. Those average ratings derived from less than 20 readings should not be considered as reliable an indicator as those with more than 20 readings. Additional observations could easily change the over-all ratings of these crabapples to another category. Ratings for those crabapples for which there were 20 to 99 observations can be considered reasonably indicative of the expected ratings of the crabapples, but revisions in their classifications should not be unexpected, especially for those crabapples having average values near the limits of their classifications. Also, on occasions, trees being rated were found to be not correctly labeled. When this has been noted, the data were corrected. Should other trees be found to be incorrectly identified, the data in the database will have to be corrected, which could result in changes in the data presented herein.

For purposes of displaying variations that may occur in the ratings because of geographical location, the geographic locations for all observations were identified. These locations were organized by Time Zones and USDA Hardiness Zones. We have not included that information in this issue of MALUS, however. Observations were made in 9 Time/Hardiness Zones. When the data for a specific crabapple come from only one of those nine zones, a note is made of this occurrence in the listing. It is possible that the inclusion of observations made in other Time/Hardiness Zones might influence the average value of the rating. There are instances where the average value of a rating in a specific Time/Hardiness Zone differs appreciably from the overall average value. When this occurs, a note is also made of this event. An average value from a Time/Hardiness Zone is considered significantly different when it varies from the overall average by at least 1.0. These notes are defined in Appendix A. Note numbers 1 thru 9 identify Time/Hardiness Zones where the average value for that zone varied by less than 1.0 from the overall average. Note numbers 11 thru 19 identify Time/Hardiness Zones where the average value for that zone varied by more than 1.0



from the overall average value. Note numbers between 21 and 29 refer to those crabapples where data were collected from one Time/Hardiness Zone only. Note numbers 1 through 9 and the second digit in the numbers 11 through 19 and 21 through 29 identifies the Time/Hardiness Zone, the lowest number starting at the west coast, the highest number ending at the east coast.

A small number of crabapples have average values for Aesthetic and Scab ratings that differ from the over-all average by 1.0 or more. About two-thirds of the Scab values that differ this much from the over-all average, differ by no more than 1.3. It can be seen from a quick review of the ranges of values that as the average values for crabapples increase the spread from minimum to maximum spreads also. The average values of most of the crabapples that have an average value in an area differing by more than 1.3 from the over-all average have their values determined from 3 to 5 observations.

An interesting observation was noted when reviewing data plotted by location. When most crabapples were good, they were consistently good; when they were bad, they were consistently bad; and when they were in between, they were consistently in between. There were some exceptions, and for this reason there were notes recorded for those exceptions. A review of the data in the appendices for note numbers between 1 and 19 will indicate the number of exceptions that occurred.

The Radiant Crabapple is the most spectacular exception when it came to consistency of data. Data are available for Radiant from all 9 Time/Hardiness Zones. There are two zones in which the Aesthetic ratings differ from over-all average by more than 1.0 and three zones in which the Scab ratings differ from over-all average by more than 1.0. The Aesthetic ratings (2.3 and 1.6) and Scab ratings (0.0 and 0.1) for the two zones in the Mountain Time Zone were all significantly better than over-all averages (3.7 and 3.1 respectively), and the Scab rating in Pacific Time Zone and Hardiness Zone 8 (2.0 from 80 observations) was likewise better than over-all average (3.1 from 935 total observations). The worst Scab ratings for Radiant were in the Central Time Zone, Hardiness Zones 4 and 5 (3.6 and 3.7 respectively as compared to 3.1 for all observations).

TABLE 1

## ASTHETIC RATING

A listing of commercial crabapples evaluated in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>OUTSTANDING</b> ( Average Value 0.0 through 0.9 )					
<i>M.</i> 'Amberina' (Amberina)	0	2	0.7	7	
<i>M.</i> 'Coral Cascade' (Coral Cascade)	0	0	0.0	1	25
<i>M.</i> 'Red Peacock' (Red Peacock)	0	0	0.0	1	25
<i>M.</i> 'Serenade' (Serenade)	0	1	0.5	2	
<i>M.</i> 'Zumarang' (Zumarang <sup>(R)</sup> )	0	2	0.8	13	
<b>VERY ATTRACTIVE</b> ( Average Value 1.0 through 1.0 )					
<i>M.</i> 'Adams' (Adams)	0	4	1.5	221	11
<i>M.</i> 'Adirondack' (Adirondack)	1	3	1.6	7	
<i>M.</i> x <i>adstringens</i> 'Red Splendor' (Red Splendor)	0	4	1.8	212	
<i>M.</i> <i>baccata</i> f. <i>jackii</i> (Jack)	0	4	1.6	152	
<i>M.</i> 'Beverly' (Beverly)	0	4	1.9	195	19
<i>M.</i> 'Centzam' (Centurion <sup>(R)</sup> )	0	4	1.7	188	11,13
<i>M.</i> 'David' (David)	0	4	1.3	189	
<i>M.</i> 'Donald Wyman' (Donald Wyman)	0	4	1.0	231	
<i>M.</i> <i>floribunda</i> (Japanese Flowering)	0	4	1.8	213	11,12,16
<i>M.</i> 'Henningi' (Henning)	0	4	1.7	149	13
<i>M.</i> 'Indian Magic' (Indian Magic)	0	4	1.4	205	11
<i>M.</i> 'Indian Summer' (Indian Summer)	0	4	1.4	163	
<i>M.</i> 'Jewelberry' (Jewelberry)	0	4	1.8	140	
<i>M.</i> 'Jewelcole' (Red Jewel <sup>(TM)</sup> )	0	4	1.4	180	12
<i>M.</i> 'Leprechaun' (Leprechaun)	1	2	1.3	3	25
<i>M.</i> 'Manbeck Weeper' (Anne E <sup>(R)</sup> )	1	3	1.3	37	
<i>M.</i> 'Mary Potter' (Mary Potter)	0	5	1.3	214	14
<i>M.</i> x <i>moerlandsii</i> 'Profusion' (Profusion)	0	5	1.6	176	11,13
<i>M.</i> 'Molazam' (Molten Lava <sup>(R)</sup> )	0	4	1.2	170	
<i>M.</i> 'Ormiston Roy' (Ormiston Roy)	0	5	1.5	204	11,13

## AESTHETIC RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>VERY ATTRACTIVE</b> (Average 1.0 through 1.9) Cont.					
<i>M.</i> 'Prairifire' (Prairifire)	0	4	1.6	178	
<i>M.</i> 'Professor Sprenger' (Professor Sprenger)	0	4	1.1	164	11
<i>M.</i> 'Ralph Shay' (Ralph Shay)	0	4	1.8	258	11
<i>M.</i> 'Red Jade' (Red Jade)	0	5	1.8	223	11,12,16
<i>M.</i> 'Red Swan' (Red Swan)	0	4	1.6	9	
<i>M.</i> 'Robinson' (Robinson)	1	4	1.8	236	
<i>M. sargentii</i> (Sargent)	0	5	1.6	248	12,13
<i>M.</i> 'Schmidt Cutleaf' (Golden Raindrops <sup>TM</sup> )	0	2	1.1	14	
<i>M.</i> 'Sentinel' (Sentinel)	0	5	1.5	246	12,13
<i>M. sieboldii</i> (Toringo)	0	3	1.5	32	
<i>M.</i> 'Silver Drift' (Silver Drift)	0	2	1.4	16	
<i>M.</i> 'Silver Moon' (Silver Moon)	0	5	1.9	165	
<i>M.</i> 'Sinai Fire' (Sinai Fire)	0	3	1.2	37	
<i>M.</i> 'Snowdrift' (Snowdrift)	0	3	1.1	248	
<i>M.</i> 'Sutyzam' (Sugar Tyme <sup>®</sup> )	0	4	1.3	243	12
<i>M.</i> 'White Angel' (White Angel)	0	5	1.7	244	
<i>M.</i> 'Winter Gem' (Winter Gem)	0	4	1.3	25	
<i>M.</i> 'Yellow Jewel' (Yellow Jewel)	1	5	1.9	25	
<i>M.</i> x <i>zumi</i> (Zumi)	0	4	1.8	33	3,17
<i>M.</i> x <i>zumi</i> 'Bob White' (Bob White)	0	4	1.4	182	
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> (Redbud)	0	5	1.0	257	13
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> 'Yellow Fruit' (Yellow Fruit)	1	2	1.7	3	27

## AESTHETIC RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>ATTRACTIVE</b> (Average 2.0 through 2.9)					
<i>M.</i> x <i>adstringens</i> 'Kelsey' (Kelsey)	2	4	2.7	6	
<i>M.</i> 'Amerspirzam' (American Spirit <sup>TM</sup> )	1	4	2.0	7	27
<i>M. baccata</i> (Siberian)	0	4	2.4	25	
<i>M. baccata</i> 'Snowcap' (Snowcap)	1	4	2.7	17	
<i>M.</i> 'Blanche Ames' (Blanche Ames)	1	3	2.5	16	
<i>M.</i> 'Burgandy' (Burgandy)	1	4	2.5	23	
<i>M.</i> 'Callaway' (Callaway)	1	4	2.7	12	
<i>M.</i> 'Camzam' (Camelot <sup>TM</sup> )	1	3	2.2	11	27
<i>M.</i> 'Canary' (Canary)	1	3	2.6	7	
<i>M.</i> 'Cascole' (White Cascade <sup>TM</sup> )	1	5	2.4	164	
<i>M. coronaria</i> (Wild Sweet)	1	5	2.8	8	
<i>M.</i> 'Doubloons' (Doubloons)	1	4	2.2	26	
<i>M.</i> 'Edna Mullins' (Edna Mullins)	2	4	2.9	12	27
<i>M.</i> 'Egret' (Egret)	1	3	2.5	4	
<i>M.</i> 'Ellen Gerhart' (Ellen Gerhart)	0	4	2.0	55	18
<i>M.</i> 'Excazam' (Excalibur <sup>TM</sup> )	2	3	2.4	7	27
<i>M.</i> 'Guinzam' (Guinevere <sup>TM</sup> )	2	4	2.9	9	27
<i>M. halliana</i> var. <i>spontanea</i> (Halliana Spontanea)	0	3	2.4	17	
<i>M.</i> 'Hamzam' (Hamlet <sup>TM</sup> )	2	3	2.7	9	27
<i>M.</i> 'Hargozam' (Harvest Gold <sup>TM</sup> )	0	4	2.1	138	11
<i>M.</i> 'Henry F. DuPont' (Henry F. DuPont)	1	5	2.8	29	
<i>M.</i> 'Henry Kohankie' (Henry Kohankie)	1	3	2.1	15	
<i>M. hupehensis</i> (Tea)	0	4	2.0	162	12,13
<i>M. hupehensis</i> 'Strawberry Parfait' (Strawberry Parfait)	0	5	2.3	174	13
<i>M.</i> 'Kibele' (Kibele)	1	4	2.8	11	
<i>M.</i> 'Kinarzam' (King Arthur <sup>TM</sup> )	1	3	2.2	11	27
<i>M.</i> 'Lanzam' (Lancelot <sup>TM</sup> )	1	3	2.6	13	
<i>M.</i> 'Louisa' (Louisa)	1	4	2.2	30	
<i>M.</i> x <i>micromalus</i> (Midget)	1	4	2.9	28	
<i>M.</i> x <i>moerlandsii</i> 'Liset' (Liset)	0	4	2.0	155	

## AESTHETIC RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>ATTRACTIVE</b> ( Average 2.0 through 2.9 ) Cont.					
<i>M.</i> 'Mount Arbor' (Mount Arbor)	1	3	2.0	5	25
<i>M.</i> 'Naragansett' (Naragansett)	2	2	2.0	1	29
<i>M.</i> 'Park Centre' (Park Centre)	1	4	2.6	17	
<i>M.</i> 'Pink Satin' (Pink Satin)	1	3	2.1	19	
<i>M.</i> 'Pink Spires' (Pink Spires)	1	4	2.4	34	
<i>M.</i> 'Prairie Maid' (Prairie Maid)	1	3	2.4	10	
<i>M.</i> 'Red Barron' (Red Barron)	0	5	2.1	231	11,12
<i>M. sargentii</i> 'Candy mint' (Candy mint Sargent)	1	3	2.6	19	
<i>M. sargentii</i> 'Rosea' (Pinkbud Sargent)	1	4	2.0	21	
<i>M. sargentii</i> 'Tina' (Tina Sargent)	1	4	2.0	21	
<i>M.</i> 'Satin Cloud' (Satin Cloud)	2	3	2.5	2	27
<i>M.</i> 'Snow Magic' (Snow Magic)	1	4	2.2	33	
<i>M. spectabilis</i> 'Van Eseltine' (Van Eseltine)	2	4	2.8	30	
<i>M.</i> 'Spring Song' (Spring Song)	1	4	2.1	7	
<i>M.</i> 'Thunderchild' (Thunderchild)	2	2	2.0	4	24
<i>M. toringo</i> 'Winter Gold' (Winter Gold)	0	4	2.1	193	11
<i>M. tschonoskii</i> (Tschonoski)	1	5	2.5	154	1,13
<i>M.</i> 'Velvetcole' (Velvet Pillar <sup>(TM)</sup> )	0	5	2.9	205	
<i>M.</i> 'Weepcanzam' (Weeping Candied Apple <sup>(TM)</sup> )	0	4	2.1	215	
<i>M. x zumi</i> var. <i>calocarpa</i> 'Red Fruit' (Red Fruit)	2	2	2.0	2	27

### LESS ATTRACTIVE ( Average 3.0 through 3.0 )

<i>M. x adstringens</i> 'Hopa' (Hopa)	1	5	3.7	174	3
<i>M. x adstringens</i> 'Radiant' (Radiant)	1	5	3.7	245	2,3
<i>M. x adstringens</i> 'Royalty' (Royalty)	0	5	3.1	202	12
<i>M. x adstringens</i> 'Selkirk' (Selkirk)	1	4	3.0	190	2,3
<i>M. x adstringens</i> 'Sparkler' (Sparkler)	1	5	3.8	44	

## AESTHETIC RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>LESS ATTRACTIVE</b> (Average 3.0 through 3.9 ) Cont.					
<i>M. x adstringens</i> 'Vanguard' (Vanguard)	2	5	3.9	31	
<i>M.</i> 'American Beauty' (American Beauty)	1	5	3.3	16	2
<i>M. angustifolia</i> 'Plena' (Prince Georges)	2	4	3.3	6	
<i>M. x arnoldiana</i> (Arnold)	1	5	3.3	41	
<i>M. x atrosanguinea</i> (Carmine)	2	4	3.3	24	
<i>M. baccata</i> f. <i>columnaris</i> (Column Siberian)	1	5	3.8	32	
<i>M. baccata</i> 'Spring Snow' (Spring Snow)	2	4	3.2	46	
<i>M.</i> 'Baskatong' (Baskatong)	2	4	3.5	14	
<i>M.</i> 'Big River' (Big River)	3	4	3.9	7	
<i>M.</i> 'Branzam' (Brandywine <sup>(TM)</sup> )	0	5	3.7	46	
<i>M.</i> 'Cascade' (Cascade)	2	4	3.5	4	28
<i>M.</i> 'Centennial' (Centennial)	2	5	3.3	19	
<i>M.</i> 'Chestnut' (Chestnut)	2	5	3.6	14	
<i>M.</i> 'Cinzam' (Cinderella <sup>(TM)</sup> )	3	3	3.0	8	27
<i>M.</i> 'Coralcole' (Coralburst <sup>(TM)</sup> )	1	4	3.0	62	
<i>M. coronaria</i> var. <i>dasycalyx</i> 'Charlottae' (Charlotte)	3	5	3.9	15	
<i>M.</i> 'Dainty' (Dainty)	3	5	3.9	21	
<i>M.</i> 'Dorothea' (Dorothea)	1	5	3.2	62	
<i>M.</i> 'Exzellenz Thiel' (Exzellenz Thiel)	3	4	3.8	10	
<i>M.</i> 'Flame' (Flame)	1	5	3.7	55	
<i>M.</i> 'Golden Hornet' (Golden Hornet)	1	4	3.5	38	
<i>M. ioensis</i> (Prairie)	3	4	3.5	21	
<i>M. ioensis</i> f. <i>plena</i> (Bechtel)	1	5	3.4	9	
<i>M.</i> 'John Downie' (John Downie)	3	4	3.7	6	
<i>M.</i> 'Katherine' (Katherine)	2	5	3.0	45	
<i>M. mandshurica</i> (Manchurian)	1	4	3.1	21	
<i>M.</i> 'Mazam' (Madonna <sup>(R)</sup> )	2	5	3.2	26	
<i>M.</i> 'Oekonomierat Echtermeyer' (Echtermeyer)	2	4	3.6	19	
<i>M.</i> 'Parrsii' (Pink Princess <sup>(TM)</sup> )	3	3	3.0	4	

### AESTHETIC RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>LESS ATTRACTIVE</b> ( Average 3.0 through 3.9 ) Cont.					
<i>M.</i> 'Pink Cascade' (Pink Cascade)	2	4	3.4	16	
<i>M.</i> 'Pink Perfection' (Pink Perfection)	2	5	3.9	13	
<i>M. prunifolia</i> 'Fructu-coccinea' (Cheal's Crimson)	2	5	3.7	24	
<i>M.</i> 'Purple Wave' (Purple Wave)	3	5	3.8	25	
<i>M. x purpurea</i> 'Aldenhamensis' (Aldenham)	0	4	3.5	51	
<i>M. x purpurea</i> 'Lemoinei' (Lemoine)	2	5	3.4	27	
<i>M. x robusta</i> 'Beauty' (Beauty)	3	4	3.6	19	
<i>M. x robusta</i> 'Dolgo' (Dolgo)	1	5	3.3	195	3
<i>M.</i> 'Royal Ruby' (Royal Ruby)	3	4	3.6	11	
<i>M.</i> 'Roisceam' (Royal Scepter <sup>TM</sup> )	2	4	3.0	2	
<i>M.</i> 'Ruby Luster' (Ruby Luster)	1	5	3.5	157	13,11
<i>M.</i> 'Ruth Ann' (Ruth Ann)	3	4	3.3	6	
<i>M. x scheideckeri</i> (Scheidecker)	3	5	3.7	44	
<i>M. x scheideckeri</i> 'Hillier' (Hillier)	2	5	3.8	38	
<i>M.</i> 'Shakespeare' (Shakespeare)	2	4	3.2	9	
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Makamik' (Makamik)	1	4	3.3	33	
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Rosseau' (Rosseau)	2	4	3.5	13	
<i>M.</i> 'Snowcloud' (Snowcloud)	2	4	3.4	14	
<i>M.</i> 'Tops-In-Bloom' (Tops-In-Bloom)	3	4	3.5	6	
<i>M.</i> 'White Candle' (White Candle)	2	5	3.4	23	
<i>M. yunnanensis</i> var. <i>veitchii</i> (Veitch)	1	5	3.1	118	1

### AESTHETIC RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>UNATTRACTIVE</b> ( Average 4.0 through 5.0 )					
<i>M. x adstringens</i> 'Almey' (Almey)	2	5	4.1	20	
<i>M. x adstringens</i> 'Sundog' (Sundog)	3	5	4.0	13	
<i>M. ioensis</i> 'Klehm's Improved Bechtel' (Klehm's Improved Bechtel)	3	5	4.2	22	
<i>M. x purpurea</i> var. <i>eleyi</i> (Eleyi)	3	5	4.1	77	
<i>M.</i> 'Pygmy' (Pygmy)	3	5	4.1	13	
<i>M.</i> 'Strathmore' (Strathmore)	4	5	4.2	24	

#### NOTES:

- (1) Based on numerical scale of 0 to 5. See Chapter 3 for discussion.
- (2) Refer to APPENDIX A for comments applicable.

**TABLE 2**

**SCAB RATING**

A listing of commercial crabapples evaluated in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT ( Average 0.0 through 0.9 )</b>					
<i>M.</i> 'Adams' (Adams)	0	4	0.5	490	16
<i>M.</i> 'Adirondack' (Adirondack)	0	2	0.6	5	
<i>M.</i> x <i>adstringens</i> 'Red Splendor' (Red Splendor)	0	5	0.9	478	14
<i>M.</i> x <i>adstringens</i> 'Selkirk' (Selkirk)	0	3	0.5	664	
<i>M.</i> x <i>adstringens</i> 'Sundog' (Sundog)	0	4	0.6	73	
<i>M.</i> 'Amberina' (Amberina)	0	4	0.9	61	
<i>M.</i> <i>angustifolia</i> 'Plena' (Prince Georges)	0	4	0.3	123	
<i>M.</i> <i>baccata</i> (Siberian)	0	4	0.5	168	
<i>M.</i> <i>baccata</i> f. <i>jackii</i> (Jack)	0	3	0.1	431	
<i>M.</i> <i>baccata</i> 'Snowcap' (Snowcap)	0	4	0.7	158	
<i>M.</i> 'Baskatong' (Baskatong)	0	5	0.2	111	
<i>M.</i> 'Beverly' (Beverly)	0	4	0.1	485	
<i>M.</i> 'Big River' (Big River)	0	2	0.4	10	
<i>M.</i> 'Blanche Ames' (Blanche Ames)	0	4	0.7	88	
<i>M.</i> 'Branzam' (Brandywine <sup>(TM)</sup> )	0	5	0.7	236	
<i>M.</i> 'Burgandy' (Burgandy)	0	4	0.8	175	
<i>M.</i> 'Callaway' (Callaway)	0	2	0.1	53	
<i>M.</i> 'Camzam' (Camelot <sup>(TM)</sup> )	0	0	0.0	11	27
<i>M.</i> 'Canary' (Canary)	0	2	0.5	4	27
<i>M.</i> 'Cascole' (White Cascade <sup>(TM)</sup> )	0	4	0.5	315	
<i>M.</i> 'Centennial' (Centennial)	0	2	0.2	100	
<i>M.</i> 'Centzam' (Centurion <sup>(R)</sup> )	0	4	0.8	443	16
<i>M.</i> 'Chestnut' (Chestnut)	0	4	0.8	35	
<i>M.</i> 'Coral Cascade' (Coral Cascade)	0	1	0.2	30	
<i>M.</i> 'Coralcole' (Coralburst <sup>(TM)</sup> )	0	4	0.7	213	
<i>M.</i> 'David' (David)	0	3	0.2	458	
<i>M.</i> 'Donald Wyman' (Donald Wyman)	0	4	0.4	580	
<i>M.</i> 'Dobloons' (Dobloons)	0	3	0.7	29	

**SCAB RATING**

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT ( Average 0.0 through 0.9 ) Cont.</b>					
<i>M.</i> 'Excizam' (Excalibur <sup>(TM)</sup> )	0	0	0.0	7	27
<i>M.</i> <i>flortbunda</i> (Japanese Flowering)	0	3	0.1	768	
<i>M.</i> 'Golden Harvest' (Golden Harvest)	0	3	0.6	7	
<i>M.</i> 'Golden Hornet' (Golden Hornet)	0	4	0.1	220	
<i>M.</i> 'Guinzam' (Guinevere <sup>(TM)</sup> )	0	0	0.0	9	27
<i>M.</i> <i>halliana</i> var. <i>spontanea</i> (Halliana Spontanea)	0	0	0.0	82	
<i>M.</i> 'Hamzam' (Hamlet <sup>(TM)</sup> )	0	0	0.0	9	27
<i>M.</i> 'Hargozam' (Harvest Gold <sup>(TM)</sup> )	0	4	0.8	254	
<i>M.</i> 'Henningi' (Henning)	0	4	0.7	247	17
<i>M.</i> 'Henry Kohankie' (Henry Kohankie)	0	3	0.0	178	
<i>M.</i> <i>hupehensis</i> (Tea)	0	3	0.1	448	
<i>M.</i> <i>hupehensis</i> 'Strawberry Parfait' (Strawberry Parfait)	0	4	0.4	235	
<i>M.</i> <i>ioensis</i> 'Plena Improved' (Plena Improved)	0	3	0.9	49	
<i>M.</i> 'Jewelberry' (Jewelberry)	0	4	0.7	271	
<i>M.</i> 'Jewelcole' (Red Jewel <sup>(TM)</sup> )	0	4	0.2	428	
<i>M.</i> 'Kinarzam' (King Arthur <sup>(TM)</sup> )	0	0	0.0	11	27
<i>M.</i> 'Kirk' (Kirk)	0	3	0.5	33	
<i>M.</i> 'Leprechaun' (Leprechaun)	0	3	0.1	60	
<i>M.</i> 'Louisa' (Louisa)	0	1	0.2	34	
<i>M.</i> 'Lullaby' (Lullaby)	0	1	0.4	19	
<i>M.</i> 'Manbeck Weeper' (Anne E <sup>(R)</sup> )	0	2	0.6	50	
<i>M.</i> 'Mary Potter' (Mary Potter)	0	4	0.3	647	14
<i>M.</i> x <i>micromalus</i> (Midget)	0	3	0.1	194	
<i>M.</i> x <i>moerlandsii</i> 'Liset' (Liset)	0	3	0.2	392	
<i>M.</i> x <i>moerlandsii</i> 'Profusion' (Profusion)	0	5	0.7	441	
<i>M.</i> 'Molazam' (Molten Lava <sup>(R)</sup> )	0	4	0.4	242	
<i>M.</i> 'Mount Arbor' (Mount Arbor)	0	1	0.1	24	
<i>M.</i> 'Ormiston Roy' (Ormiston Roy)	0	4	0.2	392	11
<i>M.</i> 'Park Centre' (Park Centre)	0	0	0.0	17	

### SCAB RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> (Average 0.0 through 0.9) Cont.					
<i>M.</i> 'Parsii' (Pink Princess <sup>TM</sup> )	0	2	0.4	5	
<i>M.</i> 'Pink Spires' (Pink Spires)	0	5	0.8	243	
<i>M.</i> 'Prairie Maid' (Prairie Maid)	0	0	0.0	8	
<i>M.</i> 'Prairifire' (Prairifire)	0	2	0.1	237	
<i>M.</i> 'Professor Sprenger'					
(Professor Sprenger)	0	3	0.3	259	
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Makamik'					
(Makamik)	0	3	0.3	147	
<i>M.</i> 'Red Jade' (Red Jade)	0	4	0.9	785	2,3
<i>M.</i> 'Red Peacock' (Red Peacock)	0	3	0.3	36	
<i>M.</i> 'Red Swan' (Red Swan)	0	2	0.5	64	
<i>M.</i> 'Robinson' (Robinson)	0	5	0.9	395	
<i>M. x robusta</i> 'Beauty' (Beauty)	0	4	0.6	87	17
<i>M. x robusta</i> 'Dolgo' (Dolgo)	0	5	0.2	470	
<i>M. sargentii</i> (Sargent)	0	4	0.0	876	
<i>M. sargentii</i> 'Tina' (Tina Sargent)	0	2	0.0	107	
<i>M.</i> 'Satin Cloud' (Satin Cloud)	0	0	0.0	58	
<i>M.</i> 'Schmidt Cutleaf'					
(Golden Raindrops <sup>TM</sup> )	0	0	0.0	11	
<i>M.</i> 'Sentinel' (Sentinel)	0	3	0.3	393	
<i>M.</i> 'Serenade' (Serenade)	0	1	0.2	41	
<i>M. sieboldii</i> (Toringo)	0	4	0.2	149	
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Rosseau'					
(Rosseau)	0	4	0.1	67	
<i>M.</i> 'Silver Moon' (Silver Moon)	0	3	0.1	316	
<i>M.</i> 'Sinai Fire' (Sinai Fire)	0	3	0.7	41	19
<i>M.</i> 'Snowdrift' (Snowdrift)	0	4	0.7	1002	
<i>M. spectabilis</i> 'Van Eseltine'					
(Van Eseltine)	0	4	0.9	532	
<i>M.</i> 'Sutyzam' (Sugar Tyme <sup>R</sup> )	0	3	0.3	419	
<i>M. tschonoskii</i> (Tschonoski)	0	2	0.1	406	

### SCAB RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> (Average 0.0 through 0.9) Cont.					
<i>M.</i> 'Weepcanzam'					
(Weeping Candied Apple <sup>TM</sup> )	0	5	0.8	389	
<i>M.</i> 'White Angel' (White Angel)	0	3	0.1	718	
<i>M.</i> 'White Candle' (White Candle)	0	5	0.8	271	
<i>M. yunnanensis</i> var. <i>veitchii</i> (Veitch)	0	4	0.2	281	
<i>M.</i> 'Zumarang' (Zumarang <sup>R</sup> )	0	3	0.6	14	
<i>M. x zumi</i> 'Bob White' (Bob White)	0	2	0.1	438	
<i>M. x zumi</i> var. <i>calocarpa</i> (Redbud)	0	3	0.1	1073	
<i>M. x zumi</i> var. <i>calocarpa</i> 'Red Fruit'					
(Red Fruit)	0	0	0.0	2	27
<i>M. x zumi</i> var. <i>calocarpa</i> 'Yellow Fruit'					
(Yellow Fruit)	0	0	0.0	4	27
<b>RESISTANT</b> (Average 1.0 through 1.9)					
<i>M. x adstringens</i> 'Kelsey' (Kelsey)	0	4	1.1	96	
<i>M. x adstringens</i> 'Royalty' (Royalty)	0	5	1.5	952	2,3,14
<i>M. x atrosanguinea</i> (Carmine)	0	5	1.9	465	18
<i>M. baccata</i> f. <i>columnaris</i>					
(Column Siberian)	0	5	1.1	255	4
<i>M. baccata</i> 'Spring Snow' (Spring Snow)	0	5	1.2	380	1,17
<i>M. coronaria</i> (Wild Sweet)	0	5	1.4	44	17
<i>M.</i> 'Egret' (Egret)	0	3	1.0	44	18
<i>M.</i> 'Indian Magic' (Indian Magic)	0	5	1.5	539	2,3
<i>M.</i> 'Indian Summer' (Indian Summer)	0	5	1.0	348	2,17
<i>M. ioensis</i> 'Klehm's Improved Bechtel'					
(Klehm's Improved Bechtel)	0	5	1.8	118	1,8
<i>M. ioensis</i> f. <i>plena</i> (Bechtel)	0	5	1.7	62	
<i>M.</i> 'John Downie' (John Downie)	0	4	1.6	33	6
<i>M.</i> 'Katherine' (Katherine)	0	5	1.8	383	5,9
<i>M.</i> 'Kibele' (Kibele)	0	5	1.3	80	15,17
<i>M.</i> 'Lanzam' (Lancelot <sup>TM</sup> )	0	2	1.0	15	

## SCAB RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>RESISTANT</b> ( Average 1.0 through 1.9 ) Cont.					
<i>M. mandshurica</i> (Manchurian)	0	4	1.1	196	
<i>M.</i> 'Mazam' (Madonna <sup>(R)</sup> )	0	5	1.1	74	3
<i>M.</i> 'Pink Cascade' (Pink Cascade)	0	5	1.1	95	1,8
<i>M.</i> 'Pink Satin' (Pink Satin)	0	4	1.6	24	
<i>M.</i> 'Pygmy' (Pygmy)	0	5	1.3	103	1,15
<i>M.</i> 'Ralph Shay' (Ralph Shay)	0	4	1.0	415	
<i>M.</i> 'Red Barron' (Red Barron)	0	5	1.1	442	3,9
<i>M.</i> 'Royal Ruby' (Royal Ruby)	0	4	1.9	329	
<i>M.</i> 'Ruby Luster' (Ruby Luster)	0	5	1.8	162	2,11,18
<i>M.</i> 'Ruth Ann' (Ruth Ann)	0	4	1.0	82	
<i>M. sargentii</i> 'Rosea' (Pinkbud Sargent)	0	4	1.9	85	
<i>M. x scheideckeri</i> 'Hillier' (Hillier)	0	5	1.5	233	9,18
<i>M.</i> 'Silver Drift' (Silver Drift)	0	2	1.6	12	
<i>M.</i> 'Snow Magic' (Snow Magic)	0	4	1.1	130	1
<i>M.</i> 'Spring Song' (Spring Song)	0	3	1.0	17	
<i>M. toringo</i> 'Winter Gold' (Winter Gold)	0	5	1.4	480	9
<i>M.</i> 'Velvetcol' (Velvet Pillar <sup>(TM)</sup> )	0	5	1.3	346	2,3
<i>M.</i> 'Winter Gem' (Winter Gem)	0	3	1.3	19	
<i>M.</i> 'Yellow Jewel' (Yellow Jewel)	0	5	1.0	140	7
<i>M. x zumi</i> (Zumi)	0	5	1.3	115	3,8

### MODERATELY SUSCEPTIBLE ( Average 2.0 through 2.9 )

<i>M. x adstringens</i> 'Sparkler' (Sparkler)	0	5	2.2	260	5,18
<i>M.</i> 'American Beauty' (American Beauty)	0	5	2.3	200	2
<i>M.</i> 'Amerspirzam' (American Spirit <sup>(TM)</sup> )	0	4	2.6	8	27
<i>M. x arnoldiana</i> (Arnold)	0	5	2.8	317	1
<i>M.</i> 'Cascade' (Cascade)	0	5	2.1	107	7
<i>M.</i> 'Cinzam' (Cinderella <sup>(TM)</sup> )	0	4	2.4	10	27
<i>M. coronaria</i> var. <i>dasycalyx</i> 'Charlottae' (Charlotte)	0	5	2.3	70	
<i>M.</i> 'Dainty' (Dainty)	0	5	2.7	82	4

## SCAB RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>MODERATELY SUSCEPTIBLE</b> ( Average 2.0 through 2.9 ) Cont.					
<i>M.</i> 'Edna Mullins' (Edna Mullins)	0	4	2.3	77	
<i>M.</i> 'Ellen Gerhart' (Ellen Gerhart)	0	5	2.0	204	5
<i>M.</i> 'Exzellenz Thiel' (Exzellenz Thiel)	0	5	2.6	69	
<i>M.</i> 'Flame' (Flame)	0	5	2.8	262	4,9
<i>M.</i> 'Henry F. DuPont' (Henry F. DuPont)	0	5	2.0	194	
<i>M. ioensis</i> (Prairie)	0	4	2.1	115	
<i>M.</i> 'Naragansett' (Naragansett)	2	2	2.0	1	29
<i>M.</i> 'Oekonomierat Echtermeyer' (Echtermeyer)	0	5	2.2	333	
<i>M.</i> 'Pink Perfection' (Pink Perfection)	0	5	2.6	271	
<i>M. prunifolia</i> 'Fructu-coccinea' (Cheal's Crimson)	0	5	2.2	82	8
<i>M.</i> 'Purple Wave' (Purple Wave)	0	5	2.8	143	
<i>M. x purpurea</i> 'Aldenhamensis' (Aldenham)	0	5	2.9	199	
<i>M. sargentii</i> 'Candy mint' (Candy mint Sargent)	0	4	2.1	22	
<i>M. x scheideckeri</i> (Scheidecker)	0	5	2.1	248	1
<i>M.</i> 'Shakespeare' (Shakespeare)	0	4	2.7	9	
<i>M.</i> 'Snowcloud' (Snowcloud)	0	5	2.2	234	
<i>M.</i> 'Thunderchild' (Thunderchild)	0	4	2.0	26	4,15
<i>M.</i> 'Tops-In-Bloom' (Tops-In-Bloom)	0	5	2.5	50	

### SCAB RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>VERY SUSCEPTIBLE</b> ( Average 3.0 to 3.9 )					
<i>M. x adstringens</i> 'Almey' (Almey)	0	5	3.3	202	1,4,9
<i>M. x adstringens</i> 'Hopa' (Hopa)	0	5	3.0	502	1,3
<i>M. x adstringens</i> 'Radiant' (Radiant)	0	5	3.1	935	1,2,3,6
<i>M. x adstringens</i> 'Vanguard' (Vanguard)	0	5	3.3	143	
<i>M.</i> 'Dorothea' (Dorothea)	0	5	3.1	419	1
<i>M. x purpurea</i> var. <i>eleyi</i> (Eleyi)	0	5	3.6	536	1
<i>M. x purpurea</i> 'Lemoinei' (Lemoine)	0	5	3.2	200	
<i>M.</i> 'Royscezam' (Royal Scepter <sup>TM</sup> )	2	4	3.0	2	
<i>M.</i> 'Strathmore' (Strathmore)	0	5	3.5	162	

### EXTREMELY SUSCEPTIBLE

 ( Average 4.0 to 5.0 )

<i>M. baccata</i> 'Walters' (Walters)	4	4	4.0	1	27
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#### NOTES:

(1) Based on numerical scale of 0 to 5. See Chapter 3 for discussion.

(2) Refer to APPENDIX A for comments applicable.

### TABLE 3

### CEDAR/APPLE RUST RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> ( High Value = 0 )					
<i>M.</i> 'Adirondack' (Adirondack)	0	0	0.0	5	
<i>M. x adstringens</i> 'Almey' (Almey)	0	0	0.0	202	
<i>M. x adstringens</i> 'Sparkler' (Sparkler)	0	0	0.0	260	
<i>M. x adstringens</i> 'Vanguard' (Vanguard)	0	0	0.0	143	
<i>M.</i> 'Amberina' (Amberina)	0	0	0.0	61	
<i>M.</i> 'American Beauty' (American Beauty)	0	0	0.0	200	
<i>M.</i> 'Amerspirzam' (American Spirit <sup>TM</sup> )	0	0	0.0	8	27
<i>M. x arnoldiana</i> (Arnold)	0	0	0.0	317	
<i>M. x atrosanguinea</i> (Carmine)	0	0	0.0	465	
<i>M. baccata</i> (Siberian)	0	0	0.0	168	
<i>M. baccata</i> 'Snowcap' (Snowcap)	0	0	0.0	158	
<i>M. baccata</i> 'Spring Snow' (Spring Snow)	0	0	0.0	379	
<i>M. baccata</i> 'Walters' (Walters)	0	0	0.0	1	27
<i>M.</i> 'Baskatong' (Baskatong)	0	0	0.0	111	
<i>M.</i> 'Big River' (Big River)	0	0	0.0	10	
<i>M.</i> 'Blanche Ames' (Blanche Ames)	0	0	0.0	88	
<i>M.</i> 'Burgandy' (Burgandy)	0	0	0.0	175	
<i>M.</i> 'Camzam' (Camelot <sup>TM</sup> )	0	0	0.0	11	27
<i>M.</i> 'Canary' (Canary)	0	0	0.0	4	27
<i>M.</i> 'Cascade' (Cascade)	0	0	0.0	107	
<i>M.</i> 'Centennial' (Centennial)	0	0	0.0	100	
<i>M.</i> 'Centzam' (Centurion <sup>R</sup> )	0	0	0.0	443	
<i>M.</i> 'Chestnut' (Chestnut)	0	0	0.0	35	
<i>M.</i> 'Cinzam' (Cinderella <sup>TM</sup> )	0	0	0.0	10	27
<i>M.</i> 'Coral Cascade' (Coral Cascade)	0	0	0.0	30	
<i>M.</i> 'Coralcole' (Coralburst <sup>TM</sup> )	0	0	0.0	213	
<i>M.</i> 'Dainty' (Dainty)	0	0	0.0	82	
<i>M.</i> 'Donald Wyman' (Donald Wyman)	0	0	0.0	580	
<i>M.</i> 'Dobloons' (Dobloons)	0	0	0.0	29	



### CEDAR/APPLE RUST RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT ( High Value = 0 ) Cont.</b>					
<i>M.</i> 'Egret' (Egret)	0	0	0.0	44	
<i>M.</i> 'Excazam' (Excalibur <sup>TM</sup> )	0	0	0.0	7	27
<i>M.</i> 'Exzellenz Thiel' (Exzellenz Thiel)	0	0	0.0	69	
<i>M.</i> 'Flame' (Flame)	0	0	0.0	262	
<i>M.</i> <i>floribunda</i> (Japanese Flowering)	0	0	0.0	768	
<i>M.</i> 'Golden Hornet' (Golden Hornet)	0	0	0.0	220	
<i>M.</i> 'Guinzam' (Guinevere <sup>TM</sup> )	0	0	0.0	9	27
<i>M.</i> <i>halliana</i> var. <i>spontanea</i> (Halliana Spontanea)	0	0	0.0	82	
<i>M.</i> 'Hamzam' (Hamlet <sup>TM</sup> )	0	0	0.0	9	27
<i>M.</i> <i>hupehensis</i> (Tea)	0	0	0.0	448	
<i>M.</i> <i>hupehensis</i> 'Strawberry Parfait' (Strawberry Parfait)	0	0	0.0	235	
<i>M.</i> 'Indian Summer' (Indian Summer)	0	0	0.0	348	
<i>M.</i> 'Kibele' (Kibele)	0	0	0.0	80	
<i>M.</i> 'Kinarzam' (King Arthur <sup>TM</sup> )	0	0	0.0	11	27
<i>M.</i> 'Kirk' (Kirk)	0	0	0.0	33	
<i>M.</i> 'Lanzam' (Lancelot <sup>TM</sup> )	0	0	0.0	15	
<i>M.</i> 'Leprechaun' (Leprechaun)	0	0	0.0	60	
<i>M.</i> 'Louisa' (Louisa)	0	0	0.0	34	
<i>M.</i> 'Lullaby' (Lullaby)	0	0	0.0	19	
<i>M.</i> 'Manbeck Weeper' (Anne E <sup>®</sup> )	0	0	0.0	50	
<i>M.</i> 'Mazam' (Madonna <sup>®</sup> )	0	0	0.0	74	
<i>M.</i> x <i>micromalus</i> (Midget)	0	0	0.0	194	
<i>M.</i> x <i>moerlandsii</i> 'Liset' (Liset)	0	0	0.0	392	
<i>M.</i> 'Mount Arbor' (Mount Arbor)	0	0	0.0	24	
<i>M.</i> 'Naragansett' (Naragansett)	0	0	0.0	1	29
<i>M.</i> 'Oekonomierat Echtermeyer' (Echtermeyer)	0	0	0.0	333	
<i>M.</i> 'Park Centre' (Park Centre)	0	0	0.0	17	
<i>M.</i> 'Parsii' (Pink Princess <sup>TM</sup> )	0	0	0.0	5	
<i>M.</i> 'Pink Perfection' (Pink Perfection)	0	0	0.0	271	

### CEDAR/APPLE RUST RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT ( High Value = 0 ) Cont.</b>					
<i>M.</i> 'Pink Satin' (Pink Satin)	0	0	0.0	24	
<i>M.</i> 'Pink Spires' (Pink Spires)	0	0	0.0	243	
<i>M.</i> 'Prairie Maid' (Prairie Maid)	0	0	0.0	8	
<i>M.</i> 'Professor Sprenger' (Professor Sprenger)	0	0	0.0	259	
<i>M.</i> <i>prunifolia</i> 'Fructu-coccinea' (Cheal's Crimson)	0	0	0.0	82	
<i>M.</i> <i>stevensii</i> var. <i>niedzwetzkyana</i> 'Makamik' (Makamik)	0	0	0.0	147	
<i>M.</i> 'Purple Wave' (Purple Wave)	0	0	0.0	143	
<i>M.</i> x <i>purpurea</i> var. <i>eleyi</i> (Eleyi)	0	0	0.0	536	
<i>M.</i> x <i>purpurea</i> 'Lemoinei' (Lemoine)	0	0	0.0	200	
<i>M.</i> 'Pygmy' (Pygmy)	0	0	0.0	103	
<i>M.</i> 'Red Peacock' (Red Peacock)	0	0	0.0	36	
<i>M.</i> 'Red Swan' (Red Swan)	0	0	0.0	64	
<i>M.</i> x <i>robusta</i> 'Dolgo' (Dolgo)	0	0	0.0	470	
<i>M.</i> 'Royal Ruby' (Royal Ruby)	0	0	0.0	329	
<i>M.</i> 'Roiscezam' (Royal Scepter <sup>TM</sup> )	0	0	0.0	2	
<i>M.</i> 'Ruby Luster' (Ruby Luster)	0	0	0.0	162	
<i>M.</i> 'Ruth Ann' (Ruth Ann)	0	0	0.0	82	
<i>M.</i> <i>sargentii</i> (Sargent)	0	0	0.0	876	
<i>M.</i> <i>sargentii</i> "Candy mint" (Candy mint Sargent)	0	0	0.0	22	
<i>M.</i> <i>sargentii</i> 'Rosea' (Pinkbud Sargent)	0	0	0.0	85	
<i>M.</i> <i>sargentii</i> 'Tina' (Tina Sargent)	0	0	0.0	107	
<i>M.</i> 'Satin Cloud' (Satin Cloud)	0	0	0.0	58	
<i>M.</i> 'Schmidt Cutleaf' (Golden Raindrops <sup>TM</sup> )	0	0	0.0	11	
<i>M.</i> 'Serenade' (Serenade)	0	0	0.0	41	
<i>M.</i> 'Shakespeare' (Shakespeare)	0	0	0.0	9	
<i>M.</i> <i>sieboldii</i> (Toringo)	0	0	0.0	149	

### CEDAR/APPLE RUST RATING

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	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> ( High Value = 0 ) Cont.					
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Rosseau'					
(Rosseau)	0	0	0.0	67	
<i>M.</i> 'Silver Drift' (Silver Drift)	0	0	0.0	12	
<i>M.</i> 'Silver Moon' (Silver Moon)	0	0	0.0	316	
<i>M.</i> 'Sinai Fire' (Sinai Fire)	0	0	0.0	41	
<i>M.</i> 'Snow Magic' (Snow Magic)	0	0	0.0	130	
<i>M.</i> 'Snowdrift' (Snowdrift)	0	0	0.0	1002	
<i>M. spectabilis</i> 'Van Eseltine'					
(Van Eseltine)	0	0	0.0	532	
<i>M.</i> 'Spring Song' (Spring Song)	0	0	0.0	17	
<i>M.</i> 'Strathmore' (Strathmore)	0	0	0.0	162	
<i>M.</i> 'Sutyzam' (Sugar Tyme <sup>(R)</sup> )	0	0	0.0	419	
<i>M.</i> 'Thunderchild' (Thunderchild)	0	0	0.0	26	
<i>M.</i> 'Tops-In-Bloom' (Tops-In-Bloom)	0	0	0.0	50	
<i>M.</i> 'Velvetcole' (Velvet Pillar <sup>(TM)</sup> )	0	0	0.0	346	
<i>M.</i> 'White Candle' (White Candle)	0	0	0.0	271	
<i>M.</i> 'Winter Gem' (Winter Gem)	0	0	0.0	19	
<i>M.</i> 'Zumarang' (Zumarang <sup>(R)</sup> )	0	0	0.0	14	
<i>M. x zumi</i> (Zumi)	0	0	0.0	115	
<i>M. x zumi</i> var. <i>calocarpa</i> 'Red Fruit'					
(Red Fruit)	0	0	0.0	2	27
<i>M. x zumi</i> var. <i>calocarpa</i> 'Yellow Fruit'					
(Yellow Fruit)	0	0	0.0	4	27

### FAIRLY RESISTANT (High Value = 1 or 2 )

<i>M.</i> 'Adams' (Adams)	0	1	0.0	490	
<i>M. x adstringens</i> 'Hopa' (Hopa)	0	2	0.1	502	
<i>M. x adstringens</i> 'Kelsey' (Kelsey)	0	1	0.0	96	
<i>M. x adstringens</i> 'Radiant' (Radiant)	0	2	0.0	935	
<i>M. x adstringens</i> 'Red Splendor'					
(Red Splendor)	0	1	0.0	478	

### CEDAR/APPLE RUST RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>FAIRLY RESISTANT</b> ( High Value = 1 or 2 ) Cont.					
<i>M. x adstringens</i> 'Royalty' (Royalty)	0	1	0.0	952	
<i>M. x adstringens</i> 'Selkirk' (Selkirk)	0	1	0.0	664	
<i>M. x adstringens</i> 'Sundog' (Sundog)	0	2	0.0	73	
<i>M. buccata</i> <i>l. columnaris</i>					
(Column Siberian)	0	1	0.0	255	
<i>M.</i> 'Beverly' (Beverly)	0	1	0.0	485	
<i>M.</i> 'Callaway' (Callaway)	0	2	0.6	53	
<i>M.</i> 'Casco' (White Cascade <sup>(TM)</sup> )	0	1	0.0	315	
<i>M.</i> 'David' (David)	0	1	0.0	458	
<i>M.</i> 'Edna Mullins' (Edna Mullins)	0	1	0.1	77	
<i>M.</i> 'Ellen Gerhart' (Ellen Gerhart)	0	2	0.0	204	
<i>M.</i> 'Golden Harvest' (Golden Harvest)	0	1	0.1	7	
<i>M.</i> 'Hargozam' (Harvest Gold <sup>(TM)</sup> )	0	1	0.0	254	
<i>M.</i> 'Henry F. DuPont' (Henry F. DuPont)	0	2	0.0	194	
<i>M.</i> 'Henry Kohankie' (Henry Kohankie)	0	2	0.1	178	
<i>M.</i> 'Indian Magic' (Indian Magic)	0	2	0.0	541	
<i>M.</i> 'Jewelberry' (Jewelberry)	0	1	0.0	271	
<i>M.</i> 'Jewelcole' (Red Jewel <sup>(TM)</sup> )	0	2	0.0	428	
<i>M.</i> 'John Downie' (John Downie)	0	1	0.0	33	
<i>M.</i> 'Katherine' (Katherine)	0	2	0.0	383	
<i>M. mandshurica</i> (Manchurian)	0	1	0.0	196	
<i>M.</i> 'Mary Potter' (Mary Potter)	0	1	0.0	647	
<i>M. x moerlandsii</i> 'Profusion' (Profusion)	0	1	0.0	441	
<i>M.</i> 'Molazam' (Molten Lava <sup>(R)</sup> )	0	1	0.0	242	
<i>M.</i> 'Ormiston Roy' (Ormiston Roy)	0	1	0.0	392	
<i>M.</i> 'Prairifire' (Prairifire)	0	1	0.0	237	
<i>M. x purpurea</i> 'Aldenhamensis'					
(Aldenham)	0	2	0.0	199	
<i>M.</i> 'Ralph Shay' (Ralph Shay)	0	1	0.0	419	
<i>M.</i> 'Red Barron' (Red Barron)	0	1	0.0	442	
<i>M.</i> 'Red Jade' (Red Jade)	0	1	0.0	795	
<i>M. x robusta</i> 'Beauty' (Beauty)	0	1	0.0	87	

### CEDAR/APPLE RUST RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>FAIRLY RESISTANT</b> ( High Value = 1 or 2 )					
<i>M. x scheideckeri</i> 'Hillier' (Hillier)	0	2	0.0	233	
<i>M.</i> 'Snowcloud' (Snowcloud)	0	2	0.0	234	
<i>M. toringo</i> 'Winter Gold' (Winter Gold)	0	1	0.0	480	
<i>M.</i> 'Weepcanzam' (Weeping Candied Apple <sup>TM</sup> )	0	1	0.0	389	
<i>M. x zumi</i> 'Bob White' (Bob White)	0	1	0.0	438	
<i>M. x zumi</i> var. <i>calocarpa</i> (Redbud)	0	1	0.0	1073	

### SUSCEPTIBLE ( High Value = 3 or 4 )

<i>M. angustifolia</i> 'Plena' (Prince Georges)	0	4	1.4	123	1,9,14
<i>M. baccata</i> f. <i>jackii</i> (Jack)	0	4	0.0	431	
<i>M.</i> 'Branzam' (Brandywine <sup>TM</sup> )	0	4	0.7	236	15,18
<i>M. coronaria</i> (Wild Sweet)	0	3	1.8	44	9
<i>M. coronaria</i> var. <i>dasycalyx</i> 'Charlottae' (Charlotte)	0	4	1.9	70	14
<i>M.</i> 'Dorothea' (Dorothea)	0	4	0.0	419	
<i>M.</i> 'Henningi' (Henning)	0	3	0.1	247	
<i>M. ioensis</i> (Prairie)	0	4	1.9	115	7,14
<i>M. ioensis</i> 'Klehm's Improved Bechtel' (Klehm's Improved Bechtel)	0	4	1.7	118	1,7,14
<i>M. ioensis</i> f. <i>plena</i> (Bechtel)	0	4	1.4	62	14,15
<i>M. ioensis</i> 'Plena Improved' (Plena Improved)	0	4	1.8	49	7,15
<i>M.</i> 'Pink Cascade' (Pink Cascade)	0	4	0.0	95	
<i>M.</i> 'Robinson' (Robinson)	0	3	0.0	395	
<i>M. x scheideckeri</i> (Scheidecker)	0	3	0.0	248	
<i>M.</i> 'Sentinel' (Sentinel)	0	3	0.0	393	

### CEDAR/APPLE RUST RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>SUSCEPTIBLE</b> ( High Value = 3 or 4 )					
<i>M. tschonoskii</i> (Tschonoski)	0	3	0.0	406	
<i>M.</i> 'White Angel' (White Angel)	0	4	0.2	718	14
<i>M.</i> 'Yellow Jewel' (Yellow Jewel)	0	3	0.0	140	
<i>M. yunnanensis</i> var. <i>veitchii</i> (Veitch)	0	3	0.0	281	

#### NOTES

- <sup>(1)</sup> Based on numerical scale of 0 to 4. See Chapter 3 for discussion.  
<sup>(2)</sup> Refer to APPENDIX A for comments applicable.

TABLE 4

## FIRE BLIGHT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT ( High Value = 0 )</b>					
<i>M.</i> 'Adirondack' (Adirondack)	0	0	0.0	5	
<i>M.</i> x <i>adstringens</i> 'Almey' (Almey)	0	0	0.0	202	
<i>M.</i> x <i>adstringens</i> 'Kelsey' (Kelsey)	0	0	0.0	96	
<i>M.</i> x <i>adstringens</i> 'Sparkler' (Sparkler)	0	0	0.0	260	
<i>M.</i> x <i>adstringens</i> 'Vanguard' (Vanguard)	0	0	0.0	143	
<i>M.</i> 'Amberina' (Amberina)	0	0	0.0	61	
<i>M.</i> 'Amerspirzam' (American Spirit <sup>TM</sup> )	0	0	0.0	8	27
<i>M.</i> <i>angustifolia</i> 'Plena' (Prince Georges)	0	0	0.0	123	
<i>M.</i> <i>baccata</i> 'Snowcap' (Snowcap)	0	0	0.0	158	
<i>M.</i> <i>baccata</i> 'Walters' (Walters)	0	0	0.0	1	27
<i>M.</i> 'Baskatong' (Baskatong)	0	0	0.0	111	
<i>M.</i> 'Big River' (Big River)	0	0	0.0	10	
<i>M.</i> 'Branzam' (Brandywine <sup>TM</sup> )	0	0	0.0	236	
<i>M.</i> 'Camzam' (Camelot <sup>TM</sup> )	0	0	0.0	11	27
<i>M.</i> 'Canary' (Canary)	0	0	0.0	4	27
<i>M.</i> 'Cascade' (Cascade)	0	0	0.0	107	
<i>M.</i> 'Cascole' (White Cascade <sup>TM</sup> )	0	0	0.0	315	
<i>M.</i> 'Centennial' (Centennial)	0	0	0.0	100	
<i>M.</i> 'Cinzam' (Cinderella <sup>TM</sup> )	0	0	0.0	10	27
<i>M.</i> 'Coral Cascade' (Coral Cascade)	0	0	0.0	30	
<i>M.</i> 'Coralcole' (Coralburst <sup>TM</sup> )	0	0	0.0	213	
<i>M.</i> 'Edna Mullins' (Edna Mullins)	0	0	0.0	77	
<i>M.</i> 'Egret' (Egret)	0	0	0.0	44	
<i>M.</i> 'Excazam' (Excalibur <sup>TM</sup> )	0	0	0.0	7	27
<i>M.</i> 'Exzellenz Thiel' (Exzellenz Thiel)	0	0	0.0	69	
<i>M.</i> 'Golden Harvest' (Golden Harvest)	0	0	0.0	7	
<i>M.</i> 'Guinzam' (Guinevere <sup>TM</sup> )	0	0	0.0	9	27
<i>M.</i> 'Hamzam' (Hamlet <sup>TM</sup> )	0	0	0.0	9	27
<i>M.</i> 'Henry Kohankie' (Henry Kohankie)	0	0	0.0	178	

## FIRE BLIGHT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT ( High Value = 0 ) Cont.</b>					
<i>M.</i> <i>ioensis</i> (Prairie)	0	0	0.0	115	
<i>M.</i> <i>ioensis</i> f. <i>plena</i> (Bechtel)	0	0	0.0	62	
<i>M.</i> 'Kibele' (Kibele)	0	0	0.0	80	
<i>M.</i> 'Kinzam' (King Arthur <sup>TM</sup> )	0	0	0.0	11	27
<i>M.</i> 'Kirk' (Kirk)	0	0	0.0	33	
<i>M.</i> 'Lanzam' (Lancelot <sup>TM</sup> )	0	0	0.0	15	
<i>M.</i> 'Leprechaun' (Leprechaun)	0	0	0.0	60	
<i>M.</i> 'Louisa' (Louisa)	0	0	0.0	34	
<i>M.</i> 'Lullaby' (Lullaby)	0	0	0.0	19	
<i>M.</i> 'Maubeck Weeper' (Anne E <sup>®</sup> )	0	0	0.0	50	
<i>M.</i> <i>mandshurica</i> (Manchurian)	0	0	0.0	196	
<i>M.</i> 'Mount Arbor' (Mount Arbor)	0	0	0.0	24	
<i>M.</i> 'Naragansett' (Naragansett)	0	0	0.0	1	29
<i>M.</i> 'Oekonomierat Echtermeyer' (Echtermeyer)	0	0	0.0	333	
<i>M.</i> 'Park Centre' (Park Centre)	0	0	0.0	17	
<i>M.</i> 'Parsii' (Pink Princess <sup>TM</sup> )	0	0	0.0	5	
<i>M.</i> 'Pink Cascade' (Pink Cascade)	0	0	0.0	95	
<i>M.</i> 'Pink Perfection' (Pink Perfection)	0	0	0.0	271	
<i>M.</i> 'Pink Satin' (Pink Satin)	0	0	0.0	24	
<i>M.</i> 'Prairie Maid' (Prairie Maid)	0	0	0.0	8	
<i>M.</i> 'Red Peacock' (Red Peacock)	0	0	0.0	36	
<i>M.</i> 'Red Swan' (Red Swan)	0	0	0.0	64	
<i>M.</i> s. <i>robusta</i> 'Beauty' (Beauty)	0	0	0.0	87	
<i>M.</i> 'Roiscezam' (Royal Scepter <sup>TM</sup> )	0	0	0.0	2	
<i>M.</i> 'Ruth Ann' (Ruth Ann)	0	0	0.0	82	
<i>M.</i> <i>sargentii</i> 'Candymin' (Candymin Sargent)	0	0	0.0	22	
<i>M.</i> <i>sargentii</i> 'Tina' (Tina Sargent)	0	0	0.0	107	
<i>M.</i> 'Satin Cloud' (Satin Cloud)	0	0	0.0	58	

### FIRE BLIGHT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS. NOTES <sup>(2)</sup>
	LOW	HIGH	AVE	
<b>HIGHLY RESISTANT</b> (High Value = 0) Cont.				
<i>M.</i> 'Schmidt Cutleaf' (Golden Raindrops <sup>TM</sup> )	0	0	0.0	11
<i>M.</i> 'Serenade' (Serenade)	0	0	0.0	41
<i>M.</i> 'Shakespeare' (Shakespeare)	0	0	0.0	9
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Rosseau' (Rosseau)	0	0	0.0	67
<i>M.</i> 'Silver Drift' (Silver Drift)	0	0	0.0	12
<i>M.</i> 'Sinai Fire' (Sinai Fire)	0	0	0.0	41
<i>M.</i> 'Spring Song' (Spring Song)	0	0	0.0	17
<i>M.</i> 'Strathmore' (Strathmore)	0	0	0.0	162
<i>M.</i> 'Thunderchild' (Thunderchild)	0	0	0.0	26
<i>M.</i> 'Tops-In-Bloom' (Tops-In-Bloom)	0	0	0.0	50
<i>M.</i> 'Winter Gem' (Winter Gem)	0	0	0.0	19
<i>M.</i> 'Yellow Jewel' (Yellow Jewel)	0	0	0.0	140
<i>M.</i> 'Zumarang' (Zumarang <sup>(R)</sup> )	0	0	0.0	14
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> 'Red Fruit' (Red Fruit)	0	0	0.0	2 27
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> 'Yellow Fruit' (Yellow Fruit)	0	0	0.0	4 27

### VERY RESISTANT (High Value = 1)

<i>M.</i> x <i>adstringens</i> 'Selkirk' (Selkirk)	0	1	0.0	664
<i>M.</i> x <i>adstringens</i> 'Sundog' (Sundog)	0	1	0.0	73
<i>M.</i> 'American Beauty' (American Beauty)	0	1	0.0	200
<i>M.</i> 'Burgandy' (Burgandy)	0	1	0.0	175
<i>M.</i> 'Centzam' (Centurion <sup>(R)</sup> )	0	1	0.0	443
<i>M.</i> 'Henningi' (Henning)	0	1	0.0	247
<i>M.</i> 'Jewelberry' (Jewelberry)	0	1	0.0	271
<i>M.</i> 'Pink Spires' (Pink Spires)	0	1	0.0	243
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Makamik' (Makamik)	0	1	0.0	147

### FIRE BLIGHT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			OBS. NOTES <sup>(2)</sup>
	LOW	HIGH	AVE	
<b>VERY RESISTANT</b> (High Value = 1)				
<i>M.</i> 'Purple Wave' (Purple Wave)	0	1	0.0	143
<i>M.</i> x <i>purpurea</i> var. <i>eleyi</i> (Eleyi)	0	1	0.0	536
<i>M.</i> 'Royal Ruby' (Royal Ruby)	0	1	0.0	329
<i>M.</i> 'Ruby Luster' (Ruby Luster)	0	1	0.0	162
<i>M.</i> x <i>scheideckeri</i> (Scheidecker)	0	1	0.0	248
<i>M.</i> 'Sutyzam' (Sugar Tyme <sup>(R)</sup> )	0	1	0.0	419

### MODERATELY RESISTANT (High Value = 2)

<i>M.</i> x <i>adstringens</i> 'Radiant' (Radiant)	0	2	0.0	935
<i>M.</i> x <i>adstringens</i> 'Red Splendor' (Red Splendor)	0	2	0.0	478 12
<i>M.</i> x <i>arnoldiana</i> (Arnold)	0	2	0.0	317
<i>M.</i> x <i>atrosanguinea</i> (Carmine)	0	2	0.0	465
<i>M.</i> <i>baccata</i> 'Spring Snow' (Spring Snow)	0	2	0.1	380
<i>M.</i> 'Callaway' (Callaway)	0	2	0.0	53
<i>M.</i> 'Chestnut' (Chestnut)	0	2	0.1	35
<i>M.</i> <i>coronaria</i> (Wild Sweet)	0	2	0.0	44
<i>M.</i> <i>coronaria</i> var. <i>dasycalyx</i> 'Charlottae' (Charlotte)	0	2	0.0	70
<i>M.</i> 'Ellen Gerhart' (Ellen Gerhart)	0	2	0.0	204
<i>M.</i> 'Flame' (Flame)	0	2	0.0	262
<i>M.</i> <i>halliana</i> var. <i>spontanea</i> (Halliana Spontanea)	0	2	0.0	82
<i>M.</i> 'Henry F. DuPont' (Henry F. DuPont)	0	2	0.0	194
<i>M.</i> 'John Downie' (John Downie)	0	2	0.1	33
<i>M.</i> x <i>moerlandsii</i> 'Liset' (Liset)	0	2	0.0	392
<i>M.</i> x <i>moerlandsii</i> 'Profusion' (Profusion)	0	2	0.0	441
<i>M.</i> 'Prairifire' (Prairifire)	0	2	0.0	237
<i>M.</i> <i>prunifolia</i> 'Fructu-coccinea' (Cheal's Crimson)	0	2	0.0	82
<i>M.</i> 'Ralph Shay' (Ralph Shay)	0	2	0.1	419

### FIRE BLIGHT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>MODERATELY RESISTANT</b> (High Value = 2) Cont.					
<i>M. x scheideckeri</i> 'Hillier' (Hillier)	0	2	0.0	233	
<i>M.</i> 'Snow Magic' (Snow Magic)	0	2	0.0	130	
<i>M.</i> 'Snowcloud' (Snowcloud)	0	2	0.0	234	
<i>M.</i> 'Velvetcole' (Velvet Pillar <sup>(TM)</sup> )	0	2	0.0	346	12
<i>M.</i> 'Weepcanzam' (Weeping Candied Apple <sup>(TM)</sup> )	0	2	0.0	389	
<b>SLIGHTLY SUSCEPTIBLE</b> (High Value = 3)					
<i>M.</i> 'Adams' (Adams)	0	3	0.0	490	
<i>M. baccata</i> (Siberian)	0	3	0.0	168	
<i>M. baccata</i> f. <i>jackii</i> (Jack)	0	3	0.0	431	
<i>M.</i> 'Beverly' (Beverly)	0	3	0.0	485	
<i>M.</i> 'Dainty' (Dainty)	0	3	0.0	82	
<i>M.</i> 'Donald Wyman' (Donald Wyman)	0	3	0.0	580	
<i>M.</i> 'Dorothea' (Dorothea)	0	3	0.0	419	
<i>M.</i> 'Doubloons' (Doubloons)	0	3	0.2	29	
<i>M. floribunda</i> (Japanese Flowering)	0	3	0.0	768	
<i>M.</i> 'Golden Hornet' (Golden Hornet)	0	3	0.0	220	
<i>M.</i> 'Indian Magic' (Indian Magic)	0	3	0.0	541	
<i>M.</i> 'Indian Summer' (Indian Summer)	0	3	0.0	348	
<i>M. ioensis</i> 'Klehm's Improved Bechtel' (Klehm's Improved Bechtel)	0	3	0.0	118	
<i>M. ioensis</i> 'Plena Improved' (Plena Improved)	0	3	0.5	49	
<i>M. x micromalus</i> (Midget)	0	3	0.1	194	
<i>M.</i> 'Professor Sprenger' (Professor Sprenger)	0	3	0.0	259	12
<i>M. x purpurea</i> 'Lemoinei' (Lemoine)	0	3	0.0	200	
<i>M.</i> 'Pygmy' (Pygmy)	0	3	0.0	103	
<i>M. x robusta</i> 'Dolgo' (Dolgo)	0	3	0.0	470	12

### FIRE BLIGHT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>SLIGHTLY SUSCEPTIBLE</b> (High Value = 3) Cont.					
<i>M. sargentii</i> (Sargent)	0	3	0.0	876	13
<i>M. sargentii</i> 'Rosea' (Pinkbud Sargent)	0	3	0.1	85	
<i>M.</i> 'White Candle' (White Candle)	0	3	0.2	271	
<b>MODERATELY SUSCEPTIBLE</b> (High Value = 4)					
<i>M. x adstringens</i> 'Hopa' (Hopa)	0	4	0.1	502	
<i>M. baccata</i> f. <i>columnaris</i> (Column Siberian)	0	4	0.2	255	
<i>M.</i> 'Blanche Ames' (Blanche Ames)	0	4	0.1	88	
<i>M.</i> 'David' (David)	0	4	0.1	458	
<i>M.</i> 'Hargozam' (Harvest Gold <sup>(TM)</sup> )	0	4	0.1	254	
<i>M. hupehensis</i> (Tea)	0	4	0.1	448	12
<i>M.</i> 'Jewelcole' (Red Jewel <sup>(TM)</sup> )	0	4	0.1	428	12
<i>M.</i> 'Katherine' (Katherine)	0	4	0.1	383	
<i>M.</i> 'Mazam' (Madonna <sup>(R)</sup> )	0	4	0.1	74	
<i>M.</i> 'Molazam' (Molten Lava <sup>(R)</sup> )	0	4	0.1	242	12
<i>M. x purpurea</i> 'Aldenhamensis' (Aldenham)	0	4	0.1	199	
<i>M.</i> 'Robinson' (Robinson)	0	4	0.0	395	
<i>M. sieboldii</i> (Toringo)	0	4	0.1	149	
<i>M.</i> 'Snowdrift' (Snowdrift)	0	4	0.1	1002	
<i>M. spectabilis</i> 'Van Eseltine' (Van Eseltine)	0	4	0.3	532	
<i>M. toringo</i> 'Winter Gold' (Winter Gold)	0	4	0.1	480	
<i>M.</i> 'White Angel' (White Angel)	0	4	0.0	718	12
<i>M. yunnanensis</i> var. <i>veitchii</i> (Veitch)	0	4	0.1	281	
<i>M. x zumi</i> (Zumi)	0	4	0.1	115	
<i>M. x zumi</i> 'Bob White' (Bob White)	0	4	0.1	438	
<i>M. x adstringens</i> 'Royalty' (Royalty)	0	5	0.1	952	12

### FIRE BLIGHT RATING

listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>VERY SUSCEPTIBLE</b> (High Value = 5)					
<i>M. hupehensis</i> 'Strawberry Parfait' (Strawberry Parfait)	0	5	0.0	235	
<i>M.</i> 'Mary Potter' (Mary Potter)	0	5	0.0	647	
<i>M.</i> 'Ormiston Roy' (Ormiston Roy)	0	5	0.1	392	
<i>M.</i> 'Red Barron' (Red Barron)	0	5	0.0	442	
<i>M.</i> 'Red Jade' (Red Jade)	0	5	0.1	795	12
<i>M.</i> 'Sentinel' (Sentinel)	0	5	0.1	393	12
<i>M.</i> 'Silver Moon' (Silver Moon)	0	5	0.3	316	
<i>M. tschonoskii</i> (Tschonoski)	0	5	0.1	406	
<i>M. x zumi</i> var. <i>calocarpa</i> (Redbud)	0	5	0.1	1073	12

NOTES:

- (1) Based on numerical scale of 0 to 5. See Chapter 3 for discussion.  
(2) Refer to APPENDIX A for comments applicable

TABLE 5

### POWDERY MILDEW RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> (High Value = 0 or 1)					
<i>M.</i> 'Adirondack' (Adirondack)	0	0	0.0	5	
<i>M. x adstringens</i> 'Hopa' (Hopa)	0	1	0.0	502	
<i>M. x adstringens</i> 'Kelsey' (Kelsey)	0	0	0.0	96	
<i>M. x adstringens</i> 'Sparkler' (Sparkler)	0	0	0.0	260	
<i>M. x adstringens</i> 'Sundog' (Sundog)	0	0	0.0	73	
<i>M. x adstringens</i> 'Vanguard' (Vanguard)	0	0	0.0	143	
<i>M.</i> 'Amberina' (Amberina)	0	0	0.0	61	
<i>M.</i> 'American Beauty' (American Beauty)	0	0	0.0	200	
<i>M.</i> 'Amerspirzam' (American Spirit <sup>TM</sup> )	0	0	0.0	8	27
<i>M. angustifolia</i> 'Plena' (Prince Georges)	0	0	0.0	123	
<i>M. x arnoldiana</i> (Arnold)	0	0	0.0	317	
<i>M. baccata</i> (Siberian)	0	0	0.0	168	
<i>M. baccata</i> f. <i>columnaris</i> (Column Siberian)	0	0	0.0	255	
<i>M. baccata</i> 'Snowcap' (Snowcap)	0	0	0.0	158	
<i>M. baccata</i> 'Spring Snow' (Spring Snow)	0	0	0.0	380	
<i>M. baccata</i> 'Walters' (Walters)	0	0	0.0	1	27
<i>M.</i> 'Beverly' (Beverly)	0	1	0.0	485	
<i>M.</i> 'Big River' (Big River)	0	0	0.0	10	
<i>M.</i> 'Blanche Ames' (Blanche Ames)	0	0	0.0	88	
<i>M.</i> 'Burgandy' (Burgandy)	0	0	0.0	175	
<i>M.</i> 'Callaway' (Callaway)	0	0	0.0	53	
<i>M.</i> 'Camzam' (Camelot <sup>TM</sup> )	0	0	0.0	11	27
<i>M.</i> 'Canary' (Canary)	0	0	0.0	4	27
<i>M.</i> 'Cascade' (Cascade)	0	0	0.0	107	
<i>M.</i> 'Centennial' (Centennial)	0	0	0.0	100	
<i>M.</i> 'Chestnut' (Chestnut)	0	0	0.0	35	
<i>M.</i> 'Cinzam' (Cinderella <sup>TM</sup> )	0	0	0.0	10	27
<i>M.</i> 'Coral Cascade' (Coral Cascade)	0	0	0.0	30	

### POWDERY MILDEW RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> (High Value = 0 or 1) Cont.					
<i>M.</i> 'Coralcole' (Coralburst <sup>TM</sup> )	0	0	0.0	213	
<i>M.</i> <i>coronaria</i> (Wild Sweet)	0	1	0.0	44	
<i>M.</i> <i>coronaria</i> var. <i>dasycalyx</i> 'Charlottae' (Charlotte)	0	0	0.0	70	
<i>M.</i> 'Dainty' (Dainty)	0	0	0.0	82	
<i>M.</i> 'David' (David)	0	1	0.0	458	
<i>M.</i> 'Doubloons' (Doubloons)	0	0	0.0	29	
<i>M.</i> 'Edna Mullins' (Edna Mullins)	0	0	0.0	77	
<i>M.</i> 'Egret' (Egret)	0	0	0.0	44	
<i>M.</i> 'Ellen Gerhart' (Ellen Gerhart)	0	1	0.0	204	
<i>M.</i> 'Excazam' (Excalibur <sup>TM</sup> )	0	0	0.0	7	27
<i>M.</i> 'Flame' (Flame)	0	0	0.0	262	
<i>M.</i> 'Golden Harvest' (Golden Harvest)	0	0	0.0	7	
<i>M.</i> 'Golden Hornet' (Golden Hornet)	0	0	0.0	220	
<i>M.</i> 'Guinzam' (Guinevere <sup>TM</sup> )	0	0	0.0	9	27
<i>M.</i> <i>halliana</i> var. <i>spontanea</i> (Halliana Spontanea)	0	0	0.0	82	
<i>M.</i> 'Hamzam' (Hamlet <sup>TM</sup> )	0	0	0.0	9	27
<i>M.</i> 'Henningi' (Henning)	0	0	0.0	247	
<i>M.</i> 'Henry F. DuPont' (Henry F. DuPont)	0	0	0.0	194	
<i>M.</i> 'Henry Kohankie' (Henry Kohankie)	0	0	0.0	178	
<i>M.</i> <i>hupehensis</i> (Tea)	0	0	0.0	448	
<i>M.</i> <i>hupehensis</i> 'Strawberry Parfait' (Strawberry Parfait)	0	1	0.0	235	
<i>M.</i> 'Indian Summer' (Indian Summer)	0	1	0.0	348	
<i>M.</i> <i>ioensis</i> (Prairie)	0	0	0.0	115	
<i>M.</i> <i>ioensis</i> 'Klehm's Improved Bechtel' (Klehm's Improved Bechtel)	0	0	0.0	118	
<i>M.</i> <i>ioensis</i> f. <i>plena</i> (Bechtel)	0	0	0.0	62	
<i>M.</i> <i>ioensis</i> 'Plena Improved' (Plena Improved)	0	0	0.0	49	

### POWDERY MILDEW RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> (High Value = 0 or 1) Cont.					
<i>M.</i> 'Jewelberry' (Jewelberry)	0	1	0.0	271	
<i>M.</i> 'John Downie' (John Downie)	0	0	0.0	33	
<i>M.</i> 'Kibele' (Kibele)	0	0	0.0	80	
<i>M.</i> 'Kinarzam' (King Arthur <sup>TM</sup> )	0	0	0.0	11	27
<i>M.</i> 'Kirk' (Kirk)	0	0	0.0	33	
<i>M.</i> 'Lanzam' (Lancelot <sup>TM</sup> )	0	0	0.0	15	
<i>M.</i> 'Leprechaun' (Leprechaun)	0	0	0.0	60	
<i>M.</i> 'Louisa' (Louisa)	0	0	0.0	34	
<i>M.</i> 'Lullaby' (Lullaby)	0	0	0.0	19	
<i>M.</i> 'Manbeck Weeper' (Anne E <sup>®</sup> )	0	0	0.0	50	
<i>M.</i> <i>mandshurica</i> (Manchurian)	0	1	0.0	196	
<i>M.</i> 'Mazam' (Madonna <sup>®</sup> )	0	0	0.0	74	
<i>M.</i> 'Naragansett' (Naragansett)	0	0	0.0	1	29
<i>M.</i> 'Oekonomierat Echtermeyer' (Echtermeyer)	0	1	0.0	333	
<i>M.</i> 'Park Centre' (Park Centre)	0	0	0.0	17	
<i>M.</i> 'Parsii' (Pink Princess <sup>TM</sup> )	0	0	0.0	5	
<i>M.</i> 'Pink Cascade' (Pink Cascade)	0	0	0.0	95	
<i>M.</i> 'Pink Perfection' (Pink Perfection)	0	0	0.0	271	
<i>M.</i> 'Pink Satin' (Pink Satin)	0	0	0.0	24	
<i>M.</i> 'Pink Spires' (Pink Spires)	0	1	0.0	243	
<i>M.</i> 'Prairie Maid' (Prairie Maid)	0	0	0.0	8	
<i>M.</i> 'Prairifire' (Prairifire)	0	0	0.0	237	
<i>M.</i> 'Professor Sprenger' (Professor Sprenger)	0	0	0.0	259	
<i>M.</i> <i>prunifolia</i> 'Fructu-coccinea' (Cheal's Crimson)	0	0	0.0	82	
<i>M.</i> <i>sieversii</i> var. <i>niedzwetzkyana</i> 'Makamik' (Makamik)	0	0	0.0	147	
<i>M.</i> x <i>purpurea</i> var. <i>eleyi</i> (Eleyi)	0	1	0.0	536	
<i>M.</i> x <i>purpurea</i> 'Lemoinei' (Lemoinei)	0	0	0.0	200	



## POWDERY MILDEW RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS. NOTES <sup>(2)</sup>
	LOW	HIGH	AVE	
<b>HIGHLY RESISTANT</b> (High Value = 0 or 1) Cont.				
<i>M.</i> 'Red Barron' (Red Barron)	0	1	0.0	442
<i>M.</i> 'Red Peacock' (Red Peacock)	0	0	0.0	36
<i>M.</i> 'Red Swan' (Red Swan)	0	0	0.0	64
<i>M.</i> x <i>robusta</i> 'Beauty' (Beauty)	0	0	0.0	87
<i>M.</i> 'Royal Ruby' (Royal Ruby)	0	1	0.0	329
<i>M.</i> 'Royscezam' (Royal Scepter <sup>TM</sup> )	0	0	0.0	2
<i>M.</i> 'Ruby Luster' (Ruby Luster)	0	1	0.0	162
<i>M.</i> 'Ruth Ann' (Ruth Ann)	0	0	0.0	82
<i>M. sargentii</i> 'Candymint' (Candymint Sargent)	0	0	0.0	22
<i>M. sargentii</i> 'Tina' (Tina Sargent)	0	0	0.0	107
<i>M.</i> 'Satin Cloud' (Satin Cloud)	0	0	0.0	58
<i>M.</i> x <i>scheideckeri</i> 'Hillier' (Hillier)	0	0	0.0	233
<i>M.</i> 'Schmidt Cutleaf' (Golden Raindrops <sup>TM</sup> )	0	0	0.0	11
<i>M.</i> 'Serenade' (Serenade)	0	0	0.0	41
<i>M.</i> 'Shakespeare' (Shakespeare)	0	0	0.0	9
<i>M. sieboldii</i> (Toringo)	0	0	0.0	149
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Rosseau' (Rosseau)	0	0	0.0	67
<i>M.</i> 'Silver Drift' (Silver Drift)	0	0	0.0	12
<i>M.</i> 'Silver Moon' (Silver Moon)	0	0	0.0	316
<i>M.</i> 'Sinai Fire' (Sinai Fire)	0	0	0.0	41
<i>M.</i> 'Snowcloud' (Snowcloud)	0	1	0.0	234
<i>M.</i> 'Spring Song' (Spring Song)	0	0	0.0	17
<i>M.</i> 'Strathmore' (Strathmore)	0	0	0.0	162
<i>M.</i> 'Sutyzam' (Sugar Tyme <sup>RS</sup> )	0	1	0.0	419
<i>M.</i> 'Thunderchild' (Thunderchild)	0	0	0.0	26
<i>M.</i> 'Tops-In-Bloom' (Tops-In-Bloom)	0	0	0.0	50
<i>M. toringo</i> 'Winter Gold' (Winter Gold)	0	1	0.0	480

## POWDERY MILDEW RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS. NOTES <sup>(2)</sup>
	LOW	HIGH	AVE	
<b>HIGHLY RESISTANT</b> (High Value = 0 or 1) Cont.				
<i>M. tschonokii</i> (Tschonoski)	0	1	0.0	406
<i>M.</i> 'White Angel' (White Angel)	0	0	0.0	718
<i>M.</i> 'Winter Gem' (Winter Gem)	0	0	0.0	19
<i>M.</i> 'Yellow Jewel' (Yellow Jewel)	0	0	0.0	140
<i>M.</i> 'Zumarang' (Zumarang <sup>RS</sup> )	0	0	0.0	14
<i>M.</i> x <i>zumi</i> (Zumi)	0	0	0.0	115
<i>M.</i> x <i>zumi</i> 'Bob White' (Bob White)	0	0	0.0	438
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> (Redbud)	0	1	0.0	1073
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> 'Red Fruit' (Red Fruit)	0	0	0.0	2 27
<i>M.</i> x <i>zumi</i> var. <i>calocarpa</i> 'Yellow Fruit' (Yellow Fruit)	0	0	0.0	4 27
<b>FAIRLY RESISTANT</b> (High Value = 2)				
<i>M.</i> x <i>adstringens</i> 'Radiant' (Radiant)	0	2	0.0	935
<i>M.</i> x <i>adstringens</i> 'Red Splendor' (Red Splendor)	0	2	0.1	478
<i>M.</i> x <i>adstringens</i> 'Royalty' (Royalty)	0	2	0.0	952
<i>M.</i> x <i>adstringens</i> 'Selkirk' (Selkirk)	0	2	0.0	664
<i>M.</i> x <i>atrosanguinea</i> (Carmine)	0	2	0.0	465
<i>M.</i> 'Basketong' (Basketong)	0	2	0.0	111
<i>M.</i> 'Branzam' (Brandywine <sup>TM</sup> )	0	2	0.0	236
<i>M.</i> 'Dorothea' (Dorothea)	0	2	0.0	419
<i>M.</i> 'Exzellenz Thiel' (Exzellenz Thiel)	0	2	0.0	69
<i>M.</i> 'Hargozam' (Harvest Gold <sup>TM</sup> )	0	2	0.0	254
<i>M.</i> 'Indian Magic' (Indian Magic)	0	2	0.0	541
<i>M.</i> 'Katherine' (Katherine)	0	2	0.0	383
<i>M.</i> x <i>micromalus</i> (Midget)	0	2	0.0	194
<i>M.</i> x <i>moerlandsii</i> 'Liset' (Liset)	0	2	0.0	392
<i>M.</i> x <i>moerlandsii</i> 'Profusion' (Profusion)	0	2	0.0	441

### POWDERY MILDEW RATING

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in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>FAIRLY RESISTANT</b> ( High Value = 2 ) Cont.					
<i>M.</i> 'Mount Arbor' (Mount Arbor)	0	2	0.2	24	
<i>M.</i> x <i>purpurea</i> 'Aldenhamensis' (Aldenham)	0	2	0.0	199	
<i>M.</i> 'Ralph Shay' (Ralph Shay)	0	2	0.0	419	
<i>M.</i> 'Red Jade' (Red Jade)	0	2	0.0	795	
<i>M.</i> 'Robinson' (Robinson)	0	2	0.0	395	
<i>M.</i> <i>sargentii</i> (Sargent)	0	2	0.0	876	
<i>M.</i> 'Snow Magic' (Snow Magic)	0	2	0.3	130	11
<i>M.</i> 'Velvetcole' (Velvet Pillar <sup>(TM)</sup> )	0	2	0.1	346	
<i>M.</i> 'Weepcanzam' (Weeping Candied Apple <sup>(TM)</sup> )	0	2	0.0	389	
<i>M.</i> 'White Candle' (White Candle)	0	2	0.0	271	

### SUSCEPTIBLE ( High Value = 3 or 4 )

<i>M.</i> 'Adams' (Adams)	0	3	0.0	490	
<i>M.</i> x <i>adstringens</i> 'Almey' (Almey)	0	3	0.0	202	
<i>M.</i> <i>baccata</i> f. <i>jackii</i> (Jack)	0	3	0.0	431	
<i>M.</i> 'Cascole' (White Cascade <sup>(TM)</sup> )	0	4	0.0	315	
<i>M.</i> 'Centzam' (Centurion <sup>(R)</sup> )	0	3	0.0	443	
<i>M.</i> 'Donald Wyman' (Donald Wyman)	0	3	0.0	580	
<i>M.</i> <i>floribunda</i> (Japanese Flowering)	0	3	0.0	768	
<i>M.</i> 'Jewelcole' (Red Jewel <sup>(TM)</sup> )	0	4	0.0	428	
<i>M.</i> 'Mary Potter' (Mary Potter)	0	3	0.0	647	
<i>M.</i> 'Molazam' (Molten Lava <sup>(R)</sup> )	0	3	0.1	242	
<i>M.</i> 'Ormiston Roy' (Ormiston Roy)	0	3	0.0	392	
<i>M.</i> 'Purple Wave' (Purple Wave)	0	3	0.1	143	
<i>M.</i> 'Pygmy' (Pygmy)	0	3	0.1	103	
<i>M.</i> x <i>robusta</i> 'Dolgo' (Dolgo)	0	3	0.0	470	
<i>M.</i> <i>sargentii</i> 'Rosea' (Pinkbud Sargent)	0	3	0.0	85	
<i>M.</i> x <i>scheideckeri</i> (Scheidecker)	0	3	0.0	248	

### POWDERY MILDEW RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>SUSCEPTIBLE</b> ( High Value = 3 or 4 ) Cont.					
<i>M.</i> 'Sentinel' (Sentinel)	0	3	0.0	393	
<i>M.</i> 'Snowdrift' (Snowdrift)	0	3	0.0	1002	
<i>M.</i> <i>spectabilis</i> 'Van Eseltine' (Van Eseltine)	0	3	0.0	532	
<i>M.</i> <i>yumanensis</i> var. <i>veitchii</i> (Veitch)	0	3	0.0	281	

#### NOTES:

- (1) Based on numerical scale of 0 to 4. See Chapter 3 for discussion.
- (2) Refer to APPENDIX A for comments applicable.

TABLE 6

## FROGEYE LEAF SPOT RATING

A listing of commercial crabapples evaluated  
in all time zones and all applicable Hardiness Zones

NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> ( High Value = 0 )					
<i>M.</i> 'Adirondack' (Adirondack)	0	0	0.0	5	
<i>M.</i> 'Amberina' (Amberina)	0	0	0.0	61	
<i>M.</i> 'Amerspirzam' (American Spirit <sup>(TM)</sup> )	0	0	0.0	8	27
<i>M. baccata</i> (Siberian)	0	0	0.0	168	
<i>M. baccata</i> 'Snowcap' (Snowcap)	0	0	0.0	158	
<i>M. baccata</i> 'Walters' (Walters)	0	0	0.0	1	27
<i>M.</i> 'Callaway' (Callaway)	0	0	0.0	53	
<i>M.</i> 'Camzam' (Camelot <sup>(TM)</sup> )	0	0	0.0	11	27
<i>M.</i> 'Canary' (Canary)	0	0	0.0	4	27
<i>M.</i> 'Cascade' (Cascade)	0	0	0.0	107	
<i>M.</i> 'Chestnut' (Chestnut)	0	0	0.0	35	
<i>M.</i> 'Cinzam' (Cinderella <sup>(TM)</sup> )	0	0	0.0	10	27
<i>M.</i> 'Coral Cascade' (Coral Cascade)	0	0	0.0	30	
<i>M.</i> 'Doubleblooms' (Doubleblooms)	0	0	0.0	29	
<i>M.</i> 'Edna Mullins' (Edna Mullins)	0	0	0.0	77	
<i>M.</i> 'Egret' (Egret)	0	0	0.0	44	
<i>M.</i> 'Excazam' (Excalibur <sup>(TM)</sup> )	0	0	0.0	7	27
<i>M.</i> 'Exzellenz Thiel' (Exzellenz Thiel)	0	0	0.0	69	
<i>M.</i> 'Golden Harvest' (Golden Harvest)	0	0	0.0	7	
<i>M.</i> 'Guinzam' (Guinevere <sup>(TM)</sup> )	0	0	0.0	9	27
<i>M. halliana</i> var. <i>spontanea</i> (Halliana Spontanea)	0	0	0.0	82	
<i>M.</i> 'Hamzam' (Hamlet <sup>(TM)</sup> )	0	0	0.0	9	27
<i>M.</i> 'John Downie' (John Downie)	0	0	0.0	33	
<i>M.</i> 'Kinarzam' (King Arthur <sup>(TM)</sup> )	0	0	0.0	11	27
<i>M.</i> 'Kirk' (Kirk)	0	0	0.0	33	
<i>M.</i> 'Lanzam' (Lancelot <sup>(TM)</sup> )	0	0	0.0	15	
<i>M.</i> 'Leprechaun' (Leprechaun)	0	0	0.0	60	
<i>M.</i> 'Louisa' (Louisa)	0	0	0.0	34	

## FROGEYE LEAF SPOT RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> ( High Value = 0 ) Cont.					
<i>M.</i> 'Lullaby' (Lullaby)	0	0	0.0	19	
<i>M. mandshurica</i> (Manchurian)	0	0	0.0	196	
<i>M.</i> 'Mazam' (Madonna <sup>(R)</sup> )	0	0	0.0	74	
<i>M.</i> 'Mount Arbor' (Mount Arbor)	0	0	0.0	24	
<i>M.</i> 'Naragansett' (Naragansett)	0	0	0.0	1	29
<i>M.</i> 'Park Centre' (Park Centre)	0	0	0.0	17	
<i>M.</i> 'Parrsii' (Pink Princess <sup>(TM)</sup> )	0	0	0.0	5	
<i>M.</i> 'Pink Satin' (Pink Satin)	0	0	0.0	24	
<i>M.</i> 'Prairie Maid' (Prairie Maid)	0	0	0.0	8	
<i>M.</i> 'Red Peacock' (Red Peacock)	0	0	0.0	36	
<i>M.</i> 'Red Swan' (Red Swan)	0	0	0.0	64	
<i>M.</i> 'Royal Ruby' (Royal Ruby)	0	0	0.0	329	
<i>M.</i> 'Roiscezam' (Royal Scepter <sup>(TM)</sup> )	0	0	0.0	2	
<i>M.</i> 'Ruth Ann' (Ruth Ann)	0	0	0.0	82	
<i>M. sargentii</i> 'Candy mint' (Candy mint Sargent)	0	0	0.0	22	
<i>M. sargentii</i> 'Rosea' (Pinkbud Sargent)	0	0	0.0	85	
<i>M. sargentii</i> 'Tina' (Tina Sargent)	0	0	0.0	107	
<i>M.</i> 'Satin Cloud' (Satin Cloud)	0	0	0.0	58	
<i>M.</i> 'Schmidt Cutleaf' (Golden Raindrops <sup>(TM)</sup> )	0	0	0.0	11	
<i>M.</i> 'Serenade' (Serenade)	0	0	0.0	41	
<i>M.</i> 'Silver Drift' (Silver Drift)	0	0	0.0	12	
<i>M.</i> 'Snowcloud' (Snowcloud)	0	0	0.0	234	
<i>M.</i> 'Spring Song' (Spring Song)	0	0	0.0	17	
<i>M.</i> 'Thunderchild' (Thunderchild)	0	0	0.0	26	
<i>M.</i> 'Tops-In-Bloom' (Tops-In-Bloom)	0	0	0.0	50	
<i>M.</i> 'Winter Gem' (Winter Gem)	0	0	0.0	19	
<i>M.</i> 'Yellow Jewel' (Yellow Jewel)	0	0	0.0	140	

### FROGEYE LEAF SPOT RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>HIGHLY RESISTANT</b> (High Value = 0)					
<i>M. x zumi</i> var. <i>calocarpa</i> 'Red Fruit' (Red Fruit)	0	0	0.0	2	27
<i>M. x zumi</i> var. <i>calocarpa</i> 'Yellow Fruit' (Yellow Fruit)	0	0	0.0	4	27
<b>FAIRLY RESISTANT</b> (High Value = 1 or 2)					
<i>M. x adstringens</i> 'Almey' (Almey)	0	2	0.0	202	
<i>M. x adstringens</i> 'Kelsey' (Kelsey)	0	2	0.1	96	
<i>M. x adstringens</i> 'Sparkler' (Sparkler)	0	2	0.0	260	
<i>M. x adstringens</i> 'Vanguard' (Vanguard)	0	1	0.0	143	
<i>M.</i> 'American Beauty' (American Beauty)	0	1	0.0	200	
<i>M. angustifolia</i> 'Plena' (Prince Georges)	0	2	0.1	123	
<i>M. x arnoldiana</i> (Arnold)	0	2	0.0	317	
<i>M. baccata</i> f. <i>jackii</i> (Jack)	0	2	0.0	431	
<i>M. baccata</i> 'Spring Snow' (Spring Snow)	0	2	0.1	380	
<i>M.</i> 'Baskatong' (Baskatong)	0	2	0.0	111	
<i>M.</i> 'Big River' (Big River)	0	2	0.2	10	
<i>M.</i> 'Blanche Ames' (Blanche Ames)	0	2	0.1	88	
<i>M.</i> 'Burgandy' (Burgandy)	0	2	0.0	175	
<i>M. coronaria</i> var. <i>dasycalyx</i> 'Charlottae' (Charlotte)	0	2	0.2	70	
<i>M.</i> 'Ellen Gerhart' (Ellen Gerhart)	0	1	0.0	204	
<i>M. ioensis</i> 'Plena Improved' (Plena Improved)	0	2	0.8	49	15
<i>M.</i> 'Katherine' (Katherine)	0	1	0.0	383	
<i>M.</i> 'Kibele' (Kibele)	0	2	0.1	80	
<i>M.</i> 'Manbeck Weeper' (Anne E <sup>(R)</sup> )	0	1	0.0	50	
<i>M.</i> 'Mary Potter' (Mary Potter)	0	1	0.0	647	
<i>M. x micromalus</i> (Midget)	0	2	0.0	194	
<i>M.</i> 'Oekonomierat Echtermeyer' (Echtermeyer)	0	2	0.0	333	

### FROGEYE LEAF SPOT RATING

A listing of commercial crabapples evaluated  
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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>FAIRLY RESISTANT</b> (High Value = 1 or 2) Cont.					
<i>M.</i> 'Pink Cascade' (Pink Cascade)	0	2	0.0	95	
<i>M.</i> 'Prairifire' (Prairifire)	0	2	0.1	237	
<i>M. prunifolia</i> 'Fructu-coccinea' (Cheal's Crimson)	0	2	0.0	82	
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Makamik' (Makamik)	0	2	0.0	147	
<i>M.</i> 'Purple Wave' (Purple Wave)	0	2	0.2	143	
<i>M. x purpurea</i> 'Aldenhamensis' (Aldenham)	0	2	0.0	199	
<i>M. x purpurea</i> var. <i>eleyi</i> (Eleyi)	0	1	0.0	536	
<i>M. x purpurea</i> 'Lemoinei' (Lemoine)	0	2	0.0	200	
<i>M.</i> 'Pygmy' (Pygmy)	0	2	0.1	103	
<i>M. sargentii</i> (Sargent)	0	2	0.0	876	
<i>M. x scheideckeri</i> 'Hillier' (Hillier)	0	2	0.0	233	
<i>M.</i> 'Sentinel' (Sentinel)	0	2	0.0	393	
<i>M. sieboldii</i> (Toringo)	0	2	0.0	149	
<i>M.</i> 'Silver Moon' (Silver Moon)	0	1	0.0	316	
<i>M.</i> 'Sinai Fire' (Sinai Fire)	0	2	0.1	41	
<i>M.</i> 'Snow Magic' (Snow Magic)	0	2	0.0	130	
<i>M.</i> 'Velvetcole' (Velvet Pillar <sup>(TM)</sup> )	0	2	0.0	346	
<i>M.</i> 'White Candle' (White Candle)	0	2	0.0	271	
<i>M. yunnanensis</i> var. <i>veitchii</i> (Veitch)	0	2	0.0	281	
<i>M.</i> 'Zumarang' (Zumarang <sup>(R)</sup> )	0	1	0.1	14	
<i>M. x zumi</i> (Zumi)	0	1	0.0	115	
<i>M. x zumi</i> var. <i>calocarpa</i> (Redbud)	0	2	0.1	1073	

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>SUSCEPTIBLE (High Value = 3 or 4)</b>					
<i>M.</i> 'Adams' (Adams)	0	3	0.1	490	
<i>M.</i> x <i>adstringens</i> 'Hopa' (Hopa)	0	3	0.1	502	
<i>M.</i> x <i>adstringens</i> 'Radiant' (Radiant)	0	4	0.1	935	
<i>M.</i> x <i>adstringens</i> 'Red Splendor' (Red Splendor)	0	4	0.1	478	
<i>M.</i> x <i>adstringens</i> 'Royalty' (Royalty)	0	3	0.1	952	
<i>M.</i> x <i>adstringens</i> 'Selkirk' (Selkirk)	0	3	0.1	664	
<i>M.</i> x <i>adstringens</i> 'Sundog' (Sundog)	0	3	0.2	73	
<i>M.</i> x <i>atrosanguinea</i> (Carmine)	0	3	0.0	465	
<i>M. baccata</i> f. <i>columnaris</i> (Column Siberian)	0	3	0.0	255	
<i>M.</i> 'Beverly' (Beverly)	0	4	0.1	485	
<i>M.</i> 'Branzam' (Brandywine <sup>(TM)</sup> )	0	3	0.1	236	
<i>M.</i> 'Cascole' (White Cascade <sup>(TM)</sup> )	0	4	0.2	315	
<i>M.</i> 'Centennial' (Centennial)	0	4	0.0	100	
<i>M.</i> 'Centzam' (Centurion <sup>(R)</sup> )	0	3	0.0	443	
<i>M.</i> 'Coralcole' (Coralburst <sup>(TM)</sup> )	0	4	1.0	213	
<i>M. coronaria</i> (Wild Sweet)	0	3	0.1	44	
<i>M.</i> 'Dainty' (Dainty)	0	4	0.2	82	
<i>M.</i> 'David' (David)	0	3	0.0	458	
<i>M.</i> 'Donald Wyman' (Donald Wyman)	0	3	0.1	580	
<i>M.</i> 'Dorothea' (Dorothea)	0	3	0.0	419	
<i>M.</i> 'Flame' (Flame)	0	4	0.1	262	
<i>M. floribunda</i> (Japanese Flowering)	0	3	0.0	768	
<i>M.</i> 'Golden Hornet' (Golden Hornet)	0	3	0.1	220	
<i>M.</i> 'Hargozam' (Harvest Gold <sup>(TM)</sup> )	0	4	0.0	254	
<i>M.</i> 'Henningi' (Henning)	0	4	0.1	247	
<i>M.</i> 'Henry F. DuPont' (Henry F. DuPont)	0	3	0.0	194	
<i>M.</i> 'Henry Kohankie' (Henry Kohankie)	0	3	0.0	178	
<i>M. hupehensis</i> (Tea)	0	3	0.1	448	

## FROGEYE LEAF SPOT RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS.	NOTES <sup>(2)</sup>
	LOW	HIGH	AVE		
<b>SUSCEPTIBLE (High Value = 3 or 4) Cont.</b>					
<i>M. hupehensis</i> 'Strawberry Parfait' (Strawberry Parfait)	0	3	0.1	235	
<i>M.</i> 'Indian Magic' (Indian Magic)	0	3	0.0	541	
<i>M.</i> 'Indian Summer' (Indian Summer)	0	3	0.1	348	
<i>M. ioensis</i> (Prairie)	0	3	0.1	115	
<i>M. ioensis</i> 'Klehm's Improved Bechtel' (Klehm's Improved Bechtel)	0	3	0.1	118	
<i>M. ioensis</i> f. <i>plena</i> (Bechtel)	0	4	0.6	62	15,18
<i>M.</i> 'Jewelberry' (Jewelberry)	0	4	0.2	271	
<i>M.</i> 'Jewelcole' (Red Jewel <sup>(TM)</sup> )	0	3	0.0	428	
<i>M.</i> x <i>moerlandisii</i> 'Liset' (Liset)	0	3	0.0	392	
<i>M.</i> x <i>moerlandisii</i> 'Profusion' (Profusion)	0	3	0.1	441	
<i>M.</i> 'Molazam' (Molten Lava <sup>(R)</sup> )	0	3	0.1	242	
<i>M.</i> 'Ormiston Roy' (Ormiston Roy)	0	3	0.1	392	
<i>M.</i> 'Pink Perfection' (Pink Perfection)	0	3	0.0	271	
<i>M.</i> 'Pink Spires' (Pink Spires)	0	3	0.2	243	
<i>M.</i> 'Professor Sprenger' (Professor Sprenger)	0	3	0.5	259	
<i>M.</i> 'Ralph Shay' (Ralph Shay)	0	4	0.2	419	
<i>M.</i> 'Red Barron' (Red Barron)	0	3	0.1	442	
<i>M.</i> 'Red Jade' (Red Jade)	0	3	0.0	795	
<i>M.</i> 'Robinson' (Robinson)	0	3	0.1	395	
<i>M.</i> x <i>robusta</i> 'Beauty' (Beauty)	0	4	0.1	87	
<i>M.</i> x <i>robusta</i> 'Dolgo' (Dolgo)	0	3	0.1	470	
<i>M.</i> 'Ruby Luster' (Ruby Luster)	0	3	0.2	162	
<i>M.</i> x <i>scheideckeri</i> (Scheidecker)	0	3	0.0	248	
<i>M.</i> 'Shakespeare' (Shakespeare)	0	3	0.6	9	
<i>M. sieversii</i> var. <i>niedzwetzkyana</i> 'Rosseau' (Rosseau)	0	3	0.0	67	
<i>M.</i> 'Snowdrift' (Snowdrift)	0	3	0.2	1002	
<i>M. spectabilis</i> 'Van Eseltine' (Van Eseltine)	0	3	0.0	532	

## FROGEYE LEAF SPOT RATING

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NAME	RATINGS <sup>(1)</sup>			# OF OBS. NOTES <sup>(2)</sup>
	LOW	HIGH	AVE	
<b>SUSCEPTIBLE</b> ( High Value = 3 or 4 ) Cont.				
<i>M.</i> 'Strathmore' (Strathmore)	0	3	0.1	162
<i>M.</i> 'Sutyzam' (Sugar Tyme <sup>(R)</sup> )	0	3	0.0	419
<i>M.</i> <i>toringo</i> 'Winter Gold' (Winter Gold)	0	3	0.0	480
<i>M.</i> <i>tschonoskii</i> (Tschonoski)	0	4	0.1	406
<i>M.</i> 'Weepcanzam' (Weeping Candied Apple <sup>(TM)</sup> )	0	3	0.1	389
<i>M.</i> 'White Angel' (White Angel)	0	4	0.0	718
<i>M.</i> <i>x zumi</i> 'Bob White' (Bob White)	0	3	0.1	438

NOTES:

- (1) Based on numerical scale of 0 to 4. See Chapter 3 for discussion.  
(2) Refer to APPENDIX A for comments applicable.

## APPENDIX A

### NOTES DESCRIBED

1. Average value for Pacific Time Zone and USDA Hardiness Zone #8 at least 1.0 less than total average.
2. Average value for Mountain Time Zone and USDA Hardiness Zone #5 at least 1.0 less than total average.
3. Average value for Mountain Time Zone and USDA Hardiness Zone #8 at least 1.0 less than total average.
4. Average value for Central Time Zone and USDA Hardiness Zone #4 at least 1.0 less than total average.
5. Average value for Central Time Zone and USDA Hardiness Zone #5 at least 1.0 less than total average.
6. Average value for Central Time Zone and USDA Hardiness Zone #7 at least 1.0 less than total average.
7. Average value for Eastern Time Zone and USDA Hardiness Zone #5 at least 1.0 less than total average.
8. Average value for Eastern Time Zone and USDA Hardiness Zone #6 at least 1.0 greater than total average.
9. Average value for Eastern Time Zone and USDA Hardiness Zone #7 at least 1.0 greater than total average.
11. Average value for Pacific Time Zone and USDA Hardiness Zone #8 at least 1.0 greater than total average.
12. Average value for Mountain Time Zone and USDA Hardiness Zone #5 at least 1.0 greater than total average.
13. Average value for Mountain Time Zone and USDA Hardiness Zone #8 at least 1.0 greater than total average.
14. Average value for Central Time Zone and USDA Hardiness Zone #4 at least 1.0 greater than total average.

15. Average value for Central Time Zone and USDA Hardiness Zone #5 at least 1.0 greater than total average.
16. Average value for Central Time Zone and USDA Hardiness Zone #7 at least 1.0 greater than total average.
17. Average value for Eastern Time Zone and USDA Hardiness Zone #5 at least 1.0 greater than total average.
18. Average value for Eastern Time Zone and USDA Hardiness Zone #6 at least 1.0 greater than total average.
19. Average value for Eastern Time Zone and USDA Hardiness Zone #7 at least 1.0 greater than total average.
21. Not used.
22. Not used.
23. Not used.
24. Data limited to Central Time Zone and USDA Hardiness Zone #4.
25. Data limited to Central Time Zone and USDA Hardiness Zone #5.
26. Not used.
27. Data limited to Eastern Time Zone and USDA Hardiness Zone #5.
28. Data limited to Eastern Time Zone and USDA Hardiness Zone #6.
29. Data limited to Eastern Time Zone and USDA Hardiness Zone #7.

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Front Cover Photo: Cedar/Apple Rust (*Gymnosporangium juniperi-virginiae*)