



Bulletin 651 August 2003  
Alabama Agricultural Experiment Station  
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Auburn University Auburn, Alabama

*Common Diseases  
of Pansy and  
Viola Cultivars  
in the Landscape*

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First Printing 1M, August 2003

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# COMMON DISEASES OF PANSY AND VIOLA CULTIVARS IN THE LANDSCAPE

A. K. Hagan, J. R. Akridge, and M. E. Rivas-Davila

## INTRODUCTION

A colorful winter and spring floral display as well as deep green foliage has made pansy (*Viola x wittrockiana*) a landscape favorite in Alabama and the rest of the South. Some of the more heat tolerant selections may bloom into June but most need to be replaced with a summer annual by early May. Although a number of destructive diseases of pansy have been identified, particularly in flat and pot-grown plants, the identity and severity of diseases in landscape plantings of pansy are not particularly well known.

In Alabama, *Cercospora* leaf spot, which is caused by the fungus *Cercospora violae*, has been found in both landscape plantings as well as in pot- and flat-grown pansy in a commercial greenhouse (2). Circular spots about 1/4 inch in diameter first appear on the lowest leaves around the base of the plant. Depending on the pansy cultivar, leaf spots vary from tan to charcoal gray in color. Spotting gradually spreads upward through the leaf canopy until nearly all of the diseased leaves have withered and turned brown. Holcomb and Cox (1) have noted that selected pansy and viola cultivars vary considerably in their susceptibility to *Cercospora* leaf spot. Little other specific information concerning cultivar reaction or other control procedures for *Cercospora* leaf spot is available (2).

Powdery mildew may appear on the leaves and petioles of pansy in late winter or early spring. While powdery mildew will not kill pansy, severe disease outbreaks may reduce plant vigor and may accelerate plant decline (2). The appearance of small discrete patches of white, feathery thread-like

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hyphae and spore masses of the causal fungus *Sphaerotheca fuliginea* growing on the upper leaf surfaces, leaf petioles, and flower peduncle is the diagnostic feature of powdery mildew. Growth of the causal fungus may continue until the entire surface of the leaf has been colonized by the powdery mildew fungus *S. fuliginea*.

This study was initiated to identify common diseases on pansy in the landscape, as well as to assess the susceptibility of pansy and viola cultivars to the diseases identified.

## METHODS

In 1997, 2000, 2001, and 2002, pansy and viola cultivar reaction to diseases was evaluated at the Brewton Agricultural Research Unit in Brewton, Alabama, [USDA Zone 8a], which is located approximately 45 miles north of Pensacola, Florida. The soil type was a Benndale sandy loam with less than 1% organic matter. Approximately one week before planting, 400 or 500 pounds per acre of 13-13-13 or 5-10-15 granular fertilizer was broadcast and lightly incorporated into the beds. Flats of pansy and viola cultivars were obtained from commercial wholesale or retail outlets. (Pansy and viola cultivars screened in all four years are listed in Table 1.) Four plants of each cultivar were taken from a commercial 36- or 48-cell plug tray and transplanted on a 1-foot square in a randomized complete block design with six replications. Planting dates were October 22, 1996, November 15, 1999, November 3, 2000, and November 9, 2001. A drip irrigation system was installed immediately after planting and the plants were watered as needed. Calcium nitrate at the rate of 7 to 10 pounds per acre was applied weekly through the drip irrigation system. Also, 7 pounds of potassium nitrate were delivered through the irrigation system on February 8 and February 22, 2002.

Incidence of powdery mildew and/or *Cercospora* leaf spot was recorded on May 20, 1997, April 13, 2000, May 9, 2001, and May 9, 2002. *Cercospora* leaf spot damage was rated using a modified Florida peanut leaf spot scoring system where 1 = no disease, 2 = very few leaf spots, 3 = a few leaf spots in lower and upper canopy, 4 = some leaf spots with light defoliation, 5 = noticeable spotting of the leaves with some defoliation ( $\geq 25\%$ ), 6 = spots numerous with significant defoliation ( $\geq 50\%$ ), 7 = spots numerous with extensive defoliation ( $\geq 75\%$ ), 8 = heavy spotting of the few remaining leaves, 9 = very few remaining leaves covered with spots, and 10 = plants defoliated (100%) or dead. In 1997, powdery mildew severity was visually rated on a scale of 1 to 5 where 1 = no disease, 2 = 0 to 25%, 3 = 25 to 50%, 4 = 50 to 75%, and 5 = 75 to 100% of the leaves colonized. For the 2000 trial,

**TABLE 1. REACTION OF PANSY AND VIOLA CULTIVARS  
TO POWDERY MILDEW AND CERCOSPORA LEAF SPOT,  
BREWTON AGRICULTURAL RESEARCH UNIT, 1997, 2000, 2001, 2002**

| Cultivar                 | Powdery mildew <sup>1</sup> |      | Cercospora leaf spot <sup>2</sup> |      |      |      |
|--------------------------|-----------------------------|------|-----------------------------------|------|------|------|
|                          | 1997                        | 2000 | 1997                              | 2000 | 2001 | 2002 |
| Accord White Blotch      | — <sup>3</sup>              | —    | —                                 | —    | 4.8  | —    |
| Imperial                 |                             |      |                                   |      |      |      |
| Accord Yellow Blotch     | —                           | —    | —                                 | —    | 5.3  | —    |
| Bingo Blue with Blotch   | 1.8                         | 1.4  | 4.5                               | 4.0  | 4.5  | 4.0  |
| Bingo Light Rose         | 3.0                         | 2.7  | 5.3                               | 6.5  | 4.3  | 5.0  |
| Bingo Deep Purple        | 1.0                         | 1.5  | 5.0                               | 4.3  | —    | 4.7  |
| Bingo White with Blotch  | 2.0                         | 1.0  | 5.3                               | 5.7  | 4.2  | —    |
| Bingo Yellow             | —                           | 1.0  | —                                 | 5.3  | 5.8  | —    |
| Bingo Yellow with Blotch | —                           | 1.0  | —                                 | 5.5  | —    | 4.8  |
| Bingo Red & Yellow       | —                           | —    | —                                 | —    | 3.8  | 3.0  |
| Bingo Clear Yellow       | —                           | —    | —                                 | —    | 4.6  | 4.5  |
| Bingo Red with Blotch    | —                           | —    | —                                 | —    | 4.0  | —    |
| Bingo Clear White        | —                           | —    | —                                 | —    | —    | 4.5  |
| Bingo Clear Azure        | —                           | 4.8  | —                                 | 4.7  | —    | 4.3  |
| Clear Sky Primrose       | 2.0                         | —    | 5.5                               | —    | —    | —    |
| Clear Sky Yellow         | —                           | 1.4  | —                                 | 5.2  | —    | —    |
| Crown Golden             | 2.8                         | —    | 4.8                               | —    | —    | 3.7  |
| Crown Blue               | 3.0                         | —    | 6.0                               | —    | —    | 3.2  |
| Crown Orange             | 1.7                         | 3.2  | 5.5                               | 5.0  | 4.7  | 4.5  |
| Crown Cream              | 2.0                         | 1.0  | 6.0                               | 4.7  | —    | —    |
| Crown Rose               | 2.0                         | 1.0  | 5.8                               | 5.7  | —    | 5.0  |
| Crown Purple             | 2.8                         | —    | 5.8                               | —    | 5.2  | —    |
| Crown Yellow             | 3.3                         | —    | 5.7                               | —    | —    | —    |
| Crown Yellow Splash      | 1.5                         | —    | 6.8                               | —    | —    | —    |
| Crown Scarlet            | 3.3                         | —    | 6.0                               | —    | —    | 4.8  |
| Crown White              | 2.8                         | —    | 6.0                               | —    | —    | —    |
| Crown Azure              | —                           | —    | —                                 | —    | 5.3  | —    |
| Crystal Bowl Yellow      | —                           | —    | —                                 | —    | 4.8  | —    |
| Crystal Bowl Supreme     | —                           | —    | —                                 | —    | 5.0  | —    |
| Lavender Shades          |                             |      |                                   |      |      |      |
| Crystal Bowl Purple      | —                           | —    | —                                 | —    | 4.0  | —    |
| Crystal Bowl Supreme     | —                           | —    | —                                 | —    | —    | 6.0  |
| Scarlet                  |                             |      |                                   |      |      |      |
| Crystal Bowl Supreme     | —                           | —    | —                                 | —    | —    | 4.8  |
| Rose                     |                             |      |                                   |      |      |      |
| Crystal Bowl Supreme     | —                           | —    | —                                 | —    | 4.0  | 3.2  |
| Yellow                   |                             |      |                                   |      |      |      |
| Crystal Bowl Supreme     | —                           | —    | —                                 | —    | 4.0  | 3.8  |
| True Blue                |                             |      |                                   |      |      |      |
| Crystal Bowl Supreme     | —                           | —    | —                                 | —    | 4.3  | —    |
| White                    |                             |      |                                   |      |      |      |

continued

**TABLE 1, CONTINUED. REACTION OF PANSY AND VIOLA CULTIVARS  
TO POWDERY MILDEW AND CERCOSPORA LEAF SPOT,  
BREWTON AGRICULTURAL RESEARCH UNIT, 1997, 2000, 2001, 2002**

| Cultivar                 | Powdery mildew <sup>1</sup> |      | Cercospora leaf spot <sup>2</sup> |      |      |      |
|--------------------------|-----------------------------|------|-----------------------------------|------|------|------|
|                          | 1997                        | 2000 | 1997                              | 2000 | 2001 | 2002 |
| Crystal Bowl Mix         | —                           | —    | —                                 | —    | 4.5  | —    |
| Delta Pink Shades        | 1.5                         | 1.0  | 5.5                               | 4.0  | 5.2  | —    |
| Delta Blue with Blotch   | 3.5                         | —    | 5.5                               | —    | —    | —    |
| Delta Yellow with Blotch | —                           | —    | —                                 | —    | —    | 5.2  |
| Delta Pure Yellow        | 1.5                         | —    | 6.0                               | —    | —    | —    |
| Delta White/Rose Wing    | 1.8                         | —    | 5.5                               | —    | —    | —    |
| Delta Red with Blotch    | 3.0                         | —    | 6.5                               | —    | —    | —    |
| Delta Pure Violet        | 3.0                         | —    | 5.5                               | —    | —    | —    |
| Delta Pure Rose          | 1.0                         | —    | 6.8                               | —    | —    | —    |
| Delta Pure Primrose      | 2.5                         | —    | 5.5                               | —    | —    | —    |
| Delta White with Blotch  | —                           | —    | —                                 | —    | 5.3  | —    |
| Dynamite Ocean           | —                           | —    | —                                 | —    | —    | 4.5  |
| Dynamite Purple          | —                           | —    | —                                 | —    | —    | 4.7  |
| Rose & White             | —                           | —    | —                                 | —    | —    | —    |
| Dynamite Red & Yellow    | —                           | —    | —                                 | —    | —    | 3.5  |
| Dynamite Purple          | —                           | —    | —                                 | —    | 4.5  | —    |
| Dynamite Scarlet         | —                           | —    | —                                 | —    | 5.2  | —    |
| Dynamite Lavender        | —                           | —    | —                                 | —    | 3.7  | —    |
| Fama See Me              | —                           | —    | —                                 | —    | 4.2  | —    |
| Halloween                | —                           | 1.3  | —                                 | 5.5  | —    | —    |
| Imperial Antique Shades  | —                           | 1.0  | —                                 | 5.8  | 5.5  | 5.7  |
| Imperial Beaconsfield    | 4.0                         | 3.0  | 5.5                               | 3.7  | 4.5  | 4.7  |
| Imperial Pink Shades     | —                           | 1.7  | —                                 | 5.0  | 4.8  | —    |
| Imperial Frost Rose      | —                           | —    | —                                 | —    | —    | 5.7  |
| Imperial Silver Blue     | —                           | 4.7  | —                                 | 4.5  | —    | 4.0  |
| Majestic Giant White     | —                           | 1.2  | —                                 | 4.8  | —    | 4.2  |
| Majestic Giant Purple    | 3.8                         | 2.4  | 5.7                               | 5.4  | 5.8  | 4.8  |
| Majestic Giant Blue      | —                           | 2.3  | —                                 | 5.5  | 6.3  | 5.0  |
| Shades                   | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant           | 2.5                         | —    | 5.3                               | —    | 3.7  | —    |
| Red & Yellow             | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant Red       | —                           | 1.7  | —                                 | 5.0  | 5.3  | 4.5  |
| & Rose Shades            | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant Rose      | —                           | —    | —                                 | —    | 5.2  | —    |
| Shades                   | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant           | 2.0                         | 2.3  | 5.0                               | 4.8  | —    | —    |
| Scarlet & Bronze         | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant Blue      | 3.8                         | —    | 5.5                               | —    | —    | —    |
| with Blotch              | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant Yellow    | 2.3                         | —    | 5.5                               | —    | 5.7  | —    |
| with Blotch              | —                           | —    | —                                 | —    | —    | —    |
| Majestic Giant White     | 1.5                         | —    | 5.3                               | —    | 4.2  | —    |
| with Blotch              | —                           | —    | —                                 | —    | —    | —    |

continued

**TABLE 1, CONTINUED. REACTION OF PANSY AND VIOLA CULTIVARS  
TO POWDERY MILDEW AND CERCOSPORA LEAF SPOT,  
BREWTON AGRICULTURAL RESEARCH UNIT, 1997, 2000, 2001, 2002**

| Cultivar                         | Powdery mildew <sup>1</sup> |      | Cercospora leaf spot <sup>2</sup> |      |      |      |
|----------------------------------|-----------------------------|------|-----------------------------------|------|------|------|
|                                  | 1997                        | 2000 | 1997                              | 2000 | 2001 | 2002 |
| Majestic Giant Yellow            | —                           | —    | —                                 | —    | 4.4  | 3.7  |
| Maxim Marina                     | —                           | 3.8  | —                                 | 5.0  | —    | —    |
| Maxim Orange                     | 1.3                         | 1.8  | 5.5                               | 5.7  | —    | —    |
| Maxim Red & Yellow               | —                           | 1.5  | —                                 | 3.8  | —    | —    |
| Maxim Sherbet                    | 1.8                         | 1.7  | 4.0                               | 4.2  | 3.2  | 4.2  |
| Maxim Sunset                     | —                           | 1.0  | —                                 | 5.0  | 4.2  | 4.0  |
| Maxim Supreme Rose               | —                           | —    | —                                 | —    | 4.0  | —    |
| Maxim Yellow & Blue              | 2.8                         | 2.3  | 5.5                               | 4.5  | —    | —    |
| Melody Purple & Orange           | —                           | 1.2  | —                                 | 5.3  | —    | —    |
| Penny Azure Viola                | —                           | —    | —                                 | —    | —    | 5.2  |
| Penny White Viola                | —                           | —    | —                                 | —    | —    | 4.8  |
| Penny Citrus Mix Viola           | —                           | —    | —                                 | —    | —    | 4.7  |
| Penny Blue Viola                 | —                           | 1.0  | —                                 | 6.0  | —    | —    |
| Penny Mix Viola                  | —                           | 1.0  | —                                 | 4.0  | 5.3  | —    |
| Penny Yellow Viola               | —                           | 1.2  | —                                 | 3.0  | 5.2  | 4.3  |
| Penny Violet Flare               | —                           | —    | —                                 | —    | 4.8  | —    |
| Purple Rain                      | —                           | 1.0  | —                                 | 4.5  | —    | 5.5  |
| Skyline Blue                     | 2.0                         | —    | 4.8                               | —    | —    | —    |
| Sorbet Plum Violet               | —                           | 2.0  | —                                 | 4.3  | —    | —    |
| Sorbet Blackberry<br>Cream Viola | —                           | —    | —                                 | —    | —    | 3.8  |
| Sorbet Sunny Royal Viola         | —                           | —    | —                                 | —    | —    | 5.5  |
| Trick or Treat                   | —                           | 2.0  | —                                 | 5.8  | —    | —    |
| Ultima Beacon Bronze             | —                           | —    | —                                 | —    | —    | 5.3  |
| Ultima Morpho                    | —                           | —    | —                                 | —    | —    | 4.5  |
| Ultima Silhouette Mix            | —                           | 1.8  | —                                 | 5.2  | 4.3  | —    |

<sup>1</sup> In 1997, powdery mildew incidence was visually rated on a scale of 1 to 5 where 1 = no disease, and 5 = 80 to 100% of the leaves colonized. Two years later, the incidence of this disease was assessed on a 1 to 12 scale where 1 = no disease, 2 = 0 to 3%, 3 = 3 to 6%, 4 = 6 to 12%, 5 = 12 to 25%, 6 = 25 to 50%, 7 = 50 to 75%, 8 = 75 to 87%, 9 = 87 to 94%, 10 = 94 to 97%, 11 = 97 to 100%, 12 = 100% of the leaves colonized by *S. fuliginea*.

<sup>2</sup> Cercospora leaf spot damage was rated using a scoring system where 1 = no disease, 2 = very few leaf spots, 3 = a few leaf spots in lower and upper canopy, 4 = some leaf spots with light defoliation ( $\leq 10\%$ ), 5 = noticeable spotting of the leaves with some defoliation ( $\leq 25\%$ ), 6 = spots numerous with significant defoliation ( $\leq 50\%$ ), 7 = spots numerous with extensive defoliation ( $\leq 75\%$ ), 8 = heavy spotting of the few remaining leaves, 9 = very few remaining leaves covered with spots, and 10 = plants defoliated (100%) or dead.

<sup>3</sup> — = no data; cultivar not evaluated in that year.

the severity of this disease was assessed on a 1 to 12 Horsfall and Barratt rating scale where 1 = no disease, 2 = 0 to 3%, 3 = 3 to 6%, 4 = 6 to 12%, 5 = 12 to 25%, 6 = 25 to 50%, 7 = 50 to 75%, 8 = 75 to 87%, 9 = 87 to 94%, 10 = 94 to 97%, 11 = 97 to 100%, 12 = 100% of the leaves colonized by the powdery mildew fungus, *Sphaerotheca fuliginea*.

## RESULTS

Over the four-year test period, *Cercospora* leaf spot was consistently the most common and damaging disease observed on pansy. Typically, leaves colonized by the causal fungus *Cercospora viola* quickly yellowed, shriveled, and died. Leaf loss usually started at the base of the shoots and continued until all but the youngest leaves were killed. The characteristic leaf spotting and premature leaf shed associated with this disease was seen on all pansy and viola selections. However, considerable differences in the level of *Cercospora* leaf spot severity were observed in each year among the cultivars evaluated (Table 1). Overall, *Cercospora* leaf spot pressure was fairly consistent across all four years.

Of the pansy and viola cultivars evaluated over all four years, 'Maxim Sherbet' and 'Bingo Blue with Blotch' consistently had the lowest ratings for *Cercospora* leaf spot damage. At the late April or May rating dates, symptoms on both cultivars were limited to light leaf spotting and a low level of premature leaf loss (Table 1). Leaf spot ratings for the 'Imperial Beaconsfield' pansy were similar to those of the above cultivars in 2000, 2001, and 2002 but were noticeably higher in 1997. Over a two-year period, 'Bingo Red & Yellow', 'Bingo Clear Azure', 'Bingo Clear Yellow', 'Crystal Bowl Supreme Yellow', 'Crystal Bowl Supreme True Blue', 'Majestic Giant Yellow', and 'Maxim Sunset' suffered relatively light to moderate leaf spot damage. Pansy cultivars with *Cercospora* leaf spot ratings of 4.0 or lower for one year included 'Bingo Red with Blotch', 'Crystal Bowl Purple', 'Dynamite Lavender', 'Dynamite Red & Yellow', and the 'Sorbet Blackberry Cream' viola (Table 2).

Since most pansy and viola cultivars proved to be susceptible to *Cercospora* leaf spot in at least one year, they are likely to suffer from considerable damage in landscape plantings. As indicated by a *Cercospora* leaf spot rating above 6.0 in at least one year, 'Bingo Light Rose' 'Crown Yellow Splash', 'Crown Scarlet', 'Crown White', 'Crystal Bowl Scarlet', 'Delta Red with Blotch', 'Delta Pure Rose', 'Delta Pure Yellow', 'Majestic Giant Blue Shades' pansy, and 'Penny Blue' viola were heavily damaged by *C. viola* (Table 1). Symptoms on these cultivars included a minimum of 50% premature leaf death, heavy spotting of the remaining leaves, and a notable decline



**TABLE 2. LISTING OF PANSY AND VIOLA CULTIVARS THAT ARE RESISTANT OR SUSCEPTIBLE TO CERCOSPORA LEAF SPOT AND POWDERY MILDEW**

| Degree of resistance or susceptibility (years tested)    | Cultivar   |
|--|--|
| <b>Cercospora leaf spot</b>                              |  |
| Least damage (four years of testing)                     | 'Maxim Sherbet', 'Bingo Blue with Blotch'  |
| Light to moderate damage (two years of testing)          | 'Bingo Red & Yellow', 'Bingo Clear Azure', 'Bingo Clear Yellow', 'Crystal Bowl Supreme True Blue', 'Majestic Giant Yellow', 'Maxim Sunset'   |
| Light to moderate damage (one year of testing)           | 'Bingo Red with Blotch', 'Crystal Bowl Purple', 'Dynamite Lavender', 'Dynamite Red & Yellow', 'Sorbet Blackberry Cream' viola  |
| Heavy damage <sup>1</sup> (at least one year of testing) | 'Bingo Light Rose', 'Crown Yellow Splash', 'Crown Scarlet', 'Crown White', 'Crystal Bowl Scarlet', 'Delta Red with Blotch', 'Delta Pure Rose', 'Delta Pure Yellow', 'Majestic Giant Blue Shades', 'Penny Blue' viola |
| <b>Powdery mildew</b>                                    |  |
| High incidence (1997, 2000)                              | 'Bingo Light Rose', 'Imperial Beaconsfield'  |

<sup>1</sup> Disease rating of  $\geq 6.0$ .

in plant quality and vigor. In one or more other years, Cercospora leaf spot ratings for these and many of the remaining pansy and viola cultivars ranged from 5.0 to 5.8. Such leaf spot ratings indicated that defoliation levels ranged from 25% to nearly 50% and that overall plant health and vigor was poor. Considerable leaf spot development on many Majestic Giant pansy series, such as 'Majestic Giant Blue Shades', was reported in a recent Louisiana study (1). While 'Penny Blue' and other viola selections suffered significant leaf spot damage, Holcomb and Cox (1) noted relatively low disease ratings on many of the same viola cultivars.

Powdery mildew was observed in 1997 and 2000 but not in 2001 or 2002. Overall, the incidence of powdery mildew was higher in 1997 than in 2000. Powdery mildew had less of an impact on plant aesthetics and vigor than did Cercospora leaf spot.

On the majority of pansy cultivars examined in 1997 and 2000, the severity of powdery mildew was very low and only a few colonies of *S. fuliginea* were seen on the leaves and petioles. However, significant differences in

the level of leaf and petiole colonization among the pansy and viola cultivars screened were seen in both years (Table 1). Of the pansy cultivars evaluated in both 1997 and 2000, powdery mildew was found on the leaves and leaf petioles in both years. Cultivars with low powdery mildew ratings both years include 'Bingo Blue with Blotch', 'Bingo Deep Purple', 'Delta Pink Shades', 'Maxim Orange', and 'Maxim Sherbet'. Of the cultivars screened in 2000 only, *S. fuliginea* colonization of the leaves and leaf petioles was not observed on 'Bingo Yellow', 'Bingo Yellow with Blotch', 'Imperial Antique Shades', 'Penny Blue', 'Penny Mix', and 'Purple Rain'. Although light, unobtrusive colonization was noted in 2000 on 19 additional cultivars, their disease ratings did not differ substantially from those that were free of powdery mildew.

Of the cultivars evaluated in 1997 and 2000, powdery mildew incidence was highest on 'Bingo Light Rose' and 'Imperial Beaconsville' (Table 1). Noticeable powdery mildew development was noted in one of two years on three additional cultivars of pansy. Of the cultivars screened in 2000 alone, 'Bingo Clear Azure', 'Imperial Silver Bell', and 'Maxim Marina' had the highest incidence of powdery mildew.

### SUMMARY

*Cercospora* leaf spot was the predominant disease found in this simulated landscape planting of pansy and viola cultivars. In all four years, extensive leaf spotting and premature leaf shed were seen on nearly all of cultivars. Rapid disease spread in late March and April may account for the noticeable and rapid decline in the beauty and vigor typically seen in mid- to late spring in landscape plantings of pansy and viola across Alabama and surrounding states. A list of pansy cultivars that were identified with partial resistance to *Cercospora* leaf spot can be found in Table 2.

The occurrence of powdery mildew was much more sporadic than that of *Cercospora* leaf spot. This disease occurred on fewer cultivars, was seen in only two of four years during the study period, and caused considerably less damage to pansy than *Cercospora* leaf spot. In fact, only a handful of pansy cultivars, such as 'Bingo Light Rose' and 'Imperial Beaconsfield', appeared to be highly susceptible to powdery mildew.

Of the pansy cultivars screened, 'Bingo Blue with Blotch' and 'Maxim Sherbet' suffered the least damage from the combination of *Cercospora* leaf spot and powdery mildew. Low levels of leaf spotting and premature defoliation due to *Cercospora* leaf spot were recorded for a number of other pansy cultivars, particularly several members of the Crystal Bowl series, evaluated only during the 2001-2002 growing season. Use of disease-resistant cultivars should enhance the aesthetics and possibly the life span of pansy in residential and commercial landscapes in Alabama.

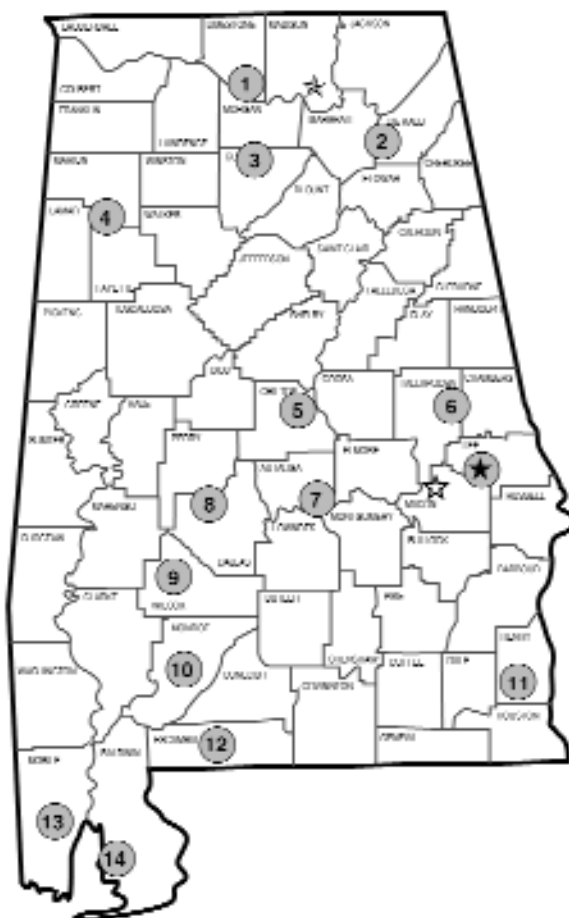
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## Alabama's Agricultural Experiment Station AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the state has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



### Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ Alabama A&M University.
- ☆ F. V. Smith Research Center, Shorter.

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| <ul style="list-style-type: none"> <li>1. Tennessee Valley Research and Extension Center, Wetumpka.</li> <li>2. Sand Mountain Research and Extension Center, Crossville.</li> <li>3. North Alabama Horticulture Research Center, Collins.</li> <li>4. Upper Coastal Plain Agricultural Research Center, Winfield.</li> <li>5. Chilton Research and Extension Center, Clanton.</li> <li>6. Piedmont Substation, Camp Hill.</li> <li>7. Prattville Agricultural Research Unit, Prattville.</li> </ul> | <ul style="list-style-type: none"> <li>8. Black Hill Research and Extension Center, Merren Junction.</li> <li>9. Lower Coastal Plain Substation, Camden.</li> <li>10. Morrowville Agricultural Research Unit, Morrowville.</li> <li>11. Wiregrass Research and Extension Center, Headland.</li> <li>12. Hawton Agricultural Research Unit, Hawton.</li> <li>13. Ornamental Horticulture Research Center, Spring Hill.</li> <li>14. Gulf Coast Research and Extension Center, Fairhope.</li> </ul> |
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