Powdery Mildew Chemical Control Update

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I decided it might be a good time to review some of the research on powdery mildew. We spent a lot of time last year fighting with the disease on various crops. First, we could not make it happen no matter what we tried, even on Gerber daisy. Then when we did have the right weather, we could not seem to get any control even with the best products. Some of our most recent trials were on roses and they really do seem to be one of the toughest crops to control powdery mildew on. We also tested Gerber daisies, crape myrtle and zinnias in this time frame.

Results of national trials for chemical control of powdery mildew are summarized in the table below. It is interesting to see what all of the researchers are testing as well as what specific results are. Eight researchers from Michigan, New York, Alabama and California performed trials on powdery mildew of rosemary, aster, miniature rose, sedum, poinsettia, phlox, *Monarda*, crape myrtle, azalea, hydrangea, salvia, Gerber daisy, dogwood, *Scabiosa,* verbena, zinnia and *Ranunculus*. While this list does not include all ornamentals that get powdery mildew it certainly does show an effort to work on a wide range of crops.

Product	Results
Banner MAXX	Very good to excellent
BAS500	Very good to excellent
Bayleton	Good
Biophos	Very good
Camelot	Some
Compass O	Very good to excellent
Cygnus	Very good to excellent
Daconil Ultrex	Very good to excellent
Decree	Some to good
Domain	Poor to excellent (resistance concerns)
Fungo	Excellent
Heritage	Very good to excellent
Immunox	Very good
Kaligreen	Very good
Milsana	Some to good
Milstop	Good to excellent
Phyton 27	Good to excellent
Pipron	Very good to excellent
Rhapsody	Very good
Rubigan	Good

Spectro	Poor to some
Strike	Good to excellent
SunSpray	Good
Systhane (Eagle)	Very good to excellent
Terraguard	Very good to excellent
Triact	Good to excellent
Zyban	Poor to excellent (resistance concerns)
3336	Poor to very good (resistance concerns)

The fungicides that are colored the same belong to the same chemical class. You can see that a few chemical groups are very good to excellent for control of powdery mildew. The sterol inhibitors (in blue), including Banner MAXX, Bayleton, Immunox, Rubigan, Strike, Systhane (now Eagle) and Terraguard, are a key chemical class for fighting powdery mildew. In addition, the strobilurins (in pink), including Compass O, Cygnus, Heritage and BAS500 (an experimental compound from BASF Corporation) are also very effective and have become standards for powdery mildew control on some important crops at least.

These two large chemical groups do not even scratch the surface of products for powdery mildew control. Copper products like Camelot and Phyton 27, oils like Triact and Sunspray and potassium bicarbonates like Kaligreen and Milstop also give good results.

One interesting development is the continued use of thiophanate methyl products (in green) for powdery mildew control. These products were excellent for control for years but rapidly developed resistance if they were overused. The results for Fungo, Spectro, Zyban and 3336 show some of this condition. At times they may give excellent control but if resistance to thiophanate methyl has developed for a particular powdery mildew fungus they will not be effective. As this illustrates, rotation for resistance management is critical. Make sure you use products from at least two chemical groups in an alternating pattern or in a tank mix.

Conclusions

Many ornamental plants are attacked by powdery mildew fungi we have a very large arsenal of chemicals for their prevention. In many cases, we can even eradicate an infection once it is found instead of spraying preventatively. There are a few plant species that are so badly affected by powdery mildew that eradication is not usually effective. For these crops, like some rose cultivars, you should probably spray preventatively when the conditions are favorable for disease.