CHASE NEWS

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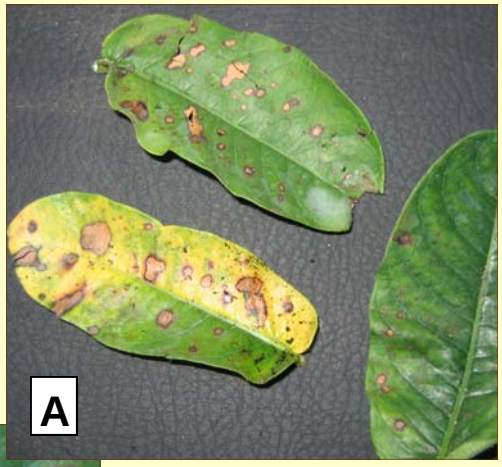
CHASE HORTICULTURAL RESEARCH, INC.

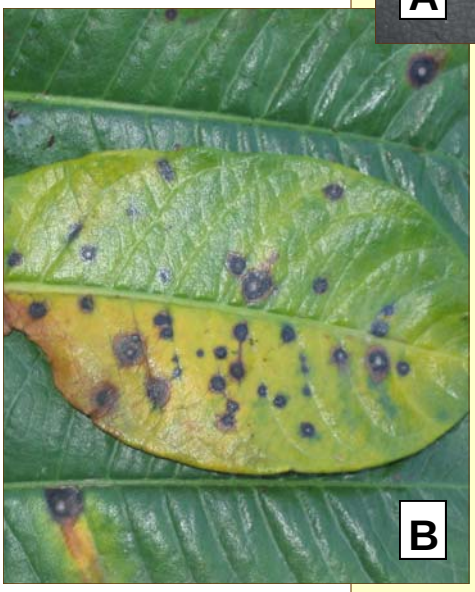
What's Your Best Guess?

I am still surprised when people send me pictures and ask me to guess what is wrong with the plant and prescribe a solution. I could go over all of the reasons I don't like to do this—and I usually won't guess—but perhaps an example would be more helpful.

I got a few good pictures in an e-mail asking for a quick ID and control. And, when I saw the pictures I decided there were too many possibilities to guess. I asked for a sample to be sent and when we isolated the pathogen we found two of them! I really was surprised since even though I talk about the possibility of mixed infections I usually see this in roots and not leaf spots.

One of the pictures of Mandevilla to the right shows typical symptoms of Corynespora leaf spot and another one shows anthracnose caused by *Colletotrichum* sp. We had samples of both of these in our diagnostic lab last year. Can you tell which one is which? The final picture shows a mixed infection with both pathogens. Check on the last page for answers to the question.





What difference does it make which fungus is causing the spots?

1. There is no single fungicide that works best on all fungal leaf spots. The best products for anthracnose caused by Colletotrichum are Daconil Ultrex, Pageant, Phyton 27 and Spectro. In contrast the best fungicides for Alternaria are Daconil Ultrex, Medallion and Chipco 26019.
2. Spray interval and the possible benefit of adding a wetting agent are not the same for all fungal leaf spots.
3. The fungi have different host ranges. That is the disease might spread to other plants you are growing and without knowing which one you are facing you cannot judge whether or not it will spread.

So my best guess is sometimes absolutely wrong. If you guess wrong on the cause of a problem you are starting with a severe handicap. Please send your samples into a diagnostic lab and identify the problem BEFORE you decide how to cure it!

Inside this issue:

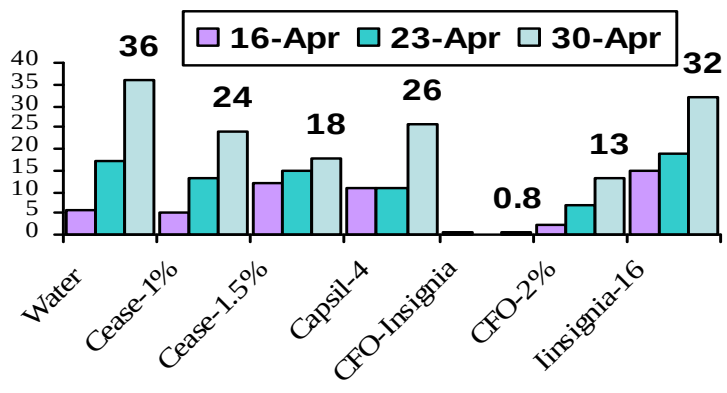
Improving Fungicide Efficacy with Crocker's Fish Oil

In the past 6 months or so we have been doing a series of tests evaluating the benefits of adding wetting agents to fungicides for control of foliar diseases. We have found that in certain diseases like rusts this is a critical addition. In other cases, like powdery mildews we find that many wetting agents on their own can give some control. Finally, adding a wetting agent sometimes increases the longevity of a fungicide application. In April, we performed a couple of tests with Crocker's Fish Oil and decided to include Capsil as well. The results are shown in the two graphs on this page.

In the first trial, we tested the ability of a couple of products to prevent an outbreak of powdery mildew (*Sphaerotheca pannosa*) on rose (Nearly Wild Medium Pink). We started applications as soon as the powdery mildew appeared and ended up applying the products twice (10 and 24 April). The treatments included water, Cease (Rhapsody bio-control currently marketed by BioWorks at 1%) with Capsil (4 oz/100 gal), Cease (1.5%) and Capsil (4 oz), Crocker's Fish Oil (CFO at 2%) and Insignia (16 oz/100 gal), CFO alone (2%) and finally Insignia alone (16 oz).

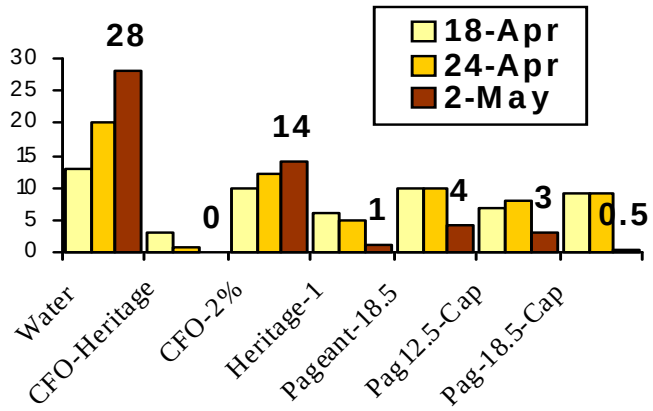
The graph below shows that Cease slowed down powdery mildew development slightly as did Capsil alone. CFO performed much better at the 256 oz/100 gal rate. Insignia did not do well on rose powdery mildew—we have seen similar results with Heritage on rose powdery mildew. Finally, excellent control was seen with the combination treatment of CFO and Insignia which results in nearly complete control in this trial. The relatively poor results with the other treatments may have been due to the longer application interval but the combination of CFO-Insignia was excellent at this interval.

Powdery mildew on rose—no. colonies



We did a second trial with both CFO and Capsil on Bellis rust (*Coleosporium* sp.). In this case, the products were applied on a weekly interval (14, 21 and 28 April). The treatments included water, CFO (2%) and Heritage (1 oz/100 gal), CFO alone (2%), Heritage alone (1 oz), Pageant (new fungicide from BASF at 18.5 oz/100 gal), Pageant and CFO (12.5 oz ands 2%) and finally Pageant and CFO (18.5 and 2%).

Rust on Bellis—no. pustules



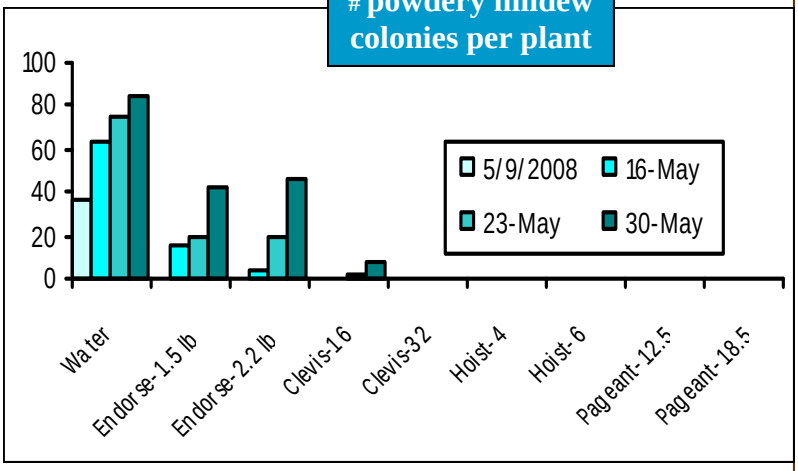
The CFO-Heritage combination was excellent and slightly better than Heritage alone. As with the powdery mildew on rose, CFO alone at 2% (256 oz/100 gal) gave some control (about 50%). Pageant at all rates tested with or without Capsil also gave very good control. By the third application of Pageant at 18.5 oz combined with Capsil, the rust had nearly been eradicated.

These results once again show that at least for some foliar diseases like rust and powdery mildew, adding a wetting agent is the key to getting the most out of the fungicide. Sometimes adding a wetting agent will allow you to increase the interval between applications and other times they will allow you to reduce the rate of fungicide applied. In both situations this will save costs of the fungicide as well as labor costs.

I am not sure what my next target will be. If you have any ideas for diseases, fungicides or specific wetting agents please contact me—archase@chaseresearch.net. I am also very interested in other general questions you might have that we can address with trials.

Fungicide Longevity—Gerber Daisy Powdery Mildew

We have been testing the ability of different fungicides and wetting agents combined with fungicides to increase the spray interval for some common diseases. Powdery mildew has been one of the easiest diseases to study and we present here another trial on preventing powdery mildew on Gerber daisy. These plants showed no symptoms when the trial started and were sprayed twice (18 and 29 April 2008). Then we crowded them together and watched for the onset of powdery mildew. The treatments included Endorse (1.5 or 2.2 lb/100 gal), Clevis (16 or 32 oz), Hoist (Eagle at 4 or 6 oz), Pageant (12.5 or 18.5 oz). The number of powdery mildew colonies per plant was recorded weekly.



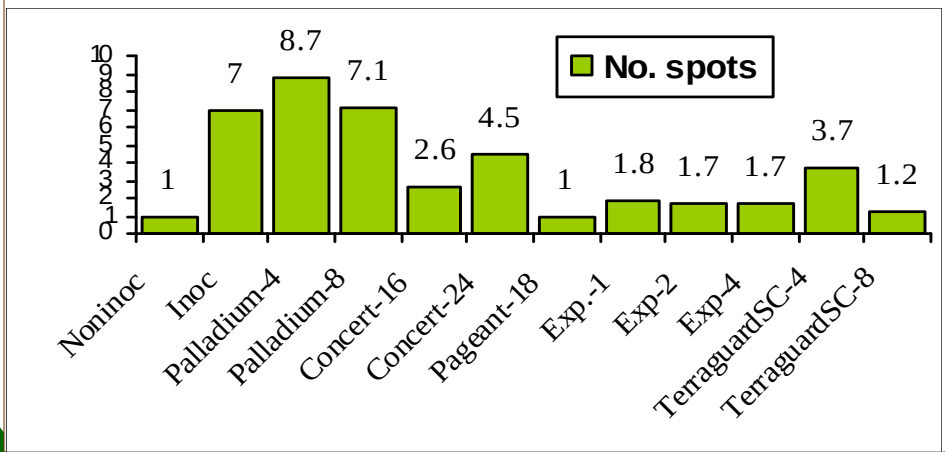
The graph shows that the first fungicide to fail was Endorse at either rate. The only other fungicide that had any powdery mildew development was the 16 oz rate of Clevis (the labeled rate is 2 lb/100 gal). Both rates of Eagle were 100% effective for four weeks after the second application. Pageant was also 100% effective in this trial.

The next step I think will be to test some foliar diseases like Alternaria leaf spot or anthracnose.

Hydrangea Anthracnose Caused by *Colletotrichum*

We have been concentrating on trying to gather and generate as much information as possible on anthracnose disease control with fungicides. Early this year we had an opportunity to perform a trial on Colletotrichum anthracnose on hydrangea. The plants were sprayed with fungicides on either a 7 or 14 day interval depending on manufacturer request. Treatments included: water-noninoculated, water-inoculated, Palladium (combination of fludioxinil and cyprodinil under development from Syngenta-4 or 8 oz/100 gal on a 14 day interval), Concert (combination of propiconazole and chlorothalonil under development from Syngenta at 16 and 24 oz/100 gal on a 14 day interval), Pageant (18 oz on a 7 day interval), and experimental product from Valent (1, 2 or 4 oz/100 gal on a 7 day interval), and Terraguard SC (4 or 8 oz/100 gal on a 7 day interval). The first observation was that in this trial a 7 day interval worked much better than a 14 day interval. When I checked previous trials I saw the same trend with Colletotrichum anthracnose. The best control was seen with Pageant and Terraguard SC at 8 oz/100 gal. The experimental products from Valent was also very effective at all rates tested.

As a result of this trial, we summarized everything we have done over the past ten years on anthracnose and it will appear in **CAPCA Adviser** (a California publication) later this summer. I will present a summary table of this in *Chase News* this fall. The review indicated some distinct differences between fungicide efficacy depending on which anthracnose fungus you are trying to control. The best products and treatment interval are different for *Colletotrichum* compared to *Phyllosticta*. These are the only two fungi we have worked on enough to have a glimmer of what is happening with fungicides but there are many other anthracnose fungi.



Products in Review—Pageant

We have been working on a new fungicide combination from BASF Corporation –PAGEANT. This product is a combination of the active ingredient in Insignia (pyraclostrobin—a strobilurin fungicide) and boscalid (an active ingredient not available to ornamental producers as a stand alone fungicide). I have presented a summary of our work on Pageant in the table to the right—this appeared in a similar form in a recent GMPro magazine article.

I am very pleased to see this product come to our market. It presents a new combination of active ingredients for very broad-spectrum disease control. We have primarily looked at Pageant as a foliar spray or sprench but sometimes it has been evaluated as a drench for diseases like Fusarium that can occur as root rot and crown rot.

The most exciting development is the very good to excellent control of anthracnose diseases caused by either Phyllosticta or Colletotrichum. Pageant has surpassed all of the other fungicides we have tested. Another outstanding result has been seen with Pageant and Sclerotinia. See Chase News earlier this year for some pertinent trials.

Although our tests were performed at 18.5 oz/100 gal in many cases the label shows a rate of 18 oz. Many of our trials showed the same level of control at the lower rate as the higher rate. I really think you should try this product for your tough foliar diseases. Check over the table to the right and see if you find any problems you have not been able to solve with other products.

Disease	Plants tested	Pageant results
Alternaria leaf spot	Impatiens, Zinnia and Pittosporum	Very good to excellent at 4 or 8 oz on a 7-14 day interval
Cercospora leaf spot	Myrtle	Very good at 12.5 oz on a 14 day interval
Colletotrichum leaf spot	Camellia	Excellent at 12.5 and 18.5 on a 14 day interval
Colletotrichum leaf spot	Hydrangea	Excellent at 12.5 and 18.5 on a 7-day interval
Coniothyrium cane rot	Rose	Good to excellent at 12.5 oz used once
Cylindrocladium cutting rot	Myrtle	Good to excellent at 12.5 oz used once
Cylindrocladium root rot	Spathiphyllum	Excellent at 12.5 or 18.5 oz on a 14 day interval
Fusarium chalk rot	Caladium	Some at 23 oz used once
Fusarium wilt	Cyclamen	Excellent at 12.5 and 18.5 on a 14 day interval
Myrothecium petiole rot	Pansy	Some to excellent at 12 oz on a 14-21 day interval
Phyllosticta (Phoma) leaf spot	Euonymus	Excellent at 12.5 and 18.5 on a 14 day interval
Powdery mildews	Gerbera, hydrangea, rose, Scabiosa	Very good to excellent at 12.5 and 18.5 on a 7-14 day interval
Rhizoctonia cutting rot and stem rot	Hydrangea, impatiens, poinsettia	Very good to excellent at 12.5 and 18.5 used once or twice
Rusts	Hypericum, Bellis and Solidago	Very good at 12.5 oz on a 14 day interval
Sclerotinia	Petunia, primula and lobelia	None at 18.5 oz on a 10 day interval, excellent on lobelia at 12.5 or 18.5 on a 7 interval

Bellis rust (left) and Fusarium wilt on cyclamen (right)

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