

# CHASE NEWS

CHASE RESEARCH GARDENS, INC.



## WHAT'S WORKING AND WHAT'S NOT???

In late June, Mike Benson (NC State), Mary Hausbeck (Michigan State University), Margery Daughtrey (Cornell University) and I shared our recent experiences in disease control. Some of the areas we felt needed attention included Fusarium diseases, bacteria (like *Ralstonia* on geraniums) and foliar nematodes. Pylon is labeled for foliar nematode and has been effective in some cases. Black root rot is still a serious problem in the Midwest and East.

Viruses are becoming more serious, with recognition a problem in new perennials and vegetatively-produced crops. The drought in North Carolina last year led to TSWV infected thrips leaving ornamental bedding crops and attacking field crops (tobacco, tomato, and potato). Control is still based on exclusion and sanitation in general (especially for specialty propagators).

We all had concerns for resistance including the new strobilurin fungicides and phos-acids. Resistance has been reported in

some vegetable downy mildew to certain phos-acids in Australia. Margery has been working with several other researchers on identifying the species of *Pythium* and *Phytophthora* present in greenhouse crops. They are routinely screening for mefenoxam-resistance in these isolates. They are also seeing resistance to propamocarb in a few isolates.

I have seen resistance in some populations of powdery mildew fungi to thiophanate methyl on the West Coast. Botrytis populations are widely resistant to thiophanate methyl and iprodione in some parts of the country. In summary, we listed effective products for various diseases (table below).

The bug guys (Oetting—U/Georgia, Gilrein – Cornell, Schultz—U/Virginia, Bethke—U/California, and Cloyd—U/Illinois) also met and made some observations and conclusions. There is significant concern with phytotoxicity due to the use of tank mixes. The narrow range of some of the newer

insecticides makes tank mixes a necessity.

Resistance is also a big concern. Use of the lower rate of Conserve for some pests is contributing to thrips resistance. Resistance to Marathon seems likely since it has been reported overseas.

Although Dursban is good for borers, it can't be used in landscapes - only nurseries. We need effective management tactics for leaf miners and mealy bugs as well as borers. There are also emerging problems with scale and western flower thrips. Herbs and greenhouse vegetables fall into a no-man's land where legal and/or effective products are rare.

Perennial growers and those working in conservatories and interiorscapes are becoming more interested in biocontrol. Finally, the need for labeled products for herbs and greenhouse vegetables continues to grow since few effective products are labeled for these uses.

Disease	Best Products
Black root rot ( <i>Thielaviopsis</i> )	Thiophanate methyl, triflumizole and
Botrytis blight	Chlorothalonil, fenhexamid, fludioxinil
Downy mildew	Azoxystrobin, dimethomorph, fosetyl aluminum
Phytophthora and Pythium stem and root rots	Etridiazole, fosetyl aluminum and mefenoxam
Powdery mildew	Copper, kresoxim methyl and trifloxystrobin,
Rhizoctonia stem and root rots	Fludioxinil, flutalonil and PCNB

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# PRODUCTS IN REVIEW COMPASS O 50WDG

We have been testing trifloxystrobin since it was in development at Novartis. Compass O is marketed in our industry by Olympic Horticultural Products. The product is a strobilurin with locally systemic action. Compass O works especially well on a wide variety of foliar diseases.

Some of the diseases that Compass O works best on are powdery mildews. Experience with powdery mildew diseases and chemical control has led to use of Compass O as the fungicide standard in many of our trials (see next page on Gerber daisy powdery mildew control).

We have seen both eradication and prevention of powdery mildew on crops like hydrangea, gerber daisy, crape myrtle (*Lagerstroemia*), and ranunculus. Rates of 1 oz/100 gallons are reliable and often 100% effective in preventing powdery mildew.

<b>Pathogen</b>	<b>Disease</b>	<b>Plant</b>	<b>Rate</b>	<b>Efficacy</b>
<i>Alternaria</i>	Leaf spot	Impatiens	1 oz	Fair
<i>Alternaria</i>	Leaf spot	Impatiens	1 oz	Good
<i>Alternaria</i>	Leaf spot	Dusty miller	1 oz	Good-Excellent
<i>Cercospora</i>	Leaf spot	Pansy	2 oz	Excellent
<i>Cylindrocladium</i>	Cutting rot	Azalea	0.5, 1, 2, 4 oz	Good
<i>Cylindrocladium</i>	Root rot	Spathiphyllum	2 and 4 oz	Some
<i>Erysiphe</i>	Powdery mildew	Hydrangea	1 oz eradication	Good
<i>Fusarium</i>	Leaf spot	Dracaena	4 oz	Very good-Excellent
<i>Heterosporium</i>	Leaf spot	Dianthus		Good
<i>Myrothecium</i>	Leaf spot	Dieffenbachia	0.5, 1, 2, 4 oz	Excellent
<i>Myrothecium</i>	Leaf spot	NG Impatiens	2 and 4 oz	Excellent
<i>Oidium</i>	Powdery mildew	Crape myrtle	1 oz	Excellent
<i>Oidium</i>	Powdery mildew	Gerbera	0.5, 1, 2 oz	Good-Excellent
<i>Oidium</i>	Powdery mildew	Ranunculus	1 and 2 oz	Excellent
<i>Oidium</i>	Powdery mildew	Scabiosa	1 oz eradication	Good
<i>Peronospora</i>	Downy mildew	Alyssum	1 and 2 oz	Very good
<i>Peronospora</i>	Downy mildew	Pansy	4 oz	Very good
<i>Peronospora</i>	Downy mildew	Snapdragon	2 and 4 oz	Poor
<i>Peronospora</i>	Downy mildew	Viola	4 oz	Very good
<i>Phytophthora</i>	Aerial blight	Vinca	4 oz	Good
<i>Puccinia</i>	Rust	Geranium	4 oz	Excellent
<i>Puccinia</i>	Rust	Geranium	2 oz	None
<i>Pythium</i>	Root rot	Lisianthus	1 and 4 oz	Poor
<i>Pythium</i>	Root rot	Snapdragon	4 oz	Poor
<i>Sphaceloma</i>	Scab	Poinsettia	4 oz	Excellent
<i>Sphaerotheca</i>	Powdery mildew	Minirose	2 oz	Very good
<i>Sclerotinia</i>	Blight	Petunia	4 oz	Very good
<i>Uromyces</i>	Rust	Hypericum	0.5 and 1 oz	Poor – Excellent

Fungal leaf spots are also a good target for Compass O. We have seen excellent control of Myrothecium leaf spot on dieffenbachia and New Guinea Impatiens under some very tough conditions. We saw 100% prevention of Cercospora leaf spot on pansy and Alternaria leaf spot on dusty miller.

Compass O works well against Botrytis and the closely related Sclerotinia. Usually the product gives a little better control of these diseases than a similar rate of Heritage.

Compass O is a good choice for downy mildew but does not work quite as well as another strobilurin, Heritage. Be sure not to “rotate” between these products since cross-resistance would be a real possibility.

We have had some conflicting results in our rust trials with Compass O. This may be due to using different rates (from 0.5 to 4 oz/100 gallons), different host crops and even different environmental regimes. Recently we saw very good eradication of Hypericum rust in a pot trial as well as preventative control in a field trial. We used Latron B 1956 with the product to facilitate penetration of the rust pustules.

Compass O is not systemic and usually not very helpful against soil-borne diseases such as Pythium root rot. It did do a good job against Phytophthora aerial blight on vinca and Cylindrocladium cutting rot on azalea.

Different states and sometimes different counties of the same state, interpret labels in their own fashion - be sure to know local rules. Remember that using pesticides wisely and legally is your responsibility and that ignorance of the law is no excuse.

## POWDERY MILDEW SEASON HAS STARTED

I have been out scouting for problems in a few nurseries and have found that powdery mildew is starting to become a problem on many crops from crape myrtle, to rose, to scabiosa.

We also have been working with gerber daisy and powdery mildew control. In the first trial, we compared three fungicides for ability to prevent powdery mildew. Products were applied before infected plants were brought into the greenhouse. Sprays were made on a weekly interval from mid-April for a total of four applications. All three products did an excellent job of preventing this powdery mildew without damaging the crop in any way.

In June we started another trial on a new set of plants. Treatments were again applied preventatively on a weekly basis for a total of four applications. We rated top grade on a scale from 1 (dead) to 5 (excellent). In this trial, we saw top

grade significantly decreased when plants were sprayed with 6 oz/100 gallons of Systhane WSP. All treatments were effective in controlling development of powdery mildew on these Gerber daisies.

Excellent control was seen on plants treated with Systhane although the rate chosen was clearly too high, since stunting and other symptoms of sterol inhibitor damage were evident. Phytotoxicity was rated from 1 (none) to 5 (severe) and was typified by stunting, leaf curl and distortion and shiny dark-green coloration.

Compass O gave good control in this trial but was more effective in the first trial. It was interesting to see that Latron B 1956 gave some control when used alone. When Latron and Actinovate (a biological control product) were mixed, control was equal to that given by the Systhane. Further testing is needed to determine the level of control that Actinovate delivers for powdery mildew.

Test 1—Preventing Gerber daisy powdery mildew.

Treatment	Rate/100 gal	# Colonies
Water	-----	28 b*
Compass O	1 oz	3 a
Camelot	16 oz	1 a
Cygnus	1.6 oz	3 a

\*Numbers in the same column (like # colonies) followed by different letters were different when evaluated statistically.

Strobilurins like Compass O and Cygnus are excellent for powdery mildew control. Copper products like Camelot and Phyton 27 have been just as effective in our trials over the past six years of testing. Three of the most effective chemical classes for powdery mildew control are strobilurin, sterol inhibitor and copper. Please be sure to rotate between at least two of the three to avoid development of resistance.



Powdery mildew on Salvia.



PM Gerber daisy flowers.



When conditions are not ideal for PM development, spots may be purplish without sporulation.

Test 2—Preventing Gerber daisy powdery mildew.

Treatment	Rate/100 gal	# Colonies	Top Grade	Phytotoxicity
Water	-----	14 c*	3.5 b*	1.8 a*
Compass O	1 oz	7 b	3.4 b	1.8 a
Actinovate/Latron B	6 oz/2 oz	5 ab	3.5 b	2.1 ab
Latron B	2 oz	9 b	3.6 b	1.7 a
Systhane WSP	6 oz	0 a	2.8 a	2.7 c



Powdery mildew on Crape Myrtle.

\*Numbers in the same column (like # colonies) followed by different letters were different when evaluated statistically.

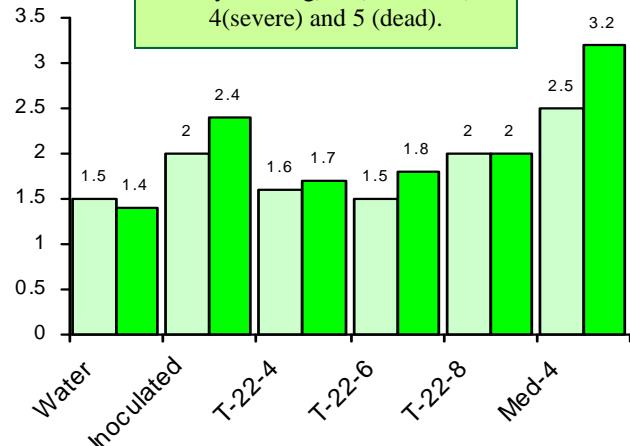
## FUSARIUM WILT ON CYCLAMEN

A few months ago, we tested PlantShield T-22 (*Trichoderma harzianum*) for control of Fusarium wilt on cyclamen. The results indicated that a lower rate of T-22 might be more effective than a higher rate. So we started a new test and the results are presented here.

In this trial, we included three rates of T-22 as a drench applied once a month. The first symptoms of Fusarium wilt appeared about 2 months after we inoculated the plants. The graph to the right shows that T-22 once again gave good control of Fusarium wilt (slight disease). It appears that using the 4 oz rate was more effective than the higher rates (6 or 8 oz/100 gal). In this trial, the chemical standard Medallion did not give any control (3.2 was a moderate level of disease).

Our weather has been extremely hot throughout July and we ended the trial before the inoculated controls showed severe disease symptoms. I think we will do this trial again in the fall when conditions are better for the plants. In the meantime, stick to the labeled rates of T-22 and give it a try on Fusarium wilt.

Disease was rated as follows: 1 (no disease, healthy), 2 (slight wilting and yellowing), 3 (moderate), 4 (severe) and 5 (dead).



## CYLINDROCLADIUM CUTTING ROT ON MYRTLE

When I worked in Florida, I worked rather diligently on Cylindrocladium root and petiole rot on *Spathiphyllum* and even occasionally on Cylindrocladium leaf spot on leatherleaf fern. Since coming to California I have had to make due with Fusarium wilt and once in a while Cylindrocladium cutting rot on azalea.

However, I started working on a new Cylindrocladium (to me anyway) on myrtle. The disease can cause a cutting rot and also a stem rot on plants up to 5-7 years old.

We obtained some un-rooted cuttings of myrtle, stuck them and treated once with a heavy spray of fungicides. The next day we inoculated them with Cylindrocladium and proceeded to watch what happened. Our weather has been miserable but apparently perfect for Cylindrocladium cutting rot on myrtle. The myrtles never had a chance!

After a month, we saw some distinct differences between treatments. There were some plants that were still alive, despite our best efforts. We had 90% control with Medallion used at 2 oz/100 gal as either a sprench or drench and 66% control with Terraguard (4 oz/100 gal). Heritage used as a drench at 0.9 oz/100 gal or a sprench at 2 oz/100 gal failed to control this disease in this trial. RootShield also failed when used as a drench at either 4 or 6 oz/100 gal. More trials are in the works for next month.

Next month we are off to the **Far West Show**, August 21<sup>st</sup> - 23<sup>rd</sup>. Oregon Convention Center, Portland, OR. I hope to see a lot of you there also. Stop by our booth, say hello and check out our prepublication specials on the new flashcard set on perennials. Our booth number is 321.

## FROM THE TRADESHOW FLOOR—MIKE ZEMKE

The Ohio Short Course was another good show despite attendance being down about 25% from last year. I have a hard time visualizing from the booth whether it's up or down, since we are so specialized and deal with only a small percent of the attendees. The only time I see a difference is when most of the seminars start as the room seems to clear out somewhat.

Our **Bedding Plant Problems-Spanish** version is off to the printers, and I should have that back in about 4 weeks. This experiment on our part was a direct result of many of your comments to us regarding the need for Spanish products. We hope this one helps.

Next, we'll finish the **Perennial Problems** flashcard set and get that off to our graphics designer in Florida. Harold Britt (Production Partners) has handled our flashcards, advertisements and other work since we first started. He even did the first few sets for the University of Florida, where he and Ann met.

Well, it's been a year now since we launched our first issue of **Chase News**. I'm happy to say it has been accepted quite well in the industry and our subscription list keeps getting longer. I want to thank all of you who have subscribed and referred our newsletter on to someone else. Please feel free to send any suggestions or comments to Ann directly at MTAUKUM@aol.com. She does want new ideas for research as well as topics to write about. If you have complaints send them to me —MTAUKUM@directcon.net . MIKE

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