

CHASE NEWS

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CHASE HORTICULTURAL
RESEARCH, INC.

What is New at Chase Horticultural Research?

We have been pretty busy this past year at Chase Horticultural Research. The first thing we did was to change our name to better reflect our business. Along with that we upgraded our website. Please take a few minutes to check it out www.chasehorticulturalresearch.com.

You will notice a different format as well as some new features. The most exciting change is the launching of our e-commerce abilities at our online store in late September. This should save a lot of time in your busy schedule. We have all of our products available as well as some special discount package offers.

IMAGE LIBRARY—We are often asked for use of our images and as a result have decided to make them available for purchase on our website. There are about 500 images right now and you can find them by using the search engine on that page. They are listed by both pathogen and plant. We have many more to add as time allows but are happy to supply them as special requests anytime. The images currently on the website are available for immediate download after purchase.

FREE ZONE ARTICLES—There are also some new articles for free download including some host lists and summaries of fungicide efficacy. We also plan to add a new feature of product summaries representing specific chemical classes and an overview of their efficacy in our trials. Table 1, below shows an example of one of these summary charts for Daconil Ultrex (partial listing).

Disease	Efficacy	Plants Tested
Alternaria	very good to excellent	Impatiens, lobelia, pansy, zinnia
Anthracnose	some	Cyclamen, hydrangea
Botrytis	very good to excellent	Cyclamen, exacum, fuschia, geranium, gerber daisy, lisianthus, pansy, rose
Cercospora	very good to excellent	Moluccella, myrtle
Coniothyrium	very good	rose

CHASE BASE—The newest offering will be **CHASE BASE**—a database summary of our fungicide trials for the past 10 years. These summaries show the exact treatments em-

ployed, timing and evaluation data complete with statistical analysis. You will be able to search them by plant, pathogen and fungicide. This will allow you to quickly see what trials we have conducted on a particular disease or a particular product. We will be adding newly completed trials twice a year to keep things up to date. **CHASE BASE** will be accessible through a yearly subscription fee as well as part of the discount package offerings. Look for its launch in early January, 2008.

PLANT MANAGEMENT NETWORK—I have been a subscriber to the Plant Management Network for several years now and watched it grow into a very impressive site for information on agricultural research. I go to this site about once a month to see what has been published in the scientific literature on specific diseases that I am interested in. There is an online journal as well, called *Plant Health Progress* that is available to members. In September, Chase Horticultural Research, Inc. joined the ranks of partners. We are very happy to be part of this educational effort. Please visit this site sometime (we have a link on our homepage) to see what they offer.

UPCOMING TALKS

Wilbur Ellis University—Seattle, WA, January 16 and Portland, OR, January 17—Water Molds, Pythium, Phytophthora and downy mildew—Oh my!

CENTS—Columbus, OH, January 21 and January 22, 2008—Disease Diagnosis and Control in the Landscape, Disease Prevention and Control in Nurseries.

Our Diagnostic Lab will be closed from December 24, 2007 through January 1st, 2008.

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Powdery Mildew Control on Coreopsis

We have been trying to complete a powdery mildew trial all year with little success. We did the trial on Scabiosa and then gerber daisy and no powdery mildew after several months each time. We finally started it for the third attempt on Coreopsis. This time it took two months but we did get a good evaluation of powdery mildew on this crop. The specific pathogen was *Erysiphe cichoracearum* which attacks a very wide range of plants including gerber daisy and Scabiosa.



Liners were planted into 4 inch pots containing Fafard 3B Mix and they were top-dressed with Osmocote Plus 15-9-12. They were grown in a greenhouse and irrigated as needed. Plants were sprayed on a 10-day interval a total of 7 times. They were inoculated with spores from infected Coreopsis that were then placed in the midst of the test to allow additional spread of spores into the crop.

The table below shows the specific fungicides applied and their rates. None of the treatments caused any obvious damage to the Coreopsis despite being used so many times. We did find, however, that the top grade was slightly lower for plants treated with Pageant and the lower rate of Trinity than the

Treatment	oz/100 gal	Top grade	No. spots/plant
Water	—	3.1 a	12.0 b
Rubigan AS	5	3.6 b	0 a
Eagle 40W	3 oz	3.5 ab	0 a
Pageant	4 oz	3.2 a	0 a
Pageant	8 oz	3.2 a	0 a
Trinity	1	3.1 a	0 a
Trinity	2	3.6 ab	0 a

Rubigan AS treatment. All of the fungicide treatments gave 100% prevention of this powdery mildew

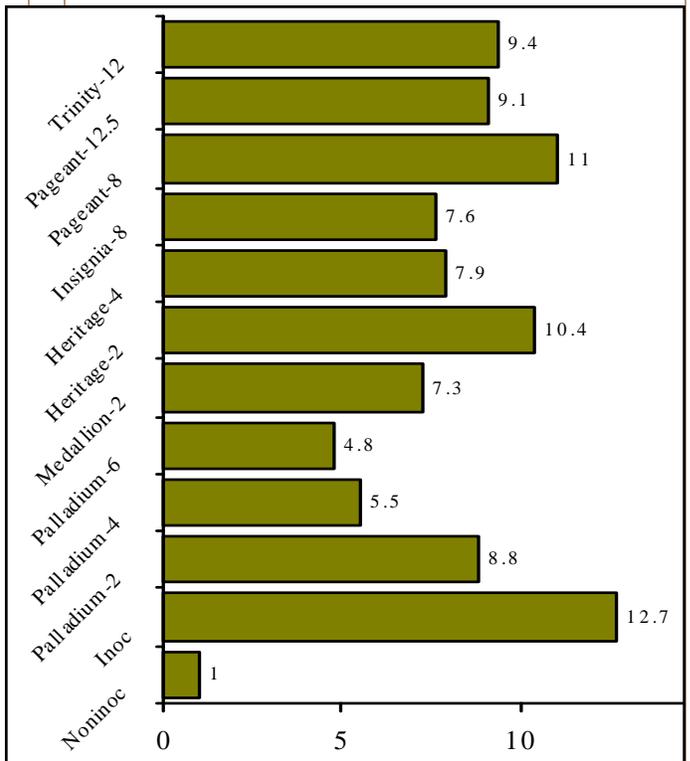
in this trial.

Trinity is a newly registered fungicide in the sterol inhibitor chemical class (including Eagle and Rubigan). It is currently labeled for turf only but has been shown to be very effective on powdery mildew and rust in trials we ran 8-10 years ago on ornamentals. Pageant is a new combination product from BASF that should be registered for ornamental use sometime next year. It contains the active ingredient from Insignia (a new strobilurin from BASF) and boscalid (an active ingredient not labeled for ornamental use). It has a very wide spectrum of activity. See the next column for more information on Pageant and Trinity.

Cylindrocladium Leaf Spot on Myrtle Cuttings

Cylindrocladium can cause a variety of symptoms depending on the environment from root rot, cutting rot and leaf spot. We started a trial in late October for prevention of cutting rot on myrtle cuttings but what we saw was leaf spot. The treatments were Palladium (2, 4 or 6 oz/100 gal), Medallion (2 oz/100 gal), Heritage (2 or 4 oz/100 gal), Insignia (8 oz/100 gal), Pageant (8 or 12.5 oz/100 gal) and Trinity (12 oz/100 gal). The fungicides were applied as spruches twice on a 2-week interval with the first occurring one week before the cuttings were inoculated. The number of spots per pot (five cuttings/pot) was recorded on 19 November.

The highest level of prevention of Cylindrocladium leaf spot was found with Palladium especially when used at 4 or 6 oz/100 gal. Palladium is another new combination product. In this case, Syngenta has combined the active ingredient from Medallion (fludioxinil) and cyprodinil (not labeled for ornamentals at this time. We are hoping to see registration sometime next year. Medallion gave good control when used at 2 oz/100 gal. Previous trials have shown better results with 4 oz Medallion. The 4 oz rate of Heritage was more effective than the 2 oz rate. Insignia was as effective as Heritage when used at 8 oz/100 gal. Pageant has given very good control of cutting rot on myrtle in a previous trial when used at 12.5 or 18.5 oz. The single Trinity treatment was not very effective on the leaf spot phase of this disease in this trial.



Wetting Agents and Rust Control on Hypericum and Bellis

We have worked on wetting agents and their impact on disease off and on over the past 8 years or so. In some cases, wetting agents have been found to directly control plant pathogens themselves. These include some that are used in potting media to improve water movement that have been tested for control of some *Pythium* and *Phytophthora* spp. that produce zoospores. In the case of powdery mildew, wetting agents reduce disease severity when used alone. Our most recent trials were conducted with rust diseases on *Bellis* (*Coleosporium* rust) and *Hypericum* (*Uromyces* rust). In both cases, the rust was active on the plants when the trial was started.

For the *Bellis* trial, we included a combination fungicide called Armada from Bayer that contains the active ingredient triademifon (Strike) and trifloxystrobin (Compass). Armada was tested at 3, 6 or 9 oz/100 gal. We also tested Heritage at 2 or 4 oz/100 gal with or without Sync (a wetting agent from Precision). Sync was used at 16 oz/100 gal. The fungicides were applied twice on a 10-day interval and we counted rust pustules every week until 4 days after the final spray. The first rating was done after the first spray.

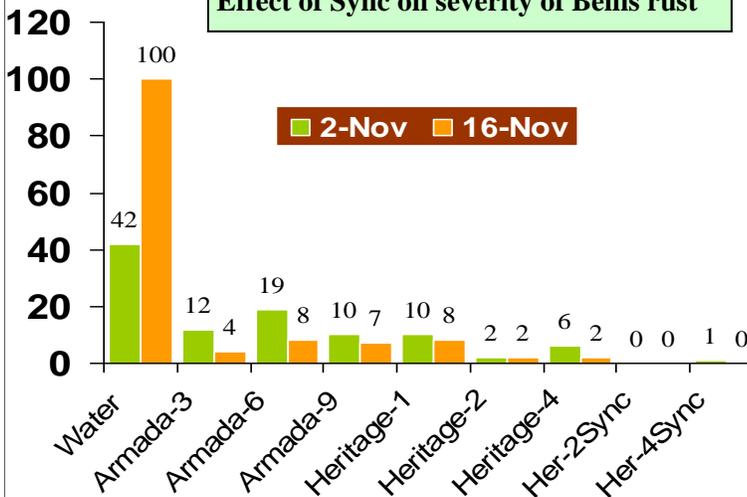
The number of pustules on the water treatment more than doubled during the trial. All of the fungicide treatments resulted in excellent eradication with the best results seen with Heritage treatments combined with Sync.

Effect of Latron B 1956 on efficacy of some fungicides for Hypericum rust

Treatment	Rate/100 gal	Alone	With Latron B 1956
Water	—	16.1 b	Not tested
Compass O	4 oz	4.7 a	1.8 a
Insignia	4 oz	11.8 b	13.3 b
Heritage	4 oz	4.6 a	0.8 a
Pageant	4 oz	2.2 a	2.2 a
Palladium	4 oz	14.5 b	16.9 b

The results showed that addition of Latron B 1956 (4 oz/100 gal) improved control slightly with Compass O and Heritage but did not affect the level of control achieved with Insignia, Pageant or Palladium. The best control was found with Compass O or Heritage with Latron B 1956. Least control was seen with Palladium which was not surprising since previous trials with the active ingredients (cyprodinil and fludioxinil) in this fungicide show little benefit in rust diseases. There are reports of significant control with chlorothalonil but our trials would not support this conclusion.

Effect of Sync on severity of Bellis rust



It was surprising to see the failure of Insignia to control *Hypericum* rust in this trial but since the use rate was very low, perhaps it was simply not enough product to achieve significant control. The rate that would correspond to the same active ingredient levels of Heritage or Compass O would have been 10 oz/100 gal.

Pageant was, in contrast, very effective either alone or with Latron B 1956. This is interesting since one of the active ingredients is Insignia which was not effective in this trial.

The second trial was conducted on *Hypericum* 'Greeny' with an active rust infection when we started. The plants were obtained as rooted cuttings and established in 4 inch pots. The fungicides were applied twice on a 7-day interval. Treatments and rates of use are given in the table to the right. The number of active rust pustules was counted on 6 November 5 days after the final spray.

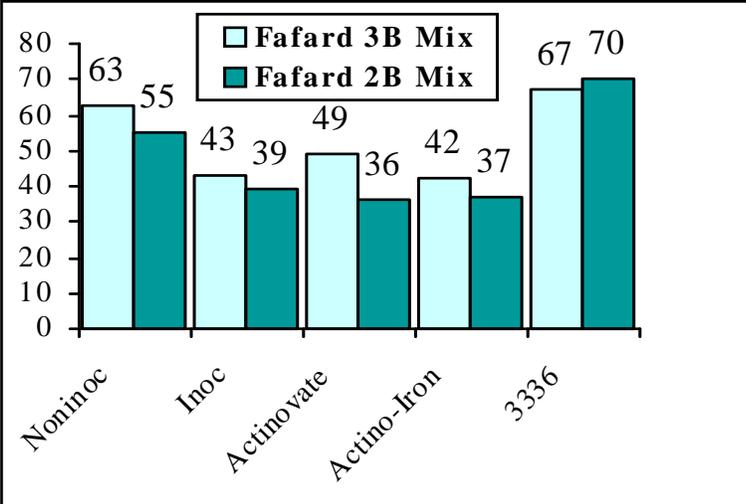


Hypericum rust

Effect of Potting Media on Severity of Black Root Rot on Pansy

In the past few years there have been quite a few new biological agents that have had varying degrees of success reported. A few months ago Elmer et al. (Connecticut Expt. Stn. researchers) found that the efficacy of the biological products was sometimes affected by the potting medium used.

So when we were asked to test efficacy of both Actinovate and Actino-Iron against *Thielaviopsis basicola* on pansy we decided to do the test using two potting media. We used two media from Conard Fafard—Fafard 2B Mix and Fafard 3B Mix. The Actino-Iron was added at the rate of 5 lbs/cubic yard of potting medium before planting and the other treatments were added after the pansies were potted (3.5 inch pots). Actinovate was used at 6 oz/100 gal and the 3336 was used at 16 oz/100 gal. We also used Osmocote Plus 15-9-12 as a top-dressing. The pansy cultivar used was 'Dynamite Strawberry'. Plants were treated with drenches (1 pint/square foot surface area) five times on a 14-day interval. They were inoculated with the black root rot pathogen three days after the first treatment. We rated the top grade with obvious symptoms of black root rot appearing in as little as one month after the test started. At the end of the trial (2 months) we rated top grade again as well as the percentage of the potting medium surface with good roots. The graph below shows the root data only for the two potting media.



It was interesting to see that neither of the biological agents provided any control of black root rot in this trial in either potting medium. The inoculated plants had significantly lower root development in both potting media and only the 3336 fungicide standard resulted in roots as good, or better than the noninoculated controls. Overall, root growth was better in the Fafard 3B Mix than in Fafard 2B Mix for this pansy cultivar. Top grade showed the same trend. There did not appear to be any interaction between the potting medium and the products tested in this trial. We are in the midst of similar trials for *Pythium* root rot and will present the data when available.

Black Cane Rot on Syngonium—A Review

Black cane rot is caused by *Ceratocystis fimbriata* and was first described in 1890 on sweet potato and later on taro (*Colocasia*) in 1939. As early as 1953, it was found on *Syngonium* in California and later reported from Hawaii in 1971. Other hosts of this pathogen including *Alocasia* and *Xanthosoma* have been reported.

On *Syngonium*, black cane rot appears as black, water-soaked, sunken cankers that sometimes girdle the stems. Leaves eventually turn yellow and die and leaf spots can occur as well as root rot and associated stunting. In some cases, aerial roots become infected which rapidly leads to stem rot. Petiole rot also occurs and might be confused with *Myrothecium* disease which is actually more common on *Syngonium*.



Control strategies are based on minimizing overhead irrigation and exposure to rainfall which both splash spores to new sites. Hot water treatment of infected stem cuttings for 30 minutes at 120 F was effective in eradicating this pathogen in the 1950's before the advent of tissue cultured liners. Very little information on fungicide efficacy can be found on any ornamental with black cane rot. The only trials I could find were on sweet potato from about 30 years ago. Fungicides tested included Benlate, Mertect, Planmtvax, Vitavax, Daconil, Piproton, Thiram and Botran. Most of these products are not available for ornamentals if indeed they ever were. The best efficacy was found with Benlate and the closely related Mertect (thiabendazole). Currently, the only products that are in this chemical class and labeled for ornamental use include thiophanate methyl formulations such as 3336 and Fungo. No real answers here but an opportunity for someone to do some fungicide work on this disease.

