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CHASE NEWS

CHASE RESEARCH GARDENS, INC.

Alternaria Leaf Spots -

Alternaria spp. are fungi that attack many of our most common foliage, bedding and flowering ornamentals. Alternaria is also one of the most common seed-borne pathogens. It attacks flowers and leaves most commonly but can actually cause damping-off on some bedding plants.

Alternaria spores are relatively large compared to Botrytis or downy mildew spores. They are usually spread by wind driven rain, sprinkler irrigation and the frequent use of contaminated seeds.

Some of the most commonly affected ornamentals are given in the listing (below, right). The list includes common foliage plants, bedding plants, woody ornamentals, potted flowering plants, and cut flowers.

Alternaria leaf spot on Dusty Miller and other bedding plants starts at seed germination.

Alternaria leaf spot in Impatiens frequently appears in the landscape. Pseudomonas leaf spot appears similar but is most common in plug production and finishing.

Fungi related to Alternaria

Bipolaris

Drechslera

Curvularia (Heterosporium)

Helminthosporium

Corynespora

We perform trials on Impatiens, dusty miller and pittosporum but are always on the look out for new plants to terrorize with Alternaria. Check page 4 for our 2002 update on fungicides for Alternaria leaf spot on ornamentals.

HOSTS OF ALTERNARIA DISEASES

Aster	Calathea
Calendula	Coreopsis
Dianthus	Dusty Miller
Dahlia	Impatiens
Marigold	Matthiola
Pelargonium	Pittosporum
Platycodon	Poinsettia
Salvia	Schefflera
Stokesia	Vinca
Viola	Zinnia

Alternaria leaf spot on pansy starts as tiny black specks. Spots can enlarge to 1/4 inch wide and have a purple border. Note the similarity between pansy leaf spot and schefflera leaf spot (below).

On scheffleras, Alternaria leaf spot can reach an inch across and sometimes merge to form large blighted areas. On some plants, a bright yellow halo forms around the spots and leaf drop can occur.

See page 4 for some recent Alternaria trials and overall summary table

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Small Volume Conversions for some Dry and Liquid Fungicides

Ann Chase and Su Harris

Conversions for Dry Formulations to 1 gallon volumes

Fungicide	Rate/100 gal	Tsp./gal
Aliette 80WDG	12.8 oz drench	1 ¼
	40 oz spray	4 ¼
Banrot 40WP	8 oz	1
Cleary 3336 50W	12 oz	2
Compass 50W	4 oz	¼
Contrast 70WSP	3 oz	5/8
Cygnus	3.2 oz	1/3
Daconil Ultrex	22.4 oz	1 ½
Decree 50WDG	12 oz	1
Heritage 50WDG	1-4 oz	1/3
Junction	24 oz	1 5/8
Kaligreen	1-3 lbs	2
Kocide TNO 2000	16 oz	1 3/8
MilStop	40 oz	2 1/2
Manzate 75 DF	32oz	2 ½
Medallion 50WP	2 oz	1/3
PathGuard 90DF	12.8 oz	7/8
Protect T/O	16 oz	2
RootShield drench	8 oz	7/8
RootShield granules	16 oz	1 ¼
Spectro 90WDG	16 oz	1 ½
Stature MZ	28 oz	3
Strike 50WDG	2 oz	1/6
Systhane 40W	2 oz	1/3
Terraclor 75WP	8 oz	¾
Terraneb SP WP	12 oz	1 ½
Terraguard 50W	4 oz	2/3
Terrazole 35W	3.5 oz	½
Truban 30WP	3 oz	1/3
Zyban WSB	12 oz	1 3/8

Tsp. = teaspoon per gallon

You can find 1/8 tsp. measures in some specialty cooking stores as well as the typical, 1/4, 1/2 and 1 tsp. By the way, 3 tsp. = 1 tablespoon..

One of the first articles I wrote when I started at the University of Florida in the 1980's was one on converting large volume fungicide use rates to small volumes. Since many of our ornamental producers are smaller operations, making 100 gal (or sometimes even 10 gallons) of spray or drench solution is not feasible. Storage of unused mixtures has never been a good idea either legally or logistically and a conversion is usually needed.

It is relatively easy to convert a liquid measurement into a smaller volume of water since it is volume to volume. It is far harder to decide how to convert a dry formulation from a weight to a volume. This is actually what we need to do to use something given as 4 oz/100 gal into teaspoons/gallon.

To create the conversion one must weigh a teaspoon (or some other volume) for every type of product you use. It might surprise you to know that a teaspoon of different products does not weigh the same amount. For instance, a teaspoon of Banrot weighs 2.39 grams while one of 3336 only weighs 1.66 g.

Since this is certainly not something most growers will attempt, we have created the chart to the right with conversions for many of the fungicides we commonly test. The single rate given per 100 gallons was chosen to simplify the chart. It is not the only rate on the labels nor it is one we are specifically recommending. Use it as a starting point to make your own applications.

For instance, if you are want to use 8 oz of Terraguard and the chart tells you that 4 oz =2/3 tsp. then use 1 1/3 tsp./gallon to get 8 oz/100 gal. If you want to make three gallons of the rate, we give then multiply the tsp./gallon by three. I am sorry but you will have to do some math.

Conversions for Liquid Formulations to 1 gallon volumes

Liquid Products	Rate/ 100 gal	Tsp./gal
Banner Maxx	4 oz	¼
Banol	20 oz	1 ¼
Camelot	48 oz	3
Champ Flowable	32 oz	2
Chipco 26GT	13 oz	¾
	32 oz	2
Copper Count N	32 oz	2
Daconil WStik	22 oz	3
Fungo Flo	20 oz	1 ¼
OHP 6672 4.5L	10 oz	3/8
PathGuard 6F	22 oz	1 3/8
Phyton 27	15 oz	1
Pipron	4 oz	¼
Rubigan	8 oz	½
Sextant	32 oz	2
Triact 70EC	1%	8
Truban 25% EC	3 oz	1/5

While liquid conversions are easier than dry conversions, you still must be careful when doing the math and the measuring. Remember the old carpenters rule of measuring twice and cutting once. Try to do the math twice (or at least get someone else to do it with you) before getting the container out and mixing up a batch. Once in the tank, the products are a hazardous waste if they cannot be used according to the labeled directions. We did not include a conversion for Subdue Maxx. This product is so concentrated that even measuring the amount for 100 gal can be difficult.

ALWAYS FOLLOW THE PRODUCT LABEL—IT IS THE LAW . CALL THE MANUFACTURER IF YOU NEED HELP.

FUNGICIDES—THE GOOD, THE BAD AND THE UGLY

ANN CHASE AND KEITH HUNDERFUND

There are a number of aspects to using a fungicide effectively. First, the disease must be known and the product chosen to control that disease. Second, the product must be safe on your crop—phytotoxicity is not much better than disease. Finally, the residue left by the product must not interfere with the value and ultimately sale of the crop.

Sometimes spray residue is more critical than others. For instance, salability of finished poinsettias may be dramatically reduced if the wrong product is used too close to finishing. All good fungicides leave a residue, allowing long term efficacy but this residue should be clear or very slight to maintain aesthetics.

Ann and I went over many of our trials for the past three years and checked out the residue of the most common fungicides on the crops we normally test like cyclamen, Gerber daisy, dusty miller, impatiens and snapdragons. The results are given in the table to the right.

Ratings of slight (and sometimes medium) are (in our eyes) acceptable or salable levels with medium to heavy usually unacceptable. This of course depends upon the plant type. For instance, nursery crops like pittosporum might withstand a higher residue than a potted flower like cyclamen or Gerber daisy.

The color of the residue influences its acceptability as well. Green or blue residues naturally look better on green leaves (although pretty bad for poinsettia bracts) than tan or brown residue.

It was interesting that the same fungicide at the same rate on different plants can appear very different. In our situation, we run mist on the plants to promote disease development (Alternaria leaf spot for example). This seems to lessen the residue ratings since it probably washes off some of it. It also can make things worse (our water has a fair amount of dissolved minerals that make a pretty obnoxious residue in their own right).

Using wetting agents usually reduces the severity of residues regardless of the product or wetting agent involved. A couple of years ago, Decree was introduced and the resulting residue was unacceptable. Using Capsil (or many other wetting agents) in the tank mix with Decree significantly reduced this affect without reducing efficacy of the fungicide.

Fungicide	Rate/100 gal	None	Slight	Medium	Heavy
Agri-50	0.25-1%				
Aliette 80WDG	16-32 oz				
Banner Maxx	6 oz				
Banol	15 oz				
Camelot	16-80 oz				
Chipco 26019	16 oz				
Chipco 26GT	1.5 quart				
Cleary 3336	12 oz				
Compass O	1 oz				
Concorde SST	22 oz				
ConSyst WDG	16 oz				
Daconil Ultrex	22.4 oz				
Daconil Weather Stik	6 oz				
Decree 50WDG	16 oz				
Dithane Rainshield	24 oz				
Fungo 50WSB	12-15 oz				
Heritage 50WDG	1-4 oz				
Junction	16-48 oz				
Kaligreen	40 oz				
Kocide 2000 TNO	32 oz				
Manzate 75DF	24 oz				
Medallion 50WP	1-4 oz				
Milsana	1-2%				
MilStop	40 oz				
PathGuard 6F	20 oz				
Phyton 27	25-50 oz				
Pipron	4-8 oz				
Protect T&O	16 oz				
Rubigan EC	4-8 oz				
Spectro 90WDG	16-32 oz				
Stature MZ	28-40 oz				
Strike 25WP	2 oz				
Strike 50WDG	1-2 oz				
Systhane 40WP	2-3 oz				
Terraguard 50WP	4-8 oz				
Triact 70EC	0.5-1%				
Zyban WSB	24 oz				

Some Recent Trials on Alternaria Leaf Spot Control

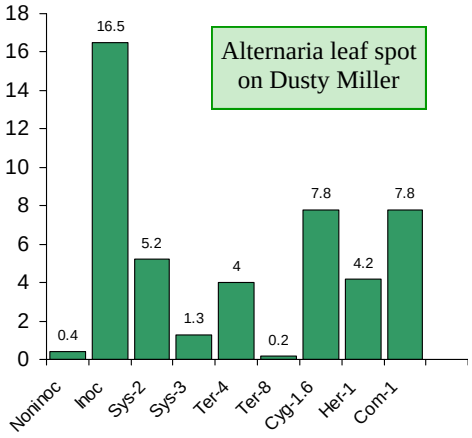
Over the past year we have performed a few trials on Alternaria leaf spot. The first (top, right) was conducted as a preventative trial on dusty miller. Plants were sprayed on a 10 day interval during December 2001 and January 2002.

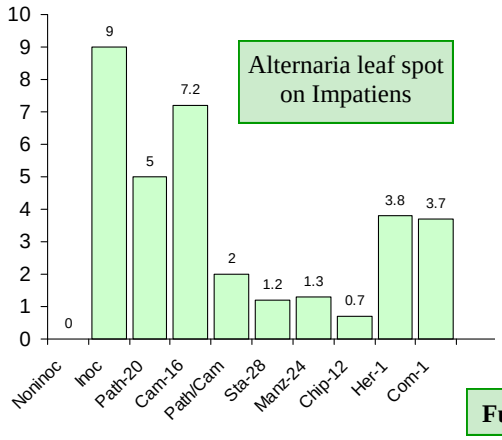
We were interested in comparing several strobilurin treatments with several sterol inhibitor treatments. Systhane 40WP was applied at either 2 or 3 oz/100 gal and Terraguard 50WP was applied at either 4 or 8 oz/100 gal. Both of these sterol inhibitors worked better when used at the higher of the two rates tested.

The strobilurin products included Cygnus (1.6 oz/100 gal), Heritage (1 oz/100 gal) and Compass (1 oz/100 gal). Heritage worked a little better than the other two fungicides in this chemical group, but none were as good as the higher rates of the sterol inhibitors.

Another earlier trial was conducted on Impatiens. In this preventative test, from the summer of 2001, we evaluated some of the historically best fungicides (such as PathGuard with chlorothalonil and Chipco 26GT with iprodione) compared again to some strobilurins (Heritage and Compass). The trial was performed on a 10-day interval.

Best control was found with Chipco 26GT at 1.5 pints/100 gal. Other fungicides with very good control were PathGuard mixed with Camelot (20 and 16 oz/100 gal, respectively), Stature (with mancozeb—28 oz/100 gal) and Manzate 75DF (24 oz). As with the Dusty Miller trial, Heritage and Compass gave good control on Impatiens - but this was not as good as the control provided by Chipco 26GT, Stature MZ or Manzate. Over the past four or five years this pattern has been repeated.





The table to the right is a brief summary of our testing on Alternaria leaf spot on ornamentals. It includes trials on impatiens, dusty miller, and pittosporum. We have also tested Heterosporium leaf spot on Dianthus with similar results. When I worked at the University of Florida we tested Helminthosporium on palms and Calatheas and Alternaria on Schefflera and Calatheas. In those trials, the best products were Chipco 26019 and Daconil. It is interesting that they remain some of the best products for these types of leaf spots.

From the Tradeshow Floor

Mike Zemke

Well, as we wind down at the end of the year, I hope your's was profitable. I cannot complain!! Some of the shows we will be attending next year are:

TPIE January 17th-19th in Ft. Lauderdale. This is the premier show for foliage ornamentals (indoor plants) in the country. Last year we really enjoyed the international audience and expect another rewarding show in 2003.

SAF Pest Management Conference February 23rd-25th in Orlando. Seems like all of our early shows are in Florida. This year we will see a change of pace with the seminars and hope it goes well. Look for advertisements on the SAF website and in many of the popular magazines.

Mid-Atlantic Interior Conference March 7th in Philadelphia. We attended this show a couple of years ago and look forward to renewing our acquaintance with the East Coast interiorscapers.

And of course a lot more through out the year. As these shows get closer I'll fill you in with the details. Mike

Fungicide Efficacy Summary

Excellent/Very good	Good	Fair/Some
Chipco 26019 or Chipco GT	Banner Maxx	Cygnus
Daconil	Camelot	Decree
Dithane	Compass	
Medallion	Heritage	
Spectro	Junction	
Stature MZ	PathGuard	
Systhane	Phyton 27	
Terraguard	Protect	

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