



# DOLLAR SPOT CONTROL; *Old Stand-bys Breath New Life When Tank Mixed in Reduced-rate Mixtures*

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When I was asked to interview for my current position, I was told that I would have to provide an article that could be published in the Grass Roots. Several months later it was. It was an article on reduced-rate tank mixtures for fungicide resistance management of *Sclerotinia homeocarpa*. Shortly after publication of the article (Dollar spot resistance management with reduced-rate mixture, The Grass Roots, March/April 1997), I received a phone call from a superintendent wondering if these could possibly work. Well, I have over five years of data to back this up now, and one of those years is from my dollar spot control trial conducted this summer.

Dollar spot is probably one of the easiest fungal pathogens to control. In the U. S. it accounts for the highest dollar amount of fungicide sale in the turf and ornamental market. So, you ask why manage for disease resistance? Well that same superintendent that called me when I published the article could be facing fungicide resistance himself, based on some preliminary testing that I conducted this summer. He may only be dealing with benzamizol resistance, but there is the possibility of DMI resistance also. Think of it this way, if you had resistance to both of these chemicals the possibility of 28 day or more spray schedules would be a thing of the past. This could possibly mean more frequent applications, resulting in additional chemical and labor costs. With this in perspective lets concentrate on the results from my trial this year.

## Methods

This evaluation was conducted at O. J. Noer Turfgrass Research and Education Facility on the newly established creeping bentgrass maintained under golf course green management conditions, at 0.20 inch cutting height. Individual plots, 3 ft x 10 ft, were arranged in a randomized complete block design with three replications. The experimental area was inoculated on August 12. Treatments were applied with a CO<sub>2</sub>-powered boom sprayer, using XR Teejet 8008 VS nozzles, at 30 psi, in water equivalent to 3 gal per 1000 sq ft. All applications were initiated on August 5, 1997. Fourteen day applications were also applied on August 17 and September 2. Twenty-one day applications were reapplied on August 25. Number of infection centers per square foot, three sub-samples per plot, were rated on August 25, September 3, & 12.

## Results

The results of my field trial this year are on the next page (Table 1). For the most part, almost every chemical provided satisfactory control. However some of these

required at least two applications before satisfactory control was obtained. Treatments in italics are part of the reduced-rate mixture study, and are applied at non-conventional rates and timings. However, their full rate was included as a comparison on a 21 day application schedule. Some chemicals seem to have slight phytotoxic effects on the turf. Mainly darkening of the turf and some thinning was noted. These treatments included the following: Banner Maxx 1.0 fl. oz. + Heritage 0.2 oz., Banner Maxx 1.0 fl. oz. + Daconil Ultrex 3.8 oz., Sentinel 0.167 oz. + Heritage 0.2 oz., Sentinel 0.167 oz. + Daconil Ultrex 3.8 oz., *Banner Maxx 0.22 fl. oz., Banner Maxx 2.0 fl. oz., Rubigan 1.5 fl. oz.* This is not astonishing information as these chemicals are in the DMI family of fungicides, all of which possess the possibility of growth regulation. So if you are dealing with high populations of annual bluegrass, or have growth regulators in your management practices they should be used with caution. This effect

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would probably be more pronounced on greens height of cut, than fairways or tees, do to the increased stress factors. The Chipco Aliette and Fore mixture had limited control, but was better than the untreated check.

As my results have proven, the possibility of using reduced-rate mixtures in a dollar spot management regime are well suited for this task. One year's results are not

enough to bank a total switch in your management practices, so this will be replicated again next year. I will also be testing them next year on the course that probably has developed *Sclerotinia homoeocarpa* resistance. I will also include some of them in my brown patch control trial at the O.J. Noer to see their efficacy on this disease. 🍷

TABLE 1. Number of Dollar Spot Infection Centers per Square Foot

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Trt. #	Treatment	Form.	Rate	Rate Unit	Interval	8-25 Rating	St. Dev.	9-3 Rating	St. Dev.	9-12 Rating	St. Dev.	
1	ECHO	75 WDG	4.2	OZ/1000 FT2	10 DAY	4.3	g-q	2.3	4.0	cdef	2.5	0.1
2	ECHO	6 F	6.0	FL OZ/1000 FT2	10 DAY	3.1	j-q	2.1	4.0	cdef	2.3	0.4
3	BANNER MAXX	1.24 MC	1.0	FL OZ/1000 FT2	21 DAY	7.6	c-k	3.4	0.0	f	0.0	0.0
4	HERITAGE	50 WDG	0.2	OZ/1000 FT2								
4	BANNER MAXX	1.24 MC	1.0	FL OZ/1000 FT2	21 DAY	3.3	i-q	2.1	0.0	f	0.0	0.0
5	DACONIL ULTREX	82.5 WDG	3.8	OZ/1000 FT2								
5	SENTINEL	40 WDG	0.167	OZ/1000 FT2	21 DAY	6.0	d-o	4.3	0.0	f	0.0	0.0
6	HERITAGE	50 WDG	0.2	OZ/1000 FT2								
6	SENTINEL	40 WDG	0.167	OZ/1000 FT2	21 DAY	2.0	n-q	2.6	0.0	f	0.0	0.0
7	DACONIL ULTREX	82.5 WDG	3.8	OZ/1000 FT2								
7	CHIPCO 26019 FLO	2 SC	2.0	FL OZ/1000 FT2	14 DAY	1.1	pq	1.1	4.6	cdef	1.9	1.3
8	CHIPCO 26019 FLO	2 SC	3.0	FL OZ/1000 FT2	14 DAY	3.0	k-q	2.6	5.4	cdef	2.4	0.0
9	CHIPCO 26019 FLO	2 SC	4.0	FL OZ/1000 FT2	14 DAY	1.3	opq	0.9	4.9	cdef	2.6	0.0
10	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2	14 DAY	3.0	k-q	2.6	7.4	cd	3.7	0.0
11	CHIPCO 26 GT	2 SC	3.0	FL OZ/1000 FT2	14 DAY	2.2	m-q	1.7	6.7	cde	3.9	0.1
12	CHIPCO 26 GT	2 SC	4.0	FL OZ/1000 FT2	14 DAY	2.1	m-q	2.1	6.7	cde	6.3	0.0
13	EXP10702B	2 SC	2.0	FL OZ/1000 FT2	14 DAY	2.1	m-q	0.9	9.0	c	7.6	0.1
14	EXP10702B	2 SC	3.0	FL OZ/1000 FT2	14 DAY	0.4	q	0.5	9.0	c	6.2	0.1
15	EXP10702B	2 SC	4.0	FL OZ/1000 FT2	14 DAY	2.6	l-q	2.2	4.8	cdef	2.8	0.1
16						15.6	a	8.5	26.8	a	9.8	18.6
17						11.1	bc	4.2	15.1	b	6.6	12.0
18	EXP80318A	1.67 SC	0.5	FL OZ/1000 FT2	14 DAY	0.6	q	0.7	0.9	f	1.4	0.0
19	EXP80318A	1.67 SC	1.0	FL OZ/1000 FT2	14 DAY	0.7	q	0.7	0.6	f	0.7	0.0
20	DACONIL ULTREX	82.5 WDG	3.8	OZ/1000 FT2	14 DAY	1.6	n-q	1.7	3.6	cdef	2.0	1.1
21	DACONIL ZN	4.17 F	6.0	FL OZ/1000 FT2	14 DAY	0.8	q	1.1	3.1	def	1.3	0.0
22	CHIPCO ALIETTE SIG	80 WDG	4.0	OZ/1000 FT2	14 DAY	2.3	m-q	2.6	4.9	cdef	3.1	0.0
23	CHIPCO 26 GT	2 SC	4.0	FL OZ/1000 FT2								
23	CHIPCO ALIETTE	80 WDG	4.0	OZ/1000 FT2	14 DAY	8.1	c-h	5.9	16.0	b	8.7	7.0
24	FORE FLO	4 SC	13.0	FL OZ/1000 FT2								
24	CHIPCO ALIETTE SIG	80 WDG	4.0	OZ/1000 FT2	14 DAY	2.0	n-q	1.4	4.0	cdef	1.9	0.0
25	DACONIL ULTREX	82.5 WDG	3.8	OZ/1000 FT2								
25	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	8.9	c-g	3.9	0.8	f	0.8	2.7
26	DACONIL ULTREX	82.5 WDG	3.8	OZ/1000 FT2	21 DAY	9.7	b-c	4.9	2.4	def	1.8	2.7
27	BAYLETON	25 DF	0.11	OZ/1000 FT2	21 DAY	10.2	bcd	3.8	4.9	cdef	2.0	4.8
28	BAYLETON	25 DF	1.0	OZ/1000 FT2	21 DAY	2.2	m-q	1.3	0.1	f	0.3	0.0
29	BANNER MAXX	1.24 MC	0.22	FL OZ/1000 FT2	21 DAY	8.0	c-i	4.2	1.3	ef	1.2	0.7
30	BANNER MAXX	1.24 MC	2.0	FL OZ/1000 FT2	21 DAY	2.9	k-q	2.4	0.4	f	0.5	0.0
31	RUBIGAN	1 SC	0.5	FL OZ/1000 FT2	21 DAY	7.2	c-l	3.5	3.6	cdef	1.4	0.8
32	RUBIGAN	1 SC	1.5	FL OZ/1000 FT2	21 DAY	6.9	c-m	3.9	1.1	f	1.1	0.0
33	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2	21 DAY	9.1	o-f	3.7	0.2	f	0.4	0.9
34	CHIPCO 26 GT	2 SC	3.0	FL OZ/1000 FT2	21 DAY	10.3	bcd	6.1	2.3	def	1.9	0.1
35	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2	21 DAY	7.9	c-i	4.0	1.6	ef	1.8	0.0
36	FUNGO FLO	4.5 F	2.0	FL OZ/1000 FT2	21 DAY	0.4	q	0.5	0.0	f	0.0	0.0
37	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	7.1	c-l	2.8	0.2	f	0.7	0.0
38	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
38	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2								
38	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	6.2	d-n	4.5	0.8	f	1.0	0.0
39	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2								
39	BAYLETON	25 DF	0.11	OZ/1000 FT2								
39	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	5.7	d-p	3.5	0.2	f	0.4	0.1
40	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2								
40	BANNER MAXX	1.24 MC	0.22	FL OZ/1000 FT2								
40	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	5.1	e-q	1.7	0.1	f	0.3	0.0
41	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2								
41	RUBIGAN	1 SC	0.5	FL OZ/1000 FT2								
41	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	2.7	l-q	1.3	0.4	f	0.5	0.0
42	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
42	BAYLETON	25 DF	0.11	OZ/1000 FT2								
42	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	4.2	g-q	2.7	0.8	f	1.0	0.0
43	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
43	BANNER MAXX	1.24 MC	0.22	FL OZ/1000 FT2								
43	DACONIL ULTREX	82.5 WDG	2.5	OZ/1000 FT2	21 DAY	10.1	bcd	6.1	0.3	f	0.5	0.0
44	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
44	RUBIGAN	1 SC	0.5	FL OZ/1000 FT2								
44	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2	21 DAY	7.8	c-j	2.8	0.0	f	0.0	0.0
45	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
45	BAYLETON	25 DF	0.11	OZ/1000 FT2								
45	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2	21 DAY	4.9	l-q	2.7	0.0	f	0.0	0.0
46	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
46	BANNER MAXX	1.24 EC	0.22	FL OZ/1000 FT2								
46	CHIPCO 26 GT	2 SC	2.0	FL OZ/1000 FT2	21 DAY	3.6	h-q	2.0	0.1	f	0.3	0.0
47	FUNGO FLO	4.5 F	0.25	FL OZ/1000 FT2								
47	RUBIGAN	1 SC	0.5	FL OZ/1000 FT2								
47	EAGLE	40 WP	0.6	OZ/1000 FT2	21 DAY	2.1	m-q	1.3	0.2	f	0.7	0.0
48	CHECK					13.9	ab	8.7	27.8	a	8.2	13.9
LSD (P=05)							3.87			4.5		1.84
Standard Deviation							2.39			2.78		1.14
CV							47.07			69.92		81.0
Means followed by the same letter do not significantly differ (p= 05, Duncan's New MRT)												
* All treatments in italics are part of the reduced-rate fungicide mixture study												