

PTRI 1998 Field Research Update

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During 1998, the PACE Turfgrass Research Institute (PTRI) will complete the 19 research projects listed below. In this issue of *Pace Insights*, we have summarized results from some of these trials that may be of immediate use to you. Full reports will be published in the PTRI 1999 Annual Report, as well as on the PACE/PTRI website (<http://www.pace-ptri.com>).

PACE Turfgrass Research Institute: 1998 Research Projects

CULTURAL PRACTICES

	Sponsor	Cooperators
1. Paspalum variety trial	PACE Consulting	Don Parsons, Old Ranch CC, Kevin Kienast, Pala Mesa Resort
2. Root zone microbial survey	CAPCA-PTRI meeting	PTRI Advisory Board
3. Bunker sand survey	PTRI Advisory Board	PTRI Advisory Board
4. Turf canopy sand filtration	PTRI Advisory Board	PTRI Advisory Board
5. Primo on overseeded fairways	Hi-Lo GCSA, Novartis	Mike Kocour, The Springs Club
6. Fabric covers for improved overseeding establishment.	Hi-Lo GCSA	Joe Foster, West Coast Turf; Rick Sall, Tamarisk CC
7. Poa invasion and new bentgrass varieties	Mesa Verde CC, PACE Consulting	Reed Yenny, Mesa Verde CC
8. Using root zone CO ₂ for timing aerations	CAPCA/PTRI meeting	PTRI Advisory Board
9. Use of ethrel for turf growth management	Rhone-Poulenc	TBD

WEED MANAGEMENT

10. Moss and algae control on greens	PACE, Rohm & Haas	David Michael, Friendly Hills CC
11. Poa control on overseeded fairways	Hi-Lo GCSA, Rhone-Poulenc, Novartis, Agrevo	Bill Kostas, Desert Dunes GC
12. Poa control on overseeded fairways	Hi-Lo GCSA, Rhone-Poulenc	Nancy Dickens, Del Webb Palm Desert

DISEASE MANAGEMENT

13. Summer patch management	Bayer, Cleary's Novartis	Rafael Barajas, Hacienda CC
14. Fairy ring & localized dry spot mgt.	Aquatrols, Naiad, Plant Health Care, Zeneca	Eric Lover, Dove Canyon CC
15. Summer stress management on greens	Rhone-Poulenc	Bruce Duenow, La Jolla CC
16. Stem nematode management	N. Calif. superintendents	Bob Klinesteker, San Francisco GC

INSECT MANAGEMENT

17. BTA adult and grub control	Agrevo, Novartis, Zeneca	Bill Gallegos, Los Coyotes CC
18. Soil gasses to predict BTA infestations	PACE Consulting	Bill Gallegos, Los Coyotes CC
19. Black cutworm control	Bayer, Rohm and Haas, Zeneca	Bruce Duenow, La Jolla CC

I. Evaluation of fungicides for control of summer patch on annual bluegrass greens

Cooperator: Rafael Barajas, Hacienda Country Club

Sponsors: Bayer, W.A. Cleary's, Novartis

Summary of Results (see insert, Figure 1):

Preventive applications of eight different products, rotations or fungicide mixtures were initiated on May 11, 1998. Summer patch was first detected on 7/8/98 and anthracnose was first detected on 7/20/98.

- All fungicides tested (for a list of fungicides tested, see table below) provided excellent control of anthracnose. The only anthracnose detected throughout the trial occurred in non-treated plots.
- The best summer patch control was observed in plots treated with bi-weekly applications of Lynx (tebuconazole) in May and June and monthly applications of Heritage thereafter. This effect was

the result of Lynx's selective activity against *poa annua*, which resulted in yellowed, undesirable turf quality in May and June, but which allowed bentgrass colonization of Lynx treated areas by the time summer patch symptoms were evident. Because bentgrass is not sensitive to attack by summer patch, the turf quality in these plots was excellent in July and August. Unfortunately, Lynx is currently not registered for use on turfgrass.

- Rotations of Banner with Heritage or Banner with Heritage and Cleary's 3336 also provided good to very good control of summer patch.
- The experimental product Compass (CGA279202) as well as Bayleton/Heritage rotations did not provide acceptable control of summer patch. These products have performed more effectively in non-West Coast locations for reasons that are not understood well at this time.

SUMMER PATCH TREATMENTS TESTED. HACIENDA COUNTRY CLUB

Product	Active Ingredient	Rate/1000 sq ft	Application timing
Compass 50 WP	CGA-279202 (experimental)	0.10 oz	bi-weekly applications
Compass 50 WP	CGA-279202 (experimental)	0.20 oz	bi-weekly applications
Compass + Banner Maxx (mixture)	CGA-279202 + propiconazole	0.20 oz + 2 oz	monthly applications
Bayleton 50 WG/Heritage (rotation)	triadimefon/ azoxystrobin	1 oz/0.4 oz	3 bi-weekly applic. Bayleton. followed by monthly applic. Heritage
Banner Maxx/Heritage (rotation)	propiconazole/ azoxystrobin	2 oz/0.4 oz	3 bi-weekly applic. Banner. followed by monthly applic. Heritage
Lynx 45/Heritage (rotation)	tebuconazole/ azoxystrobin	1.1 oz/0.4 oz	3 bi-weekly applic. Lynx. followed by monthly applic. Heritage
Banner Maxx/Cleary's 3336/Heritage	propiconazole/ thiophanate-methyl	2.0 oz/6 oz/0.2 oz	3 bi-weekly applic. Banner. followed by bi-weekly rotation of Cleary's followed by Heritage
No treatment			

II. Use of Turf Covers for Improved Overseeding Establishment on Hybrid Bermudagrass Greens

Cooperators: Joe Foster, West Coast Turf; Rick Sall, Tamarisk Country Club

Sponsor: Hi-Lo Desert GCSA

Goal of Trial: To improve the establishment and uniformity of greens overseeding programs by:

1. evaluating the efficacy of five different fabric covers as a means of decreasing the negative effects of wind and irrigation on establishment and uniformity of greens overseeding programs
2. evaluating the effectiveness of chemical (Scythe) vs. mechanical renovation on the establishment and uniformity of greens overseeding programs

Summary of Results (see Insert: Table 1)

- Chemical renovation with Scythe (10% solution) provided better ryegrass establishment and bermudagrass recovery than the standard mechanical renovation procedure.
- All five turf covers resulted in improved ryegrass/*Poa trivialis* establishment and bermudagrass recovery when compared to uncovered turf. Protection from high winds (up to 30 mph) and irrigation appears to be the major benefit, but increased turf canopy temperatures may also have contributed.
- The best performing turf covers (Tyvar and Bunker liner) shared the quality of resistance to high winds without tearing. Covers that did not perform as well either tore and blew away in high winds (Reemay and seed blanket) or reduced light to turf (frost blanket).

III. Management of *Poa annua* on Overseeded Fairways

Cooperator: Bill Kostas, Desert Dunes Golf Club

Sponsors: AgrEvo, Hi-Lo GCSA, Novartis, Rhone-Poulenc

Goal of Trial: Product labels for several pre-emergent herbicides currently contain warnings that applications made less than 4 months before overseeding may result in damage to turf. In other words, applications must be made no later than June -- too early to obtain season long control in Southern California. Data from the southeastern U.S. suggests that both Ronstar and Barricade can be applied as late as 6 - 8 weeks before overseeding without damaging emerging ryegrass. This replicated trial was set up to confirm these results under southwestern weather and turf management conditions and to investigate the following questions:

1. Which herbicides can be applied closest to the overseeding date, without damaging turf?
2. Which herbicides provide the best control of *Poa annua*?

Summary of Results (see insert, Figures 2 and 3):

- If the correct rates of pre-emergence herbicides are used (50-100 lbs/A Ronstar G, less than 2 lb/A Barricade 65 G), these products can be applied much closer to overseeding (4 - 8 weeks before overseeding) than their labels currently indicate. This strategy will result in little or no turf damage, and good weed control through April or May, or as much as 9 months post-application.
- Of the thirty-six different treatments that were evaluated, the best poa control was observed with

both pre-emergence herbicides (Ronstar and Barricade) and the post-emergent herbicide Prograss.

- Turf quality (damage to ryegrass) was significantly influenced by the rate of Ronstar G used, with a significant negative correlation between rate and turf quality. Interestingly, the timing of application of Ronstar G had little negative impact on turfgrass quality, even when applications were made 10, 8, 6, 4 and 2 weeks before overseeding.
- Higher rates of pre-emergence herbicides (Ronstar G at >100 lb/A and Barricade 65 G at 2 lb/A) caused severe damage to ryegrass when applied 2 - 10 weeks before overseeding.
- Split applications of Ronstar (50 lb/A, 4-8 weeks before overseeding and 100 lb/A 6-12 weeks after overseeding) provided excellent poa control, with consistent lack of phytotoxicity. This strategy appears to be the most likely to ensure good weed control, without any concomitant damage to turf.

IV. Moss and Algae Control on Golf Course Greens

Cooperator: David Michael, Friendly Hills Country Club

Sponsors: Rohm and Haas, Zeneca, PACE Consulting

Summary of Results (see Table below):

- Gradual removal of moss was accomplished using 3 bi-weekly broadcast applications (1-2 gallons spray/1000 square feet) of Daconil 2787 (11 oz/1000) or Daconil Ultrex (7.3 oz/1000). This was the best strategy tested for widespread moss infestations.
- When moss infestations are present in small patches only, spot treatments that result in rapid removal of moss may be the most effective strategy. Ultra Dawn Dishwashing detergent (4 oz/gallon water) provided excellent control when applied as a heavy drench on small spots of moss. However, dishwashing detergent is not registered for use on turfgrass and is therefore currently not legal to use on golf courses.
- Treatments which damaged turf (such as Dimension, or iron fertilizer plus Ronstar) caused a gradual **increase** in moss, probably due to lack of competition from turfgrass.

Percent moss control on a poa/bent golf course green (broadcast applications). Friendly Hills country Club. Applications were initiated on 5/11/988.

Product	Active Ingredient	Rate/1000 sq ft	Control (7/10/98)
Daconil Ultrex	chlorothalonil	7.3 oz	41%
Daconil 2787	chlorothalonil	11 oz	34%
Monterey RD-20	quaternary ammonia	1.6 oz	5%
Fore Flo	mancozeb	12 oz	0%
Lesco Iron Plus Fertilizer		14.3 lb	0%
Lesco Iron Plus + Ronstar 2G	oxadiazon	14.3 lb + 1.7 lb	0%
Ronstar 2G	oxadiazon	1.7 lb	0%
Subdue 2E+Lesco spreader sticker + Lesco Wet	metalaxyl	2 oz + 1.3 oz + 1.3 oz	0%
Iron sulfate	iron sulfate	5 oz	0%
Dimension EC	dithiopyr	1.5 oz	0%
No treatment			0%

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Figure 1. Percent damage due to disease (8/17/98) following summer patch fungicide applications. Hacienda Country Club. In all treated plots, the only damage detected was due to summer patch. In non-treated plots, both summer patch and anthracnose were detected.

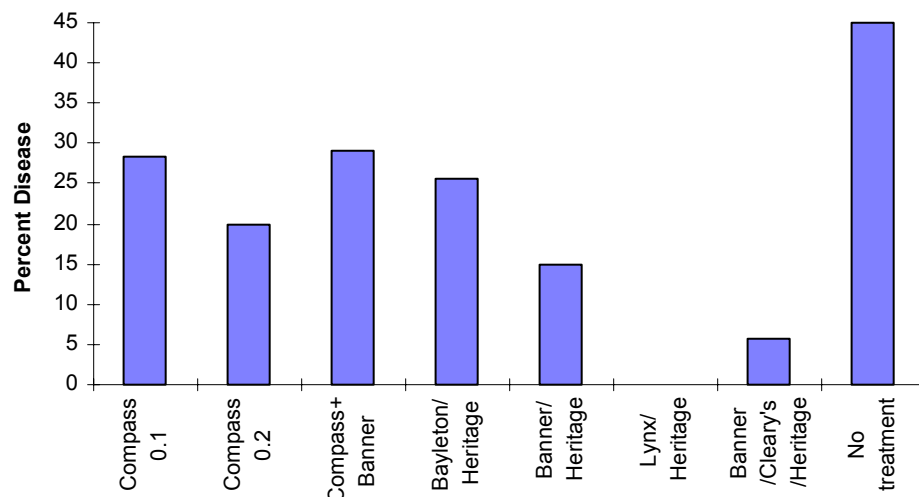
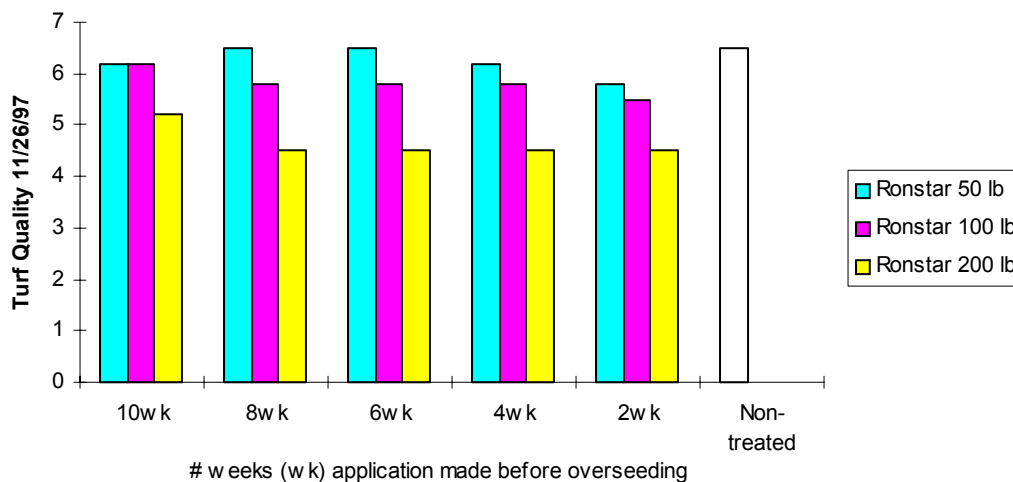


Table 1. Efficacy of turf covers and renovation strategies for improved overseeding establishment and uniformity of overseeded greens. Turfgrass stands were evaluated on 5/21/98 using a 0-9 scale, with 0 = worst possible stand and 9 = best possible stand. In addition, the rye/poa trivialis density was determined by mowing a 10 square foot area in each plot at 1/2" on 5/21/98, and weighing the clippings. In each column, values followed by the same letter are not significantly different (Fisher's LSD, P<0.05). The treatments that resulted in significantly better rye/poa establishment than the non-treated check are indicated in green shaded boxes.

Turf cover	Renovation strategy	5/21/98 rye/poa stand	5/21/98 Bermuda- grass stand	5/21/98 Rye/poa clipping wts (g)
Typar 1.2 oz	Scythe	4.2 bc	8.2 bc	17.88 de
Reemay 0.6 oz	Scythe	0.8 a	6.3 a	1.97 ab
Frost blanket	Scythe	2.7 b	7.8 b	9.49 bc
"Seed Guard" seed blanket	Scythe	4.0 bc	8.0 bc	13.93 cd
Bunker liner	Scythe	4.5 c	8.7 c	24.58 e
No fabric	Scythe	0.0 a	6.3 a	0.42 a
Typar 1.2 oz	Mechanical	4.2 b	4.7 ab	12.90 bc
Reemay 0.6 oz	Mechanical	3.5 b	3.7 ab	8.21 ab
Frost blanket	Mechanical	3.5 b	4.3 ab	9.07 b
"Seed Guard" seed blanket	Mechanical	3.8 b	4.3 ab	13.34 bc
Bunker liner	Mechanical	4.2 b	5.3 b	17.81 c
No fabric	Mechanical	0.0 a	2.7 a	0.68 a

**Figure 2. Effect of Ronstar Rate and Timing on Quality of Overseeded Fairways
Desert Dunes Country Club**



**Figure 3. Effect of Ronstar Application Timing & Rate on Poa Control
Desert Dunes Golf Club**

