USGA RESEARCH, ENVIRONMENT & EDUCATION GRANT SUMMARY FOR 2000

Project Area	Number	Funding Grant	% Total
Integrated Turf Man.	17	406,411	20.3%
Germplasm Enhancement	22	522,837	26.2%
Course Construction	14	218,227	10.9%
Environmental Impact	14	305,966	15.3%
Sustainable Landuse	1	10,000	0.5%
Wildlife Links	8	182,800	9.1%
Audubon Coop. Sanctuary	1	100,000	5.0%
Education	2	25,000	1.3%
Turfgrass Information Center	1	200,000	10.0%
Green Section Regional Projects	9	27,000	1.4%
Total	89	1,998,241	100.0%

NEW USGA TURFGRASS AND ENVIRONMENTAL RESEARCH PROJECTS FOR 2000

Title	Research Institution	Principal Investor	Years	Total
Integrated Turfgrass Management				
Biological Control of White Grubs on Golf Courses by Native Parasitic Wasps	UKentucky	Daniel Potter	2	42,950
Identification and Metabolic Diversity of Rhizobacteria from Bent & Bermuda Greens	Clemson U.	Horace Skipper	2	34,800
Establishment & Management of Seeded Bermudagrass in the Transition Zone	UArkansas	Michael Richardson	3	43,007
Relationship of Environment, Management, and Physiology to Bermudagrass Decline	Texas A&M	Richard White	3	74,984
Integrating Biologically Based Strategies for Turfgrass Pest Management (Phase II)	UGeorgia	S. Kristine Braman	3	37,671
				233,412
Turfgrass Germplasm Enhancement				
Development of Gray Leaf Spot Resistant Perennial Ryegrass through Breeding and Biotechnological Approaches	UKentucky	Mark Farman	3	75,000
Identification of Creeping Bentgrass (*Agrostis palustris Huds.*) Cultivars Using Simple Sequence Repeats (SSRs)	Rutgers/Cook	William Meyer	2	49,880
				124,880
Course Construction Practices				
Effect of Root-zone Material and Depth on Moisture Retention Problems in USGA Greens	Michigan St.	Bernd Leinauer	3	75,000
Using Cubical Triaxial Testing for Determining the Bulk Mechanical Behavior of Sand for Rootzone Mixtures	Penn State	Charles Mancino	2	15,382
				90,382
Pesticide and Nutrient Fate Modeling				
Best Management of Post-application Irrigation To Reduce Exposure to Volatile & Foiar Pesticide Residues & To Minimize their Conversion to More Env'lly Mobile Products	UMass	Marshall Clark	3	74,867
From Small Plots to Course Watersheds: Calibration of Computer Model Scenarios for Pesticide & Nutrient Runoff & Leaching in Turfgrass Environments	UGeorgia	Kevin LArmbrust	3	75,000
Controlling Nutrient Runoff from Fairways Using Vegetative Filter Strips	Okla. State	Gregory Bell	3	75,000
Surface & Subsurface Water Quality Data Collection and Model Development for a Watershed Scale Turfgrass System	USGA-ARS	Kevin King	3	74,800
Further Evaluation and Modeling of Pesticide Partitioning Data From the UCR Putting Green Lysimeters	UCal-Riverside	Laosheng Wu	2	24,934
Phosphorus Fertilization of USGA-type Greens: Placement, Rates and Leaching	Auburn Univ.	Beth Guertal	3	75,488
				400,089
Green Section Staff Projects			3	**90,000**
Total				**848,763**

USGA funds new round of research projects

Continued from page 29

• The effect of root-zone material and depth on moisture-retention problems in USGA putting greens by Bernd R. Leinaur at Michigan State University.

• Best management of post-application irrigation to reduce exposure to volatile and foliar pesticide residues and to minimize their conversion to more environmentally mobile products, by J. Marshall Clark at the University of Massachusetts.

• Calibration of computer model scenarios for pesticide and nutrient runoff and leaching in turfgrass environments, from small plots to golf course watersheds, by Kevin L. Armbrust at the University of Georgia.

• Phosphorus fertilization of USGA-type putting greens: placement, rates and leaching, by Beth Guertal at Auburn University.

But perhaps the most fascinating research is being done by Courtney Conway at Washington State University. She is studying burrowing owl conservation on golf courses.

The burrowing owl, Kenna explained, lives in the ground, in the burrows of rodents. WSU scientists have learned to create artificial burrows for these owls on golf courses, where there should be a bountiful food supply.

Kenna pointed to Armbrust's research into pesticide and nutrient runoff and leaching as a crucial study. It is also being supported by a grant from the federal Environmental Protection Agency as are other studies of major watersheds of the U.S. Geological Survey.

"Essentially, the goal is to document the water quality and the effects of land uses on water quality," Kenna said. "We know from all the research that chemicals can reach ground and surface water. If everything is managed correctly and timing is right and labels are followed, we don't see a problem. But a lot of the pesticides showing up (although in small amounts) are used in the professional lawn care and golf industries. And the peaks come when people are putting out pre-emergents or post-emergents... We want to get a better handle on when the contaminations are occurring. My guess is that it will come from homeowners."

That study, like many of the other new ones, will not be complete for three years, although others have two-year time limits.

With this latest round, the USGA has climbed to $18 million in funding since 1983.

Premixer saves repair parts, labor

By TERRY BUCHEN

VIENNA, Va. — Walter Montross, superintendent at Westwood Country Club, here has almost totally eliminated the need to replace any seals in his sprayers since beginning to use a premixer unit.

"A couple of years ago we were experiencing premature wear on the pump seals of our two Chempro Sprayers," said Montross, a certified golf course superintendent. "Although there was some initial suspicion that the seals were of poor quality, I believed it was directly attributable to the abrasive materials we were putting into the sprayers. I also felt the water-soluble bags of various chemical materials had a negative effect on the seals."

To the rescue came Howard Meredith, who had formally worked with Chempro Sprayers. Meredith informed Montross that he was building a "premixer" unit that would allow for the chemical materials to be "pulverized and fully dissolved" before circulating through the sprayer filters and,

'We have almost totally eliminated the need to replace any seals.'
— Walter Montross

ultimately, the seals. Meredith sold a prototype unit to Montross in 1998 for about $2,000.

"The premixer unit is pretty simple in nature as it breaks down the chemical material through the upper screen that has high pressure nozzles directed at it," Montross said.

"Once the chemical materials move into the tank, a secondary set of high-pressure nozzles keep them in suspension. The chemicals then travel through a series of filters before they are ready to be transferred into the spray rig."

There are other benefits. Through a series of quick-connect hoses, Montross' crew members are able to fill the premixer with water and then move the chemical materials to the sprayer unit by simply turning two valves. Once the chemical materials are loaded into the basket, that is the last time they are handled.

Photo by Terry Buchen

A pre-mixing implement helps the spray technician save valuable time as well as wear and tear on the sprayer unit.

The premixer tank holds 80 gallons, so when the initial batch is transferred to the sprayer through a 2-inch-diameter flexible hose with a quick disconnect end piece, they simply refill the premixer with water and transfer the rinseate.

"Lastly," said Montross, "I have found that if I have one of my assistant superintendents loading the premixer while my spray technician is on the course making an application, I can reduce my overall spray time by as much as two hours.

"We have almost totally eliminated the need to replace any seals since we began using the premixer unit," Montross said.