

to fertilization, weed control, irrigation and mowing. Volumes of runoff and leachate will be measured and samples analyzed for nutrient and pesticide content.

Development of Standards for Organic Amendments in Sand Matrix Putting Greens

Experiments are underway to provide measures of the biological stability of a large variety of organic amendments and to relate this and numerous other properties to the greenhouse performance of mini putting greens. Installation of forty 8' x 8' putting greens at the Noer Facility was 70% completed last fall. Their construction will be completed as soon as weather permits and the greens seeded to 'Penncross' creeping bentgrass. Observation wells will allow us to monitor soil moisture in each green, periodically sample the rootzone mixes to measure composition changes, and to observe root growth throughout the season. Frequent visual ratings will serve to characterize treatment effects on bentgrass establishment and changes in quality over time.

Environmentally Responsible Nitrogen Management

This study, begun in 1992, will continue for at least two more seasons. The objective is to identify N management strategies that provide satisfactory Kentucky bluegrass color and quality while minimizing clipping production and avoiding leaching loss of nitrate. The N variables are carrier, rate and frequency of application.

Temperature Dependency of N Release from Milorganite

This study is still in the planning stage, but 1993 implementation is anticipated. The basic premise of the study is that effective use of Milorganite as a turf fertilizer requires knowledge of how temperature affects microbial release of the predominantly organic N in Milorganite.

Turfgrass Physiology and Weed Research— Dr. Frank Rossi, Department of Horticulture

Predictive Weed Models

The objective of this research is to quantify developmental stages of weeds to properly employ integrated management strategies such as biological control options. We will initiate experiments designed to determine the environmental conditions (soil moisture, light penetration through the canopy, degree days, etc.) necessary for the emergence and growth of turfgrass weeds such as crabgrass and annual bluegrass.

Winter Injury Research

The objectives of this broad based project are to determine various causes of low temperature injury and freezing stress (crown hydration) and investigate cultural management options which could minimize this severe stress problem. Species and cultivar evaluations will be initiated to determine individual selections and mixtures which afford greater winter hardiness under several maintenance programs. Laboratory research will be initiated with Chris Bullinger (the WTA Research Asst.) to investigate cellular level response to low temperature and freezing stress.

Creeping Bentgrass Seeding Density

We will conduct this experiment at three locations to determine the affect of seeding density on establishment

rate, seedling vigor, wear tolerance, and disease infestation of creeping bentgrass. There are many questions which continue to arise regarding the amount of seed required for optimum density. Are we sacrificing long term sward vigor for immediate dense and finer leaf turf?

In addition to individual projects, the UW Turfgrass Research Group expects to collaborate on several projects as part of the continued development of our program. As a group, we will continue the species and cultivar evaluations, herbicide, fungicide, fertilizer and plant growth regulator evaluations, and begin construction of our experimental greens. 🌱

Answers to the puzzles on page 18.

A K Z E N I B S U R A V E S A E S I
 B R O W N P A T C H U W K R J S D F
 L E O K Q L A C I M E H C S T D K U
 D I L C J F E I U J L S A R W Q C N
 Z O K V M A N I L D I S E A S E N G
 L I W H G J L G E T W S L H R Y D I
 A W N O Q E S L H T S W U R B U H C
 C I D E C K M V O O Y W Q C Z F N I
 I A T Y B I P D S A T H J P Q C G D
 G R M P I N M K T M W V P G L H V E
 O K A V P R M E C J U Y R O W A F S
 L S C R E L I W T E D D Z T R O C G
 O D T J S K B E U S Q F B G B P U M
 I G M S W O V P H W Y D A Y B R A J
 B K C G U R O M F S K S Y X E J A S
 N W B U P R F W A N E G O H T A P V
 T Y E S A G R A W T S O N S S E T W

1	C	2	A	3	D		4	S	5	P	6	O	7	T		8	P	9	O	10	A
11	O	P	E				12	W	I	R	E					13	R	E	D		
14	N	E	E	D			15			16	T	E	N	S	E						A
18	E	S	T	E	R										20	I	E				M
							21	N	U	T	R	I	E	N	T	S					
26	K	E	N												29	S	O	I	L	S	H
30	O	D	E												31	T	R	E	A	T	E
34	L	I	P								35	C	K			36	A	C	M	E	
38	B	E	A								39	S	H	E	D			41	A	E	C
											42	L	I	E				44	O	A	T
											46	W								50	L
51	T	I	M	O	T	H	Y											53	G	L	E
55	A	N	O	N							56	A	A					57	S	P	A
58	R	D	A								59	F	I	R				60	T	A	K