The need for an intermediate sand layer can only be determined by a soil laboratory and depends upon the relationship between the particle size distributions of the gravel and the root zone mix.

Where an intermediate sand layer is required—no more than 10% of the gravel can be retained on a 1/2 inch sieve, at least 65% must pass through a 3/8 inch sieve and be retained on a 1/4 inch sieve, and no more than 10% can pass through a 2mm sieve.

## INTERMEDIATE SAND LAYER

The acceptable particle size has been expanded from 90% of the particles between 2mm and 1mm, to 90% between 4mm and 1mm.

## ROOT ZONE MIXTURE

The acceptable particle size distribution of the USGA root zone mix is summarized in the accompanying table.

Allowance has been made for more fine sand (0.25mm-0.15mm) but less very fine sand (0.15mm-0.05mm).

The peat source must be a minimum of 85% organic matter by weight. Other organic composts should be aged for at least one year and must be proven to be non-phytotoxic to the turf by the supplier. The final organic matter content of the mix must be between 1-5% by weight (ideally 2-4%).

If soil is used in the mix it must have a minimum sand content of 60% and a clay content between 5% and 20%. The final mix must still conform to the revised guidelines for particle size distribution.

Several root zone physical properties have been modified:

Total porosity: 35-55%

(previously 35-50%)

Air-filled porosity: 20-30% (previously 15-25%)

Saturated Conductivity (percolation rate) Normal range: 6-12 in/hr (15/30 cm/hr) Accelerated range: 12-24 in/hr (30-60 SOIL FUMIGATION

Sterilization required prior to establishment of turf only 1) in areas prone to severe nematode problems, 2) in areas prone to grassy weed or nutsedge problems, or 3) when the root zone contains unsterilized soil—otherwise optional.

The complete recommendations will be available during January 1993. For a copy, call 414-241-8742. Or write:

The USGA Green Section Great Lakes Region 11431 N. Port Washington Rd. Suite 203 Mequon, Wisconsin 53092



the bruce company of Wisconsin

(608) 836-7041

5

LEE BRUCE GOLF COURSE CONSTRUCTION

2830 W. Beltline Hwy. • P.O. Box 330 • Middleton, Wisconsin 53562

## 1993 Commercial Applicator Training Sessions

Roger Flashinski, pest management education specialist for the UW Extension, has announced pesticide applicator training sessions for this year.

Training is designed for initial certification or recertification. Sessions begin at 8:30 a.m. and conclude at about 2:30 p.m. Afterwards, 90 minutes are allowed for the exam.

The dates and locations for Ornamental and Turf (3) training are:

Location	Date	Pre-Registration Deadline
Milwaukee	March 19	March 5
Arlington	March 24	March 10
Milwaukee	March 31	March 17
Green Bay	April 2	March 19
Eau Claire	April 7	March 24
Milwaukee	April 14	March 31

For those who need Aquatic pest-control training (5), a session will be held in Wausau on March 15. Pre-registration deadline is March 1.

To register for a training session and to receive your training materials, please complete a "Commercial Pesticide Applicator Training" registration card. These cards are available from your county Extension office or from the Pesticide Applicator Training office in Madison. Indicate the location and date of the training session you desire to attend and the pest control category in which

training materials are being requested. Return the registration card and training fee to:

Pesticide Applicator Training -Department of Agronomy 1575 Linden Drive Madison, WI 53706-1597

Please register before the deadline date listed for each training session. Advance registration allows ample time for you to receive and review your training materials prior to the scheduled session, and it may avert cancelling a training session due to inadequate enrollment. We will notify you regarding the status of your session approximately 7 to 10 days prior to the scheduled date. Directions to the meeting facility will be given at that time.

To become certified in commercial pest control categories not listed here, review the appropriate training manual and study guide and then make exam arrangements directly with the Wisconsin Department of Agriculture, Trade and Consumer Protection. Their phone number is 608-267-9652.

If you desire more information on registration and obtaining training materials, or if you're unsure which pest control category certification is needed, please call either:

Rose Scott Program Assistant 608-262-7588

Roger Flashinski Pest Mgmt. Education Specialist 608-263-6358