

## NEWS FROM THE NORTHWEST

Dr. William A. Meyer

Turf-Seed, Inc., Hubbard, Oregon

Of the 8 winters that I have experienced in the Willamette Valley, this past one set a record for being the mildest and wettest. There were only a few nights where temperatures got into the 20 degrees F. and since September 1, 47 inches of rain fell in 1/4 to 1/2" increments.

The 1983 grass seed crop is about 2 weeks ahead of normal years. Of course we could still end up with the same harvest dates with a few extra cold and wet weeks. This would then make our weather worse than what I have heard about the Chicago area.

The mild wet winter has caused the rust diseases on the seed crops of turf-type perennial ryegrass and Kentucky bluegrass to build up very rapidly this spring. These diseases can be controlled with fungicide applications costing between \$50 and \$100/acre. If they are not controlled the seed yield losses on most varieties which are susceptible can be up to 95%.

This heavy rust year should be a good challenge for the new stem rust resistant perennial ryegrass variety Manhattan II. We have been working in cooperation with Dr. C. Reed Funk of Rutgers University to develop this improved Manhattan for the past 8 years. Along with having much better stem rust resistance than the original Manhattan, it also has shown better mowing quality, better summer performance, a dwarfier growth habit and a much higher tiller density.

Improvement projects have also been in progress on Citation, Birdie and Omega perennial ryegrass, which have been performing well in our CBS blend. The varieties Citation II (tested as 282) and Birdie II (tested as 2ED) have shown improved turf qualities, stem rust resistance and recently were reported to contain a high level of the endophytic fungus *Epiclloe typhina* (E.T.).

This endophytic fungus grows between the cells of ryegrass tissues and can be found in all above ground portions of the plant. Plants containing the fungus look and grow normally.

The presence of this fungus within the ryegrass and many other cool season grass species was first reported in New Zealand in the 1940's. The importance of the absence or presence of the fungus within ryegrass plants was not appreciated until experiments in New Zealand recently showed that plants without this endophyte were highly susceptible to Argentine Stem Weevil, while those containing the fungus were highly resistant.

Dr. Funk reported the results of his research on insect resistance at Rutgers over the last 2 years at a Forage and Turfgrass Endophyte Workshop held in Oregon on May 3 and 4. His results were similar to those reported from New Zealand, but the insects involved were bill bugs and sod webworm in New Jersey turf. Those varieties which had a high percentage of plants containing the endophyte showed excellent insect resistance while those with no endophyte were highly susceptible. At this same conference he reported the recent analysis of seed lots of ryegrasses placed in the 1982 National Ryegrass Test by Dr. Phil Halisky. Citation II (tested as 282) had high levels of the endophyte in seed, while Birdie II (tested as 2ED) was found to have moderately high levels. These two varieties should show improved resistance to the above insects if the endophyte levels are maintained in each seed generation.

It was reported at this same conference that this organism is most likely spread only by means of seed transmission. The fungus is carried along as mycelium near the embryo of each seed. This mycelium grows into resulting seedlings and invades all above ground plant parts and the next generation of seed. When seed is stored the fungus can lose viability rather quickly depending on storage conditions. It appears the percentage of seeds containing the viable endophyte goes down quite rapidly after one year of storage, but detailed information on storage losses is not yet available. What this means is that we will have to start new generations of Breeders and Foundation seed much more often in order to assure the presence of the fungus in certified seed fields if insect resistance is desired. Refrigeration of seed stock lots showed aid in maintaining the viability of this fungus in seed. Once the fungus is transmitted from the seed to the plant tissues growing on a fairway or tee it appears that it will remain in the plant, helping to convey insect resistance until a golfer ends its life as a large divot.

The discovery of this E.T. in ryegrass and its association with insect resistance is certainly the topic of the day. Whether this same organism is conveying insect resistance in other cool season grasses is yet to be proven.

(continued from page 12)

Recently Bill Small, Dr. Fickle and I visited arsenical turf plots with Dr. Daniel and Dr. Freeborg at the Elks Country Club in Lafayette, Indiana and with Jim Brandt of Danville Country Club. We observed favorable *Poa annua* restriction with tri-calcium arsenate flowable. Several superintendents are testing this new formulation.

I almost forgot to mention the evening at Silver Lake Country Club recently. Several superintendents forgot they were old men.

Our research staff and I spent a day with Dr. Shurtleff, Dr. Wehner and Dr. Wilkenson, reviewing their current studies. You superintendents in Illinois are fortunate to have such a fine staff to aid with your problems. With research help and the rugged individualism of Warren Bidwell's famous words, "Leave the driving to us," turfgrass management in Illinois is in good hands.

## Arthur Clesen Inc.

**CHEMICALS**—aquatic, fungicide, herbicide & insecticide

**DECORATIVE MULCHES**—chunk bark & shredded mulches, bag or bulk

**FERTILIZERS**—Country Club, Vertagreen, spray applied, minor elements & bulk blends

**GRASS SEED**—improved varieties, custom mixes, prairie grass & wild flowers

**HAND TOOLS**—loppers, pruners, rakes, saws & shovels

**HOSE**—hose, accessories & reels

**HYDRO MULCH/SOIL STABILIZERS**

**ICE MELT**

**OIL ABSORBENTS**

**PAINT**—Easy Marker & Tree Kote

**SOIL CONDITIONERS**—gypsum, lime, peat moss, perlite, sulfur & terra green

**SPRAYERS**—Myers, Solo, Universeal & Wheel Spray

**SPREADERS**—Cyclone, Diadem & Lely