

# Snow Mold Management or What Am I Going to Do in 1994?

By **WARD C. STIENSTRA**, Extension Plant Pathologist

The 1994 Minnesota State mercury ban means you should use up the remaining supplies this fall. A BAN simply means you cannot use this product after the date stated. The supplier cannot sell, and you should not have it in storage. Please use it up this fall. What products and techniques will you use to manage Snow Molds in 1994?

First, you should do a sprayer tune-up. Estimated United States pesticide application error ranged from 25 to 35%. This is due to 1) inadequate sprayer calibration, 2) failure to cover the target area uniformly or 3) improper spray tank preparation. You should give primary attention to calibration and sprayer maintenance now before the spray season and develop accurate spraying procedures. The actual delivery rate of any sprayer is the product of nozzle pressure, nozzle size and speed of the sprayer. The method of calibrating is outlined in the sprayer catalogs. The procedure requires measuring output of nozzles for the length of time a sprayer needs to cover a determined distance. It is work, requires equipment and data and you must work the information through a mathematical formula. It can be done, but it will take time and energy.

During a sprayer tune-up you may find that the pump is inadequate to effectively serve the nozzle flow rate at the pressure desired and provide tank by pass mixing. Another

common problem is mixed nozzle sizes or worn nozzles that deliver more than what is expected. New nozzles may be needed. At a recent sprayer clinic when we could not get a good test result, we finally discovered the delivery pipe was too small. Only the actual on-site testing of equipment will result in accurate sprayer calibration. The products used in the past for snow mold management may have performed well for you, but today you must have a well-calibrated sprayer for product performance to be most effective.

Fungicide dilution rates have not been tested for winter disease management. Test plots have been treated with TeeJet tapered fan nozzles at 30 to 40 PSI on the boom calibrated to deliver 2 gallons per 1,000 sq. ft. The very early work was done at 5 gallons per 1,000 sq. ft. and the plots were sprayed in two directions. After presenting that data, most superintendents said that neither the rate nor the double application was practical for them. Since then all test plots data has been at the above rates and pressure. Summer disease (Sclerotinia Dollar Spot) control with Dyrene or Chipco 26019 was most effective at 30 to 60 PSI with flat fans, and control levels fell when pressure was at 10 PSI. Floodjet nozzles at 20 to 55 PSI were not as effective.

*(Continued on Page 12)*



DISTRIBUTORS OF:

**RAIN BIRD**

**Hunter**

**CRESLINE**

AND OTHER QUALITY TURF IRRIGATION PRODUCTS.

- CONTROLLERS
- HEADS
- VALVES



*RAIN BIRD GOLF*

- PIPE/FITTINGS
- PUMPS/METERS
- WIRE/VALVE BOXES

#### LOCATIONS:

15400 28th Avenue North  
Suite 2  
Plymouth, MN 55447  
(612) 559-0057

415 Sundial Drive  
St. Cloud, MN 56387  
(612) 259-6448

1971 Seneca Road  
Bay "H"  
Eagan, MN 55122  
(612) 687-0282

## Snow Mold —

(Continued from Page 10)

tive as the flat fan nozzle at 30 PSI in work done at Virginia by Houston B. Couch.

**A sprayer with a uniform deposition pattern must still have an applicator that makes uniform application.** Skips and overlaps result in disease development and potential injury or costly waste of product. The use of spray pattern indicator products can clearly show skips, plugged nozzles and overlaps; however, it is one more item to suspend in the tank and it can increase compatibility problems. Spray tanks should be filled first with water, then add the product to be sprayed and be sure that the agitation is thorough and continuous. Never let the tank stand without agitation and spray soon after preparation. Prompt application after mixing well prevent the likelihood of chemical hydrolysis (product breakdown), separation, precipitation or caking in the tank. Tank mixes (two or more products) can save application time but you need to be aware of incompatibility. Physical, Chemical and Phytotoxic problems can develop. Check with the manufacturer of a product before trying mixtures.

Products should be applied to a dry turf surface at a time when the surface is expected to dry before a rainfall event or irrigation. Trials at Virginia by Dr. Couch show that 1) rain or irrigation before the treated area is dry results in significant disease control loss of non-systemic fungicides, 2) rainfall or irrigation immediately after the spray dries

will not appreciably reduce the effectiveness of fungicides with a sticking agent (check with supplier), and 3) systemic products are less vulnerable than non-systemic to reduce levels of effectiveness by rain or irrigation before the spray dries; however, differences among systemic products do exist. My general rule is to apply snow mold products in two gallons of water per 1,000 sq. ft. with a boom fan nozzle system at 30 to 60 PSI or Raindrop nozzles at 40 PSI. I prefer the tapered fan nozzle system and do not recommend flooding nozzles for fungicides on turf.

**Cultural turf management to lessen disease pressure** is more important with non-mercurial products. Integrated disease management can make the difference between success and failure with snow molds, especially with the non-mercurial products now available. The fungicide program results of the past that I recommended will not be possible in future, and more dependence will be shifted to IPM. This level of confidence in your ability to provide 98 or 99% disease control consistently simply will not exist with fungicides. Your expectations may be too high and if you don't use all the techniques to manage snow molds, your performance will be judged as inadequate. Avoid turf fertilizer applications that keep the grass growing into the fall. Slow release forms are desired and grass must not be left uncut in the fall. Keep mowing until top growth is stopped. Leaving the grass a little longer in the fall is good and may even allow for better winter survival. Thatch, snow compaction and excessive snow accumulation increase

(Continued on Page 25)

# PENNCROSS BENTGRASS SOD

*Now Available From Glenn Rehbein Farms*



Penncross Bentgrass

## Sod Types

Penncross Bentgrass

Elite Kentucky Bluegrass

Glenn Rehbein Farms

Harris, Minnesota

227-1215 - Twin City Metro 674-7937 - Harris

**“Sod is Our Foundation”**

# Snow Mold —

(Continued from Page 12)

snow mold potential. Rapid draining and drying of moisture and warming and drying of soil by mycelial crust removal can reduce disease damage, while promotion of early season growth (lite spring fertilizer applications ¼ # N/1,000 sq. ft.) will favor recovery.

**Fungicide treatments this last year** indicate that the level of control with non-mercurial products will be less than what was achieved with the three way combination of Caloclor, Chloroneb and PCNB. I would expect only 1 to 3% disease with 98 or 99% confidence. The better treatments resulted in 5 to 10% disease, and my confidence level for regular consistent performance from these product combinations is 90%. The products to try are:

Chipco 26019 and Daconil at 4 and 8 oz. or

Daconil and PCNB at 6 and 6 or 8 and 8 or 8 and 4 or

Chipco 26019 and Daconil and PCNB at 2 and 4 and 4 or

Vorlan and Daconil and PCNB at 2 and 4 and 4.

The above treatments are not in any preferred order, just a listing. Prostar and PCNB at 4.3 and 4 oz. also looked good this year. Several people remembered the two-way combination of Chloroneb and PCNB. It was tested last year at 2 oz. each but resulted in good control only at the TC's locations. Several reported good results with PCNB alone in the metro and south portions of the state.

Results of fungicide treatments in the Metro area are clearly very different than the same treatments in the Duluth area. Results on bent turf are better than when you have Poa. It is dangerous to take the report from one golf course site and generalize to another as disease pressure does vary. You should have tried a non-mercurial fungicide management program by now and be well into the process of determining the new snow mold management system for your turf. Data like the table below will be available again next year for those who still need more information.

Percent Disease (mycelium) or Damaged Turf

Product & Rate	Stillwater	Edinburgh	Duluth	
	% Disease 29 March	% Disease 29 March	% Disease 16 April	% Damage 10 May
UTC	62	16	100	76
Caloclor 3 oz.	0	0	0	0
Caloclor 1 oz. + Tersan SP 2 oz. + PCNB 2 oz.	2	2	0	2
PCNB 2 oz. + Tersan SP 2 oz.	0	0	88	40
Chipco 26019 2 oz.	15	0	83	46
Daconil F 8 Fl	17	0	89	53
Daconil F 16 Fl	13	6	87	47
PCNB 2 oz.	5	3	91	40
PCNB 4 oz.	0	0	79	47
Vorlan 50W 2 oz.	30	4	63	32
Prostar 4.3 oz.	10	0	85	55
Prostar 4.3 oz. + Tween 20 .025 Fl	3	0	93	50
Rubigan AS 8 Fl	20	8	79	42
Chipco 26019 2 oz. + Daconil F4.17 8 Fl	25	6	38	15
Chipco 26019 4 oz. + Daconil F4.17 8 Fl	5	0	11	8
Chipco 26019 2 oz. + PCNB 75W 4 oz.	0	0	45	17
Chipco 2 oz. + PCNB 4 oz. + Daconil F 4 Fl	2	0	4	7
PCNB 7 oz. + Daconil 6 oz.	0	0	4	6
Confidence Range	±5	±10	±5	±5

Highest disease levels are at sites with high levels of Poa.

# FIVE STAR

# DEEP

AERIFYING CO.

## HAS THE BEST OF BOTH WORLDS!!!

We are a custom contractor selling aeration services using the

### VERTI-DRAIN®

- Deep Aerification with semi-conventional tines
- Maximum depth of 12"
- Allows you to change the soil profile of your greens

— OR —

### TORO HYDROJECT®

- Quality Aerification using ultra high pressure water
- Allows you to aerate any time of the growing season

The two

## Leading Aerifying Tools

being used by the

## Leading Aerifying Company

WHEN YOU NEED DEEP AERIFICATION  
THINK FIVE STAR!

# 1-800-873-1455

Keith Faber