

## Half-Rate Tank Mixes are Turfgrass Management's Equivalent to 'Russian Roulette'

by Houston B. Couch

Professor of Plant Pathology

Virginia Polytechnic Inst. & State University

Mixing half low label rates of fungicides for turfgrass disease control in an effort to avoid resistance or increase disease control effectiveness is a waste of money and an open invitation to disaster. When the potential for resistance to a fungicide exists, it is important to rotate fungicides at full label rates. This procedure will hold the population of the resistant strain of the fungus to a minimum. When inadequate rates (i.e., half rates) of the alternate fungicide are used, a high population of "escapes" is allowed to develop and the disease can get out of hand quickly. Using half low label rates of fungicides as tank mixes, then, does not deter resistance — in fact, it is the most effective way to build up resistance to a fungicide.

Also, there is no published scientific evidence that tank mixing two or more turfgrass fungicides at half rates for control of the same target disease will (i) be more effective than either of the materials used alone at half rates, or (ii) just as effective as either material used alone at full label rate. In fact, the data to date shows just the opposite.

At Virginia Tech, we have tested half label rates of all of the commercially available fungicides labeled for the control of

Sclerotinia dollar spot. In these trials, we used low label rates alone, half low label rates alone, and various tank combinations of each of these materials at half low label rates. There was no additive effect when these fungicides were used at half rates as tank mixes.

Research at Penn State on Pythium blight control has shown that there is no additive effect when Subdue and Banol are combined in a tank mix at one half label rates. Results from this program published in the 1984 and 1985 American Phytopathological Society Fungicide and Nematicide Test Results showed that Subdue and Banol used as a tank mix at half label rates or alone at half label rates gave the same level of Pythium blight control. There was no additive effect when Subdue and Banol were used at half rates as a tank mix.

The take-home lesson from this is that mixing two or more fungicides at inadequate rates will result in inadequate disease control. When disease pressure is of sufficient magnitude to require full label rate, and a half low label rate combination is used, the disease will not be controlled. If the disease is Pythium blight, the consequences can be disastrous. Furthermore, the use of a fungicide at half label rates will increase the possibility of developing resistance — not reduce it.

When considered either way, then, the use of half low label tank mixes of fungicides to either increase the effectiveness of disease control or to reduce the possibility of resistance is an exercise in futility.

### Introducing New Aerators by Classen



- Weight — 450 Pounds (Tractor and Aerator under 1400 Pounds)
- Capacity — 50,000 Square Feet Per Hour at 2 by 4 Inch Spacing  
25,000 Square Feet Per Hour at 2 by 2 inch Spacing
- Swath — 48 Inches
- Hole Pattern — From 2 by 4 Inches down to 2 by 1 Inches depending on speed of tractor
- Tine Sizes — 1/4", 3/8", and 1/2" Standard-5/8" Optional
- Can be used with any PTO Drive
- Under \$6500.00.



- Weight — 460 Pounds
- Capacity — Up to 13,000 Square Feet Per Hour
- Swath — 24 Inches
- Hole Pattern — 2 by 2 Inches
- Hole Depth — Up to 3 Inches
- Engine — 8 Horse Power OHV Honda
- Direction of Travel — Away from Operator
- Tine Sizes — 1/4", 3/8", and 1/2" Standard-5/8" Optional
- Under \$4500.00.

Roseman Tractor Equipment Co.  
2620 Crawford  
Evanston, Illinois 312/864-1842  
Call for demonstration