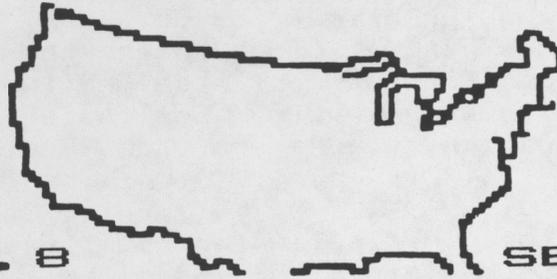


TURF COMMS



V. 3, I. 8

SEPT. 17, '87

PURPOSE: To pass on what we learn willingly and happily to others in the profession so as to improve turf conditions around the country.

TRIUMPH™ OVER GRUBS AT LAST

Triumph - This "new" Ciba-Geigy material provides a fast kill of grubs. This is the best product available to kill those grubs the skunks, armadillos or crows are now pulling up the turf for. It took ten years to obtain Federal registration for this product. Lesco now (9/87) has it available.

SHOULD WE BE USING EFFLUENT FOR IRRIGATION? YES !

Effluent is the treated or reclaimed water from sewage treatment. This is an important source of irrigation water for golf courses. I have made an attempt here to encourage effluent use while making you aware of potential problems. Also given are steps to consider before using effluent.

Three country clubs have recently called requesting information on effluent use. They wanted to know what problems might expect from effluent use on their courses if they decided to use it. All of these clubs receive less than 30 inches per year of rainfall and are located in Texas. They lose to evaporation about 30 more inches a year than they receive in rainfall. Thus, they have a high need for water.

Should they be using effluent? Yes!

TURFCOMMS is published at unpredictable intervals by the editor and publishers:

Douglas T. Hawes, Ph D
Certified Professional Agronomist
Specializing in Golf Course
Maintenance Consulting

2408 Roundrock Trail
Plano, Texas 75075
(214) 867-0176

Subscription cost is \$10. Send checks to Doug Hawes at the above address.

Will the use of it cause problems? Maybe. Why? Because when effluent makes up a large percent of the water the turf receives one or many of the constituents of the effluent are apt to accumulate to problem causing levels. For that reason effluent is a much safer irrigation source on the East Coast where rainfall is higher.

Where water is scarce the municipal water usually contains a lot more dissolved materials to begin with. When the municipal water is used even for normal household use it comes out with an increased load of dissolved materials. Using this more concentrated solution for turf irrigation where rainfall is high seldom causes problems. The excesses are soon washed away. In West Texas very seldom does the rain come down slow enough or long enough to soak thru the ground and thus remove excess dissolved materials.

Yet, even though problems may well be expected in the West I feel as Dr. Dudeck wrote in a 1978 review of effluent use published in the Record, "Turf is a natural for sewage effluent disposal." But, you are wise to want more information and to try to get those producing the effluent to hold to certain standards.

Many golf courses are already happy to get effluent as that is their only water source. As cities grow so grows their power. They have been known to take over your water rights for themselves. Effluent is being used to water more and more golf courses and we are just seeing the tip of what is coming.

PROBLEMS - What are the problems associated with effluent use? Too high levels of Salts, Sodium, SAR and Heavy Metals are the most commonly encountered turf problems. Algae and odor also can be problems.

But let us take a brief look at some basics and discuss the problems later. "The characteristic of a given effluent water is primarily dependent upon three major variables. These are the quality of the original water source, the type of use, and the renovation treatment. Because of this, the term effluent water by itself is not sufficient to describe the quality of an effluent water." Wade, in Calif. Turfgr. Cul.

PRIMARY EFFLUENT is the liquid left after the raw sewage has gone thru a three step process to remove solids. The first is a screening process that removes rags, sticks and other floating objects. The second is usually a settling tank (grit chamber) where sand, cinders, and small stones settle to the bottom in a very short period. This is followed by a settling tank (or a primary clarifier) where the undissolved suspended matter which makes up raw sludge is allowed to settle out. Various chemicals maybe used at this step to speed the process. The resulting primary effluent should preferably not be used to irrigate golf

courses.

SECONDARY EFFLUENT is the liquid left after the primary effluent goes thru a biological process in which the complex organic matter still suspended in the water is broken down to less complex organic material. Usually 80 to 90% of the organic matter has been removed from the sewage at this point. This effluent is usually very acceptable for irrigation.

SOIL FACTORS - "cation exchange capacity, infiltration rate, percolation rate, and water holding capacity of your soil are among the more important soil factors that should be considered before applying reclaimed water." "Coarse-textured soils such as sandy loams are best for the use of reclaimed water; heavier soils are acceptable as long as changes in soil chemical properties are evaluated regularly."

"The soil's water holding capacity is also important in determining its suitability for reclaimed water irrigation. Frequent application of reclaimed water on soils with high water holding capacity, such as clay soils, will contribute significantly to their accumulation of salts and heavy metals." Harivandi, in Calif. Turfgr. Cul.

BOD - Biological Oxygen Demand. This is a measure of the readily reducible organic compounds present in the water, or in other words a measure of the organic pollution. Normal stream levels are 1 to 2 ppm. High levels of BOD result in fish kill in ponds and streams. Oxygen dissolves from the air into the water less readily as the water warms up. Also, the rate of microbial use of oxygen is highest when water temperatures are the highest. Therefore, fish kills are most common in mid-summer because the oxygen has been used up.

Water with a high level of BOD applied to the soil can be assumed to lower the oxygen available to the grass roots. No research has yet been published on this as a factor in turf health. But, effluent with a high BOD is going to be smelly. Not something you want to use on a golf course.

BIOLOGICAL AGENTS - bacteria, virus, parasites. The health considerations from secondary effluent use are very minimal. Algae on the other hand has been a problem. In some cases the effluent arrives from the treatment plant with such a heavy load of nutrients that algae thrive on it. The resulting algae pulled into the irrigation system plugs small sprinkler nozzles and automatic valve ports.

Steps to consider before using effluent.

1. Monitor the quality of the effluent now.

2. Check out what the sources of the effluent are: Household and Industry are the major sources. If households are the only source the effluent should be good effluent as long as water softeners are not being used to any great extent. Water softeners add sodium to the effluent. Sodium causes soil problems.

3. Industry - each type will add a particular array of materials that will need to be checked out.

4. Effluent monitoring can best be done by an independent laboratory such as Harris Laboratories, Inc., P.O. Box 80837, 624 Peach St., Lincoln, NE 68501, (402) 476-2811. They will run a Irrigation Suitability test for \$38.15. This is a composite test. In addition to that a BOD (Biochemical Oxygen Demand) test for \$24.50 would be useful. SAR (sodium adsorption ratio) is included in the first test. There may very well be a testing laboratory in your immediate area that does these same type analyses.

The above is a very brief synopsis of the potential problems with effluent and things you should be aware of. If you need more advice or information give me a call.

ON BUYING SEED

BUY CERTIFIED - For years I have been recommending to students and then customers that they should always insist on certified seed. I have seen a few tragedies when someone didn't. However, nothing quite as bad as what I saw this summer. After having seen a company's sod fields ruined because of Other Crop Seeds in uncertified seed I am now going to suggest you go one step further.

Spell out your seed needs in tight specifications and have the seed sampled after you buy it. Have it in writing that you pay only if the seed meets those specifications. If your reputation or livelihood depends on how good a "crop" that seed grows you need to be sure you are getting what you paid for.

The sod fields in question were suppose to be tall fescue cultivars with a little Kentucky bluegrass. That is what the grower-owner ordered. What he got was enough annual ryegrass plants to end up with 30 to 50 percent uniform distribution of annual ryegrass.

The fall planting started out fine. It took off in the spring growing rapidly and filling in nicely. Come July what he had was a sod field 30 to 50 percent dead. BUY CERTIFIED - PLEASE !

END