source is water soluble or slowly available?"

The answer to this question is:

1. True organics (turf agronomist's term) like activated sewage sludge, seed meals and tankage release their nitrogen slowly over a long period of time. This allows the superintendent to fertilize less frequently and at heavier rates for any given application. The result is more uniform playing conditions for the golfer and under most circumstances a decided savings in labor.

2. True organics can be applied at heavier rates than water solubles without burning the turfgrasses. With many clubs this factor is important because of inexperienced and careless help. Under most conditions it is not even necessary to water immediately following an application.

3. True organics react when conditions are favorable for grass growth. During cold weather they do not break down to release their nitrogen, thus little fertility value is lost through leaching from winter rains.

4. True organics are more costly per unit of nitrogen. Seed meals and tankage command a high price for animal feeds, and activated sewage sludge is costly to process. Therefore, an organic nitrogen fertilizer which contains a high percentage of inexpensive urea should sell at a price only slightly higher than other inexpensive sources of water soluble nitrogen. It is from the standpoint of comparable costs as well as reaction that misrepresentation can take place.

You Have The Right to Know

Perhaps it would be wise again to state that the USGA Green Section holds no brief against the use of water soluble sources of nitrogen. Many superintendents use nothing else, and several use a combination of both water solubles and true organics. Those who rely on water solubles in preference to true organics find that they must apply them at lighter rates, and do so more frequently to provide the same turf density without over-stimulation of turf growth. In the final analysis, the amount of actual nitrogen applied, regardless of source, is the important point to remember.

This article was written to warn our Member Clubs against buying a pig in a poke. Even though it is not required by law, the manufacturer should be willing to state to the individual club the percentages of all types of materials listed on the analysis label. This must be done before the superintendent can make a valid cost comparison and estimate the expected turfgrass response to any given brand of fertilizer.

Turf Management

The book "Turf Management," sponsored by the United States Golf Association and edited by Prof. H. B. Musser, is a complete and authoritative guide in the practical development of golf-course turfs.

This 354-page volume is available through the USGA, 40 East 38th Street, New York 16, N. Y., the USGA Green Sectional Regional Offices, the McGraw-Hill Book Co., 350 West 42nd Street, New York 36, N. Y., or local bookstores. The cost is $7.

WESTERN RESEARCH ACTIVITIES

Flotal Looks Good

Dr. Ray Lunt, Department of Irrigation and Soils, University of California, Los Angeles, recently established a series of seedbed preparation trials to gain preliminary information on the possible value of Flotal in comparison with manure to encourage early turf seedling vigor. Observation of this trial one month after seeding indicated that Flotal was indeed beneficial to growth. This new conditioner is a ferric ammonium organic complex containing 2.4 per cent ammonic nitrogen and 10 per cent iron expressed as metalic. Plots treated with this material had better color, more uniform coverage and considerably more vigorous growth.

According to Gordon Wyckoff, senior

technician in charge of the turf plots, the Flotal treated plots were also easy to return to a suitable stage of tilth following a heavy rain which occurred shortly before they were to be seeded. Conversely, the manure treatments and check plots were difficult to rework into suitable condition for seeding. It would be interesting to see Flotal compared with other chemical soil conditioners on the market.

Manure Was A Failure

Under University of California, Los Angeles, conditions, steer manure used at the accepted rate of 25 pounds to 100 square feet failed to promote better growth than the untreated check plots. This confirms observations at other experiment stations. Manure is too expensive when purchased for its fertilizer value. Heavy manure applications at the time of seeding can intensify disease. Under most conditions, turf growth furnishes ample amounts of organic matter to the soil.

Most manures available to our Member Clubs contain hidden costs. Rocks and foreign matter dull the mower blades. Noxious weed seeds are often planted through the use of manure. The bulk required to furnish any worthwhile amount of plant food means increased labor costs to apply manure. Because it is unsightly and messy, it causes player dissatisfaction for a considerable period of time following a direct application on fairways or tees.

The Danger Period for Putting Greens

by ALEXANDER M. RADKO

Northeastern Director, USGA Green Section

Most of the more serious putting-green troubles occur during the hot summer months when extended periods of heat and high temperatures occur. Diseases, excessive thatch, insects, wilting, drought, overwatering and other causes often result in the loss of turf. Under the classification of other causes we may list such things as poor drainage (surface, sub-surface, air and internal drainage).

Greens with built-in headaches, such as poor drainage, require special care during periods of high temperature and high humidity. While it is sometimes possible to get away with watering such greens in cool seasons with sprinklers, it is hazardous to attempt watering these greens except by hand when temperature and humidity are high. An experienced superintendent never sends a novice out to hand-water troublesome greens; only a veteran at the game fills this bill.

Disease troubles are also more bothersome during the hot, humid months. By and large, the superintendents who have followed a preventive schedule are the ones who usually come through in best shape. Disease organisms are ever present. They may be in the soil awaiting the proper conditions for germination; they may be wind blown; they may be carried in on equipment or shoes or by other means. In whatever manner they arrive, they are in a resting stage, so to speak, awaiting the proper conditions to germinate and multiply, and multiply they do, at fantastic rates. Therefore, fungicides applied on a preventive basis keep the possibility of trouble from diseases to a minimum.

The most troublesome weeds over this period of high temperature and high humidity are crabgrass and silver crabgrass. The phenyl mercuric acetate products have been doing a nice job of controlling crabgrass in putting green turf if they are applied according to the directions of the particular product obtained.

Silver crabgrass, or goosegrass as it is sometimes called, is much more resistant to chemical treatment, and for the most part the laborious hand method is used for eradicating it as soon as it appears. Some superintendents have applied mixtures of herbicides at very light rates, with reportedly good success, on seedling silver crabgrass. Here again is an example of practical tests