



# DR. FRED V. GRAU

## ANSWERS TO TURF QUESTIONS

### TURF IS PART OF AGRICULTURE

In these times of shortages and crises, I sense an effort in some quarters to discredit and devalue the importance of turf in the economy of this country. It is true, and members of the turf industry are among the first to admit it, that turf is not as important as the production of food. In dollar value, however, turf is crowding food production for top honors. Remember the 1966 Pennsylvania Turfgrass Survey? Those figures were authentic and startling.

Recreation on turfed surfaces has become as much a part of our lives as driving, eating and sleeping. The health of a nation such as ours is closely associated with recreational activities. Golf, for example, is one of the activities that keeps our lawmakers in trim (Burning Tree, Congressional, Columbia, Soldiers Home and others). Golf is played on turf during the daytime. The energy that is used is mostly the players' and what it takes to get them there and back to the home or the office.

No official in his right mind would have the temerity to deny needed turfgrass facilities access to enough energy to maintain turf so that it can be used for recreation. We are talking now about "minimum" maintenance during the energy chaos, not "spit-and-polish" upkeep.

Golf courses may be making hay from the roughs, which will ally them with food production. No one should be surprised to see sheep grazing all night every night on the course to keep the grass cropped to save energy and produce food. How many players have played on wooly-grazed turf? Aside from a few loose, rounded impediments, the playing surface is remarkably good.

In the concept of soil building, soil

conservation and reduction of erosion, turf plays an important part. In these respects, turf is agriculture. No one can deny that living sod is a great purifier. It absorbs airborne impurities; it filters water as it percolates downward; it is one of world's best solar-powered air conditioners. Turf is one of the most efficient users of lime and fertilizer. Turf is in an even better position to utilize "used" water, such as sewage effluent, than are farm crops. By recycling "dirty" water, we can conserve potable water.

I have been, and still am, a farmer, and I have been a golf course superintendent. I stand firmly on the premise that farming and food production are closely allied to turfgrass establishment and management. The one is to nourish our bodies; the other is to sustain our minds, as well as to keep our bodies fit. Together, we have the complete equation for a healthy, vigorous population. Let's keep them going forward together.

*Q—If we should decide to graze sheep on our golf course, we will have some questions. What breed, how many, how to contain them? We are willing to give it serious consideration, if this threat of energy scarcity gets worse. Of course, we'd rather not be bothered. (Pennsylvania)*

**A**—The first step to take before making any firm commitment is to go to the county agent and ask his advice. He may throw you out, but then again, he may listen. Every state experiment station has a sheep specialist who is qualified to answer just about every question you can ask about sheep. He may tell you 1) to forget the whole crazy idea, 2) loose dogs will raise hell with the dumb woolies, 3) chemicals you use will kill the little beasts,

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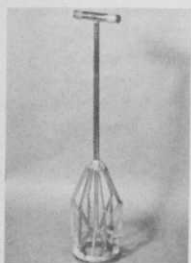
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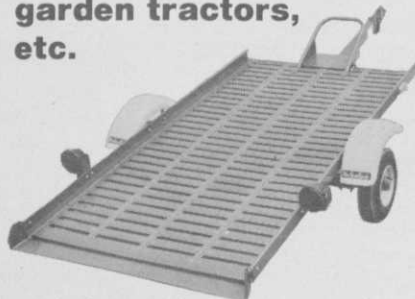
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### GRAU *from page 9*

4) zoning restrictions deny you the pleasure/pain of running sheep. I know that sheep crop grass about as closely as that of a mower; that pastures where they graze have turf equivalent to that of excellent fairways; that they eat weeds, too. Let's hear it for the sheep. Who will be the first to report?

**Q—***It seems that, in this global search for energy, always we seem to fall back on petroleum. We are not told enough about how alternative forms of energy can be tapped. We know that you can't expound in this limited space, but what can we look forward to, as gas and oil become more scarce and expensive?* (Ohio)

**A—**I read the other day that the sun in two days pours as much energy on the earth as has been stored in fossil fuel since time began. Solar power can be used to convert sea water into hydrogen (H), which is the cleanest fuel known. When it burns, the "waste" product is water.

Nuclear power also can be used to produce H. Trouble is, there is a prejudice against its use.

Electric power is sheer convenience, but the efficiency is wastefully low. New power plants will cost much more to build because of inflation and sharply increased labor costs, transmission lines and appliances. New fuel cells can produce electric power directly at a high level of efficiency.

Geothermal energy has been with us since the beginning, but man has been slow to learn how to tap this source. Active volcanoes and hot springs show us the way.

The sun is being used to heat buildings and, by heat exchangers, to cool them. We will see more of this development.

The sun is the sole source of energy for the production of crops, forests and everything that grows, walks, crawls, flies or swims. Through photosynthesis, it continually renews plant growth, which is a tremendous source of energy, if only we could learn how to use it.

Methanol (CH<sub>3</sub>OH) has been shown to be superior to H in several ways and can be mixed with gasoline to provide better performance at lower cost. Think of methanol as two molecules of hydrogen (H) gas made liquid by one molecule of carbon monoxide (CO). Methanol can be

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produced in huge quantities from any organic source, including farm and municipal wastes (manure, sewage). This is an exciting potential for producing cheap fuel and for cleaning up our environment. Methanol works well in fuel cells. You might want to research the subject of alternative energy sources further by reading *Science*, Vol.182, N. 4119, December 28, 1973, pp. 1299-1304, by T. B. Reed and R. M. Lerner.

**Q**—Suppose we were to stop treating our fairways with fungicides and other chemicals, either by choice or by decree, can you predict what might happen? (Illinois)

**A**—That is an interesting and wide-ranging question. I am not sure I can answer it completely or in depth. I recall how the late Marshall Farnham looked at an attack of dollarspot on mixed Kentucky blue-bent fairways at the Philadelphia CC some 40 years ago. He actually welcomed the onslaught and explained it this way: "Dollarspot attacks the more susceptible plants, which I don't want anyway. It thins the turf and delays thatch buildup. Golfers hardly notice it and the playing quality is not affected!" I can add that the resistant plants then have a better chance to spread and form a better, more resistant turf. Weeds will increase, but that's not the end of the world. Golfers have hit shots from weedy turf before this advent of selective weed killers and they can do it again. No one will be very happy, but we may have to do some adjusting. Insects will play havoc if uncontrolled. We need to accelerate our research in biological controls, if chemicals are denied us. Also, we must find those grasses that can survive insect infestations. We should be looking for these types every day. To be denied chemicals will be a profound shock, but it won't be the end of golf. □

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