FREE FERTILIZER

A Midwestern superintendent has determined a way to get $1,800 worth of fertilizer delivered to his doorstep for free, and onto his course for $96 more.

Jack Hanson of Crystal Lake Country Club in Illinois has made an agreement with the city of Crystal Lake to use sewage sludge from the city's waste water treatment plant to fertilize his course.

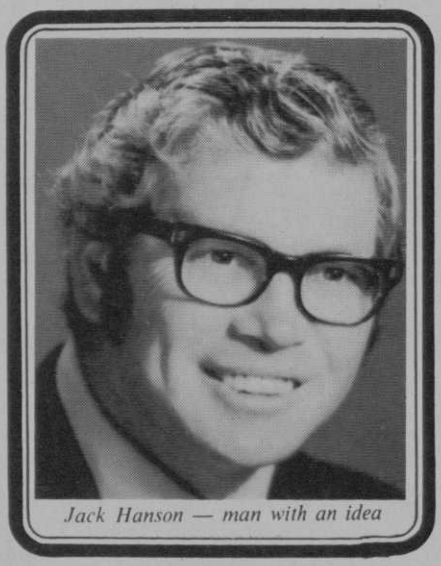
"The fertilizer crunch of 1974 made me aware of the shortage of material that may be at hand in years to come," Hanson told GOLFDOM. "I decided to see what avenues I could pursue to help my situation." Three blocks from his course is Crystal Lake's waste water treatment plant. The plant went onstream in 1973 at a cost of over $1.7 million. Using the activated sewage sludge process which digests the waste sludge by the aerobic method, Hanson said this process produces a very odor-free and loss loose granular material.

"After having the material analyzed, the city delivered free of charge over 100 cubic yards of sludge to our maintenance area," Hanson said. The analysis of the sludge showed 1.7 percent nitrogen, .89 percent phosphoric acid and 1.6 percent iron. Based on this analysis and the application of 1.6 cubic yards an acre or 2,588 pounds, a total of one pound of nitrogen was applied to each thousand square feet of turf.

"Considering the low analysis," Hanson said, "quite a bit of material is needed to provide the minimum amount of nitrogen necessary for turf response. I feel there is a sufficient amount of iron to give good color and it goes without saying that a healthy, green plant is more disease-resistant. Being a sludge product, microbiol action is increased and this resulted in thatch decomposition with further nitrogen availability and improvement of soil structure."

Hanson said the analysis of the sludge is very important. The presence of heavy metals should be monitored closely to avoid toxic levels. The city's sewage plant technician checks daily for heavy metals

With fertilizer prices soaring, a Midwest superintendent began looking for an alternative, and did not have to go beyond his local waste disposal plant.



Jack Hanson — man with an idea

such as chromium, cadmium and mercury, which are dumped into the waste water, and he notifies the industries of excessive amounts. The industries in turn have to reduce their pollution of the sewage. Hanson said this is followed up very carefully because some of these metals can stop or retard greatly the ability of the plant to properly treat sewage.

A Penn State soil chemist, Dr. Dale E. Baker, has also said in published reports that sewage sludge should not be used as a fertilizer until an effective monitoring system keeps track of heavy metals added to soils. Dr. Baker reports composition of sludge varies greatly with time and is generally higher in copper, zinc, and cadmium than is desirable. Traces of some heavy metals are needed in soil for healthy growth, he said. Nine pounds per acre per year are recommended for zinc, for example. But common sludge increases the zinc in soil to about 200 pounds per acre.

"Negative aspects of this sludge include the amount of cigarette tips and other materials that show up," Hanson said. "These are cut up by the mowers and eventually work their way into the thatch zone. There is also a slight odor present after a rain. But by selecting late fall for application in our part of the country with resulting rains and snows, this problem is not of any consequence."

Hanson said he had available from a local bulk fertilizer plant a large two-wheel fertilizer spreader that holds five cubic yards and rides on huge flotation tires. The steel conveyor belt and rotary spinner are ground-driven. Testing was done to determine proper chute opening and the conveyor speed was set for high speed gear operation. The discharge opening was set at maximum.

The sludge was put into the spreader with a rubber-tired front-end loader and pulled by a dump tractor. Second gear was used when inclines were encountered and the spreader was full. After half the material was spread, third gear was used. Hanson said each five-yard load would do the rough on one side of a normal par-four fairway and required 45 minutes to spread. Replications were done in specific areas including the driving range, and double and triple applications made for comparative purposes during the upcoming growing season.

Hanson said the sludge was spread about 20 feet wide. Particle size varies, depending upon length of time the material is in the drying beds at the sewage plant and also moisture content. "I have found the most uniform sludge is that which has gone through a freezing and thawing cycle," Hanson said.

The total labor involved included four hours for loading the tractor, 15 hours for spreading (about 45 minutes per load), and about four hours to clean up the spreader and equipment, for a total of 23 hours. "Figuring a wage of $3 per hour and 23 hours labor, costs totaled $96 plus gasoline and oil for three days spreading," Hanson said. "If we figure 100 cubic yards of sludge has a total nitrogen content of 2,640 pounds at 60 cents to 70 cents per pound, the dollar value of the sludge comes to over $1,800." □