Penn Township makes waste a resource for farmers

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HANOVER — "The bottom line here is that sludge helps crops to grow. As a part of our program we want to help the farmers be more productive and also protect their farms for generations to come."

This is David Hess' summary of Penn Township's waste water residuals disposal program. Hess, director of Waste Disposal for Penn Township, says he feels that sludge application to fields can provide real economic savings. Penn Township, which includes much of the area surrounding Hanover, has invested over a quarter of a million dollars in its sludge disposal equipment and employs five full-time persons to run it in order to provide a free service to participating farmers. Even though the costs of the program are covered by sewer rates, township residents have not objected since spreading or injecting the sludge into farmland is still the most economical form of disposal, reports Hess. "The Township is sincerely concerned that this resource be used safely and to the profit of the most people," he explains.

Sludge is a by-produce of waste water-sewage treatment. It is the solid particles or return sludge that collects in the stabilizing tanks which will ultimately be used by farmers. The sludge produced by the Penn Township plant has excellent N-P-K levels, according to Hess, though slightly lower levels of potassium than might be desired.

Hess states, "Research at Penn State has shown that sludges from treatment plants throughout the Commonwealth contain varying amount of nutrients and trace metals. Our sludge is so low in trace metal content that at an application rate of 1.3 dry tons per acre per year, we could spread sludge on a field for 1,049 years before we would exceed DER limitations."

Sludge can be applied two ways, either by surface spreading or by subsurface injection. Once a farmer receives a permit to spread the sludge, it can be applied year round and is limited only by the weather conditions. There is no cost to the farmer for the application.

Subsurface application is accomplished by using a special high flotation, four wheel drive sludge injector called the "Big A." Hess states that injection of the sludge is desirable since odor problems are eliminated, more of the nutrients in the sludge are made available to the soil, and soil percolation rates are increased by the breaking up of the hardpan. But points out that injecting is not always possible since the sludge is transfered to the "Big A" from a 6,000-gallon tanker and terrain can limit accessibility.

Before any application can begin on the farm, the farmer must obtain a permit from DER, explains Hess. The Penn Township office handles all the paperwork and any expense that might be involved in obtaining the permit. According to Hess, it can take as long as six months for a permit to come through.

Also, before any application begins, Penn Township takes soil samples to determine application rates; makes a topographical drawing of the farm, outlining and numbering the fields marked for

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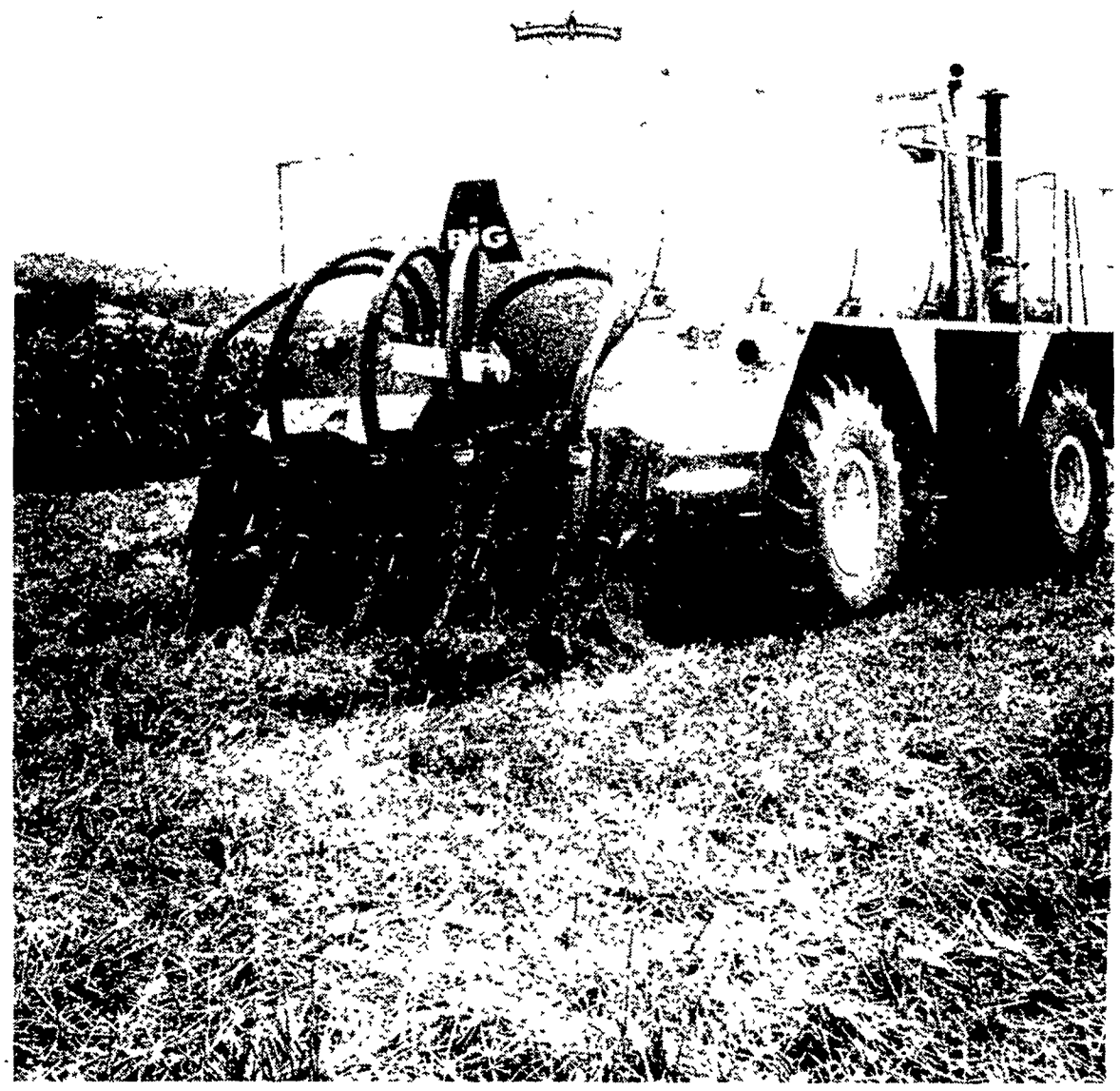

The injection of sludge is the desired method of application. The process chisel plows as it applies the sludge so that discing is all that is necessary to prepare the seed bed. Here sludge is injected by this special high flotation four-wheel drive sludge injector called the "Big A". High flotation equipment allows for less compaction of the soil.