

Manure On Woodlands

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phosphorus per ton would be diluted to less than one-half these figures, he says.

One possible outlet for excess manure might be closer to home than many farmers realize. While Keystone State farms encompass more than 5.5 million acres of cropland, they also contain another 1.7 million acres of woodland, according to 1982 Commerce Department figures.

To Lebanon County Conservation District manager, Doug Goodlander, the state's woodland is a logical place to spread the excess. With cooperation from the Pennsylvania Game Commission, Goodlander's district plans to spread 100,000 gallons of liquid hog manure on six to nine acres of State Gameland 156 in South Lebanon Township later this summer.

"In our area there's an excess of liquid manure, and it isn't profitable to sell it," says Goodlander. "A lot of farmers have some woodland and they could combine the two."

Since trying to thread a box spreader through the trees would be easier said than done, Goodlander thinks that an irrigation system would be a workable alternative for applying the manure. The district will be using about 1,000 feet of aluminum irrigation pipe connected to a transportable pump that will draw the manure slurry from trucks.

The one-half inch of manure to be applied should supply trees and other vegetation with no more than 200 pounds of nitrogen per acre. Although trees will be sprayed to a height of six to eight feet, Goodlander predicts that objectionable odors won't last long.

"It'll probably take a couple of days for the odor to go away," he says. "This is a product that you won't be able to see after a week or so."

In addition to providing an outlet for excess manure, the procedure should also result in increased timber production. "There's an increase in wildlife, too, of course, with anything that increases the understory," he points out.

A similar project is underway in Lancaster County, as well, where district conservationist Tim Breneisen is planning to spread hog manure on a six-acre woodland test plot owned by the borough of New Holland. The New Holland test plot includes both wooded and clearcut sections. Breneisen hopes to use Lebanon County's irrigation equipment for his test.

Although the effects of sewage sludge on Pennsylvania woodland have been well documented, these two tests are probably the first of their kind involving livestock manure, according to Penn State professor of hydrology, Dr. William Sopper.

"If you can do it with waste water, you can do it with livestock manure," says Sopper, pointing out that Penn State research has documented dramatic increases in timber growth by applying sewage sludge and effluent. The hydrologist notes that State College currently pumps four million gallons of waste water daily from its treatment plant to forested research plots four miles away.

Sopper says that hardwood trees two inches in diameter have increased to six inches in 10 years after being treated with waste water. "Without waste water it would take you 30 years to get to

Lancaster County Manure Production

(Based on 1983 Crop Reporting Service figures)

Livestock	No.	Tons Manure/Yr.	App. Rate Tons/Acre	Acres Needed
LAYERS	7.6M*	388,360	5	77,672
ST. PULLETS	4.0M	30,800	5	6,160
BROILERS	43.9M	184,380	5	36,876
TURKEYS	400T**	13,200	5	2,640
DAIRY COWS	112.3T	2.4-M	20	117,845
HEIFERS	82T	763,215	20	38,160
CATTLE	188.4T	904,320	20	45,216
HORSES/MULES	10.1T	132,780	20	6,638
SHEEP	6.2T	4,526	20	226
SWINE	340T	244,800	20	12,240

* Millions
** Thousands

Total 5,023,277 Tons 343,673 Acres

Total Co. Cropland Less Alfalfa Acres 331,170 Acres 56,800

Acres Available For App. Acreage Deficit 274,370 69,303 Acres

that point," he estimates. Although increasing the growth rate of timber does reduce the strength of the wood, this is of no consequence when the trees are used for pulp products, Sopper points out.

Both conservation districts plan to go with Sopper's recommended application rate of 200 pounds of nitrogen per acre. At this rate, nitrogen should not cause problems by leaching into groundwater, says the hydrologist. Even after 20 years of treatments, says Sopper, the Penn State test plots are able to bring waste water up to drinking water standards after it percolates through four

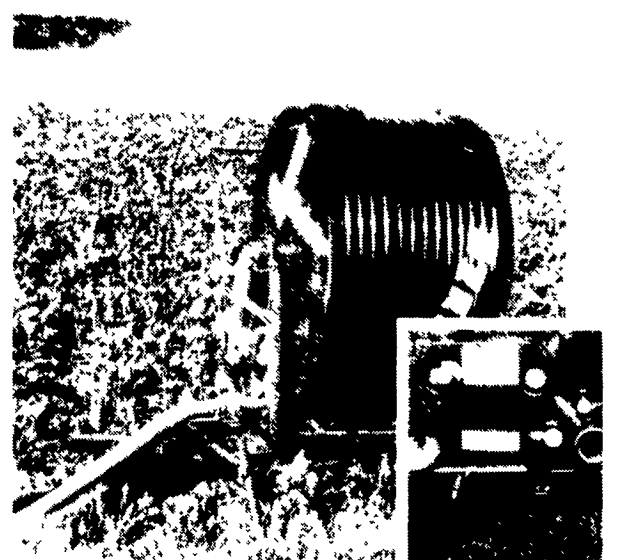
feet of soil.

Nor is runoff normally a problem when applying manure to woodland, says Sopper, pointing out that a high infiltration rate coupled with surface leaf litter enable the manure to incorporate quickly.

Although chemical fertilizers have been used to promote timber growth in the South and West, the cost can't be justified for the low-grade hardwood forests of the Northeast, says the hydrologist. Where such forests are located near large numbers of livestock, though, applying manure to woodland is a logical solution, he says.

An upscale supermarket chain in New York City is now offering revolving charge accounts and home delivery. Not only can customers order by phone and expect delivery within three hours, but they can also leave standing orders to be filled at the same time each week. Customers are provided an introductory packet that includes a "time-saving check list." Staples such as milk and butter are listed along with unusual items such as rabbit and quail.

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