Large Turnout For Dauphin, Lebanon Crops Day

(Continued from Page A24)

Through the existing Global Positioning System (GPS), a satellite dish could be mounted on the top of a tractor and, perhaps in the future, a producer could drive down the field, mapping many aspects of the field, such as moisture, nutrient values, slope, etc.

Overall, Roth said that management can be expected to increase in efficiency simply because of having good information by which to make decisions.

"I see a lot of potential for a lot of technology on the shelf that's not being adapted."

On another subject, Dr. Doug Beegle said that most farmers currently have a nutrient management plan, though it may be in their head. He said that most people who may be affected by a proposed nutrient management law would simply have to write down their current practices.

He said that currently most producers consider a number of aspects about spreading manure and applying nutrients which follow what is being asked for proper management.

According to Beegle, most producers already consider, for each field, the source of the nutrients, the application rate, the time of application, the method of incorporation, additional fertilizer applications, and any special field considerations, such as proximity to waterways.

"Everyone managing manure is already making those decisions," Beegle said. "For a lot of you it may mean just writing it down."

However, Beegle said that producers should also look hard at the quantity of manure, its nutrient value, and any additional sources.

To determine quantity, he said those with a manure pit can have a good idea of what is available, but they should understand that what is in the pit isn't all the manure being produced on the farm.

According to Beegle, one cow produces about 20 tons of manure per year.

Using that figure (which is included in a table in the Penn State University Agronomy Guide, available through extension offices), he showed calculations which projected a model for a 100-cow dairy operation.

According to Beegle, the herd would produce 1,945 tons of manure per year, 1,225 tons of manure is collected, 720 tons is uncollected. The uncollected manure is that which is deposited by cows on pasture or dry lots (Which are normally located close to waterways, and which should be of concern to livestock producers, he said.).

He based his figures on 185-days of 24-hour confinement (manure being captured), and 180-days of 6-hour-per-day confinement.

He said that while the manure produced is 1,945 tons, only 1,225 tons can be spread on crop fields.

Next is to determine the nutrient quality of the manure, which can also be done very roughly through the use of a table within the Agronomy Guide, but which must be done through a manure analysis to approach any kind of reliability.

He said that values for nutrients for different manures vary.

Also, within each manure type, there is additional variance in the chemical form each nutrient. This variance in chemical form means a variance in availability of a specific nutrient to a specific crop.

For example, nitrogen can be in manure in several forms — urea, protein, etc. — and each form has different solubility and volatility. It all means that the plant can use some forms of nitrogen in manure immediately, and some forms throughout the season.

Some forms may not be available to a plant for much longer periods, depending on environmental conditions.

All this means that there is a variance between the manure test readings and how much of that a particular crop can use.

According to Beegle, potash can be treated on a pound-per-pound basis compared to manure analysis. Phosphorus can also be treated that way, except when used as a starter.

Nitrogen is more volatile. Beegle said that 50 percent of the test amount of nitrogen is available if it is spread and incorporated the same day.

If seven days go by before incorporation, the loss of crop-available nitrogen from cow manure diminishes rapidly.

Because of the different forms of nutrients and because they can bind with other soil components or become otherwise physically trapped, there is the residual effect to all nutrients.

Beegle said that if a field gets manure spread on it frequently — about eight out of 10 years — the amount of nitrogen buildup in the soil is roughly estimated to be 25 percent of what has been applied annually.

Field information is also integral to good nutrient management, Beegle said.

He recommended having recorded a crop plan, crop history, crop rotation, soil limitations (such as slopes, etc.), and the soil nutrient base level.

From this, he suggested prioritizing fields for manure applications by catagories: by crop, going from those requiring nitrogen to those not requiring nitrogen; by nitrogen requirements, going from high levels to low levels (according to soil tests); by phosphorus and potash tests, going from those with low amounts to high amounts (it's much easier to build up high amounts of these nutrients); and by soil limitations, going from those with slopes or soil drainage which won't allow easy runoff losses.

He said to also consider neighbors when prioritizing fields for manure applications.

"Look as the whole farm and put priorities of fields to get the best return and the least amount of potential problems," he said.

By doing this, he said that high priority fields for receiving manure may not necessarily be those closest to the barn, which happens sometimes with time and labor constraints.

He said a simple formula to determine the maximum application rate is to take the recommended amount of nutrient per acre for crop and divide that by the amount available in the manure.

As an example, Beegle said that, if the recommendation is for 100 pounds per acre and the manure provides 5 pounds per ton, then the application rate of manure would be for 20 tons per acre.

"It gives a ballpark amount, and is perhaps a different rate on different fields."

Being able to manage this way — which has been suggested for some years as a way to cut down on overhead by reducing purchases of unneeded commercial fertilizer — also requires a producer's ability to calibrate his manure spread rate, he said.