Keeping Records for Nutrient Management

Record keeping is the most important part of any management plan. As the saying goes, "You can't manage what you don't measure. This is doubly true when considering manure and soil nutrient management. Recent history indicates that how animal agriculture utilizes the nutrients, generated as manure and distributed as fertilizer, has become a concern for our society in general. Society is now asking agriculture to account for those nutrients, where are they used and at what rates are they distributed.

The emphasis on accountability for manure and fertilizer nutrient use in our environment has led to a need to plan in advance how nutrients will be applied. This has led to the development of MAEAP in Michigan and a national discussion about discharge permits for animal feeding operations nationally. Consequently, the need is growing for an ability to maintain records concerning the use of manure and chemical fertilizers, as well as plan for their use in an environmentally friendly way. Several tools for this are already in place.

The pocket notebook has been a traditional data recording device for farmers. Collecting information on planting dates, yields, fertilizer and pesticide applications is easily done with the stub of a pencil. Unfortunately, it can become difficult to use these records in a coordinated way when spread across many pages and written on the fly. There is also the question of being able to organize these figures to use in planning or as a tool for substantiating Right to Farm claims. A notebook is a record of what you did, but not what you planned to do. Still, the pocket notebook might be a good method to collect or gather information for use in some other planning tool. What are needed are tools for planning nutrient use as well as operational and historic record keeping. Currently there are a several commercially available nutrient planning / record keeping systems. Each with it's own advantages and disadvantages. Those highlighted here were developed in Michigan for Michigan producers.

The MSU Extension Bulletins which make up the Record Keeping System for Crop Production was introduced in the early 1990s. There are five separate bulletins within the system. The key starting points are the Annual Record Books. There are two versions, a larger format (E-2342), and a smaller pocket sized format (E-2341). Both books provide a way to keep track of a variety of data, divided on the basis of individual fields or sub-fields. Space is allocated for recording of information on tillage practices, crops grown, planned yield, nutrients required to reach this yield, manure applied, fertilizer nutrients applied, harvest information and more. There are also spaces for recording information about pesticide applications and other information relating to pesticide use for each field. To accompany these bulletins is an Individual Field File (E-2343) providing a space for historic information on nutrient use and cropping issues for each field or sub-field as an aid in agronomic planning. The bulletin Manure Management Sheets (E-2344) provides information and worksheets to aid in calculating the soil nutrient contribution from manure applications and record them annually. Finally, bulletin (E-2340) describes how these four bulletins interact together and form a complete nutrient management record keeping system. But, even these tools may not completely meet our needs for planning all phases of a nutrient management program. To help fulfill this need we need to go computerized.

In the mid 1990s, Michigan State University developed a computer program called Michigan State University Nutrient Management (MSUNM). This program has recently been updated to a more user friendly "Windows" based format. On an individual field or sub-field basis, the MSUNM program allows the user to enter information on animal numbers, soil testing, manure

testing, fertilizer application, field size and condition, tillage, planting, crop types, and more. At this junction, the user can then develop a variety action plans for cropping, or fertilizer and manure allocation and spreading, The MSUNM software can also aid in monitoring historical nutrient levels for each field, and historically track harvest information or determine if manure nutrients are in balance with available crop land, and predict amounts of manure available for spreading. It will also allow the operator monitor these issues in light of the Michigan Right to Farm, Nutrient and Manure GAAMPs. As an added benefit, MSUNM will create and maintain records on pesticide use, and allow input of specific pesticide applications by field or sub-field. MSUNM will also print worker protection re-entry notices for posting in fields where pesticides were applied. Overall, this record keeping system is very thorough, well conceived, and was developed with the concerns and problems of Michigan farmers in mind. The MSUNM program is available through your local MSU Extension office for about $150.

Regardless of whether a producer would like to move up to the management level of MSUNM, or develop paper records. In the future it is going to be more and more important for animal agriculture to have comprehensive records to account for nutrient use and manure application.

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