PROPER SOIL SAMPLING CAN LEAD TO BETTER YIELDS AND PROFITS

Antonio Mallarino, Professor, Department of Agronomy, Iowa State University

New ISU Extension and Outreach publication discusses steps to take to get a good soil sample

The most important piece in understanding the fertility makeup of a field is collecting soil samples. Without correctly sampled soil, farmers cannot make informed decisions on fertilizer, manure nutrients, and limestone applications in those fields.

When not correctly sampled, the soil samples may not represent the fertility levels and farmers run the risk of either over or under treating their fields, which can cause a reduction in crop yield and profits, and increased chances of negative impacts on water quality when excess phosphorus (P) is applied.

To help understand how to take good soil samples, Iowa State University Extension and Outreach released a new publication, 'Take a Good Soil Sample to Help Make Good Fertilization Decisions' (CROP 3108).

The publication focuses on the three most important areas for taking a good sample for P, potassium (K), zinc (Zn), and pH and lime requirement: sample depth, the number of cores taken for each composite sample to fully represent a specific field area or sample zone, and the criteria for collecting composite samples from a field.

Soil testing is not perfect but it is very important and useful for nutrient management. Sampling provides the base for everything that can be done up to the nutrient application rate. If the sample doesn't represent that field or field area, the fertilization decision will be wrong. Farmers and consultants need to dedicate time to take a good soil sample because that's the foundation for any treatment recommendations.

This publication describes how to use soil survey maps and maps of other field characteristics, and different possible sampling approaches, to consider the spatial variation of soil tests. The publication also describes how to use soil survey maps and mapping other field characteristics using precision agriculture technologies to improve the delineation of field areas to sample so that samples reflect soil-test levels of relatively uniform areas of a field. Using maps can be a help, if they are used correctly. The publication also address the issue of grid sampling, which is a systematic sampling approach and how to use those maps and other precision ag techniques to ultimately take a better sample. In addition, there is discussion of the importance of proper soil sampling depth and number of soil cores to collect per sample.