

So You Want to Farm? Start With the Soil!

By Jodi Venema DeHate, MAEAP Technician, Wexford Conservation District

According to the USDA's 2012 National Agriculture census, 22% of all farms were new farms. That means that one out of every five farmers have been farming for less than 10 years. More and more people are joining the ranks of farmers for a variety of reasons. What every experienced farmer will tell you is that farming isn't easy, but there is help available whether it's financial assistance or technical information that you're seeking.

As a new farmer, one of the first things to do is to sample the soil where crops will be grown. Even in a garden it's good to know what fertilizers or amendments would make the garden more productive. Soil sampling is important to find out what nutrients the soil holds, and to determine if fertilizers need to be applied to yield a good crop. Soil sampling is done by taking a soil probe or shovel and obtaining soil from the top 6-8 inches of the field. Take samples several times in a zig zag pattern throughout the field and put them into a plastic (not metal) bucket for easy transport. If a field is larger than 40 acres, split up the samples, so that you are testing no more than 40 acres at a time. Each sample submitted should amount to about two cups. Samples should also be pulled whenever a new crop is rotated into the system. For example, if a farm is growing alfalfa and then the next spring decides to grow corn, a new sample should be pulled for that field before planting.

Soil samples can be taken either before planting or after harvest. A farmer can take their samples to a few different places in the area. The three most common choices are McBain Grain Company, both locations of Falmouth Co-op, and MSU Extension offices. Additionally, McBain Grain rents out soil probes to use in obtaining samples. When submitting the samples, make sure to ask for fertilizer recommendations.

You will usually receive the soil sample analysis in two to three weeks after you submit it. When you look at the results, you may ask yourself "what do the numbers on the sheet mean?" There are three main "building block" nutrients that most crops need, along with some micronutrients. The big three are nitrogen (N), phosphorus (P) and potassium (K). Your soil test results will provide you with information on P and K, as well as some of the micronutrients. Most soils already have some P and K available for plant uptake, and your test results will let you know if there is a sufficient amount, or if you need to add fertilizer or another amendment to meet your crops' nutrient needs.

Nitrogen, however, is a very mobile nutrient that usually isn't kept in the soil profile for very long. Standard soil tests don't test for N because it is only made available when the soil is warm enough for biological activity to occur. A test done when soils are cold will not give you an accurate assessment of the N that will be available to your crops. There is a special test for just N that can be done in mid-June or later. However, you can get a rough estimate of the N available in the soil by taking into account natural sources of N such as manure and legume crops like clover, alfalfa, buckwheat, beans, and peas. Legumes can produce N and leave it in the soil where it is available for use by the next crop. When you fill out the information for a standard soil test, you will be asked for the history of manure and legumes on the field so that their potential N contribution can be determined.

Based on the results of your soil tests, an agronomist will give you fertilizer recommendations for the crops you have planned. You will receive information on both the types and the amount of fertilizer

that will fit your situation. If you prefer, you can ask the agronomist for recommendations for organic amendments rather than chemical fertilizers.

Another common item that is tested for soils is the pH. Most crops, except for blueberries, like a soil pH of 6.5 to 7.0. Your soil test results will tell you what your pH is, and what you might need to add to it so that it has the pH appropriate for the crop that you want to raise. Lime raises the pH of the soil, and sulfur can lower it. However, both of these are slow acting, and if possible, they should be applied several months before the crop is planted. Again, working with an agronomist can help you make decisions wisely.

New farmers can be overwhelmed with information about what is right or wrong. The Wexford Conservation District, the USDA-Natural Resources Conservation Service, and MSU Extension all use science-based methods and information to help landowners. The Wexford Conservation District participates in the Michigan Agriculture Environmental Assurance Program (MAEAP), and the MAEAP technician for our county is Jodi Venema DeHate. Jodi can help a farmer navigate the best management practices related to using fertilizers and manure, and also provide practical information about farming. Additionally, the District will be holding a series of workshops this winter for anyone who wants to learn more about small scale farming, and “Building Your Soil” is one of the topics that is planned. The Natural Resource Conservation Service (NRCS) can help farmers develop a comprehensive nutrient management plan for all their cropland. Michigan State University’s Extension Service provides soil testing for both commercial farms and for gardeners. Their pre-paid soil test mailers are an easy way for gardeners to get the information they need for a bountiful garden or a lush lawn. Mailers can be obtained from either the Extension office, or on the web at http://msue.anr.msu.edu/resources/sol_test_kit_self_mailer_e3154.

For more information about any topic related to farm and garden soils, please contact the Wexford Conservation District at (231) 775-7681, ext. 3, or stop by our office at 7192 E. 34 Road in Cadillac. Jodi covers four counties in our area, and she can be reached directly at the Missaukee Conservation District at (231) 839-7193 or by email at jodi.dehate@macd.org.



Marlin Venema, who farms near Marion, pulling a soil sample to be tested. He is using a soil probe to easily gather a sample that includes soil up to 8” deep.



Soil from several different points in the field is mixed together in a plastic bucket in order to get comprehensive results for a field.

A photograph of a completed MSU Soil Test Information Sheet. The form is titled "MSU SOIL TEST INFORMATION SHEET" and includes sections for "IDENTIFICATION", "ANALYSIS", and "RECOMMENDATIONS". It contains various fields for data entry, including crop type, soil type, and fertilizer recommendations.

Prior to sending in a sample, an information sheet such as this is completed so that appropriate fertilizer recommendations can be made.



Jim Williams, District Conservationist, and Jeff Fewless, CTAI technician reviewing soil test results to help a farmer develop a comprehensive nutrient management plan.