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Zone Sampling of Soil on Farms with Irregular Terrain

By David Gossman

Typical grid soil sampling practical on large expanses of flat farmland is rarely applicable to the irregular terrain found in much of eastern and northeastern Iowa. The Iowa State University Extension Office recommends that zone sampling be used for fields with different slopes and soil types. A current aerial photo and soil map can be used to help divide up fields by soil types and slope. An example of the plan for this type of sampling can be found in Figure 1. About 220 crop acres have been divided into 15 zones for sampling. Table 1 provides a description of each zone. Note that in a couple of instances a single zone (Ex.-S2) actually consists of 3 separate field segments – all with nearly the same lay, soil type and cropping history. Within each zone a zigzag pattern of scattered sampling points is used to represent each zone. As a core sample is taken at each location, it is composited into a bucket from which a mixed sample will be taken and submitted to the lab. Each zone is represented by 10 or more core samples. This set of initial samples was tested for an extensive list of analytical fertility factors to provide a baseline for future testing. Next year some fields will be divided into even smaller sections for testing using a more limited set of fertility parameters.

Farmers who want to assure themselves of both proper sampling and independent testing can stop by ChemRight Laboratories, Inc. in Maquoketa and borrow a farm field sampling kit which includes a core sampler. If you need help designing a zone sampling program for your farm stop by with an aerial photo and soil map and we can help you design a cost effective zone sampling program that could save significant fertilizer costs – much more than paying for the soil testing.

Table 1
Zone Descriptions

Field	Description	Soil Type	~Acres
S1	Sloping ground with ridge running SSW to NNE	163C2, 163D2	28
S2	Sloping ridges dropping to east	163D2	11
S3	Steep, terraced, sloping to west	163D2	9
S4	Sloping to east	163D2, 293D2	9
S5	Flat bottom land, NHEL	981B	6
S6	Sloping to west	163D2	6
S7	Sloping to west	163D2	9
S8	Uneven sloping to NE, sandy soil, noticed during sampling	163D2	10
S9	Steep sloping to East	163D2	5
S10	Ridge top running N-S	163C2	27
N1	Ridge top and gentle slopes	163C2, 163D2	29
N2	Ridge top and gentle slopes	163C2, 163D2	12
N3	Ridge top and gentle slopes	163B, 163C2, 163D2	41
N4	Sloping ground from East to West	163C2, 163D2	7
N5	Ridge top and gentle slopes	163C2, 163D2	20

163 – Fayette silt loam

981 – Worthen silt loam

