Midwest Laboratories

SOIL SAMPLING & INTERPRETING RESULTS

Fall 2019 Edition

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Midwest Laboratories®

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SOIL SAMPLING METHODS

Properly collecting soil samples is the most important step in any nutrient/soil amendment management program. Soil sampling should reflect tillage, past fertilizer/soil amendment placement, cropping patterns (and corresponding irrigation requirements), soil type (including drainage and slope characteristics) and perhaps old field boundaries (such as old feedlots, windrows, altered stream beds, etc.). Trends toward reduced and/or zero tillage and technology for variable rate fertilization (VRF) have especially demanded that soil samples be taken more comprehensively and intensively for more accurate fertilizer and soil amendment application. This brochure will discuss the many methods used for taking an accurate soil sample using various methods and under several different types of tillage situations.

The most commonly used method for soil sampling would be based on soil types. Fields are split into sampling areas that contain similar soils. Hillsides are kept separate from bottoms since the soil types will vary. Soil survey maps, if applicable, can help organize the soil types throughout the sampling area. Samples will not necessarily need to be collected for every soil type; however, similar soils should be kept together. Sampling maps can be kept to note the locations of the cores for subsequent sampling.

The sampling area will be dependent on the soils and topography. Generally, an area of forty acres is considered the maximum size. Smaller sampling areas may be needed if the soils are quite variable or a production problem is apparent.

Once the sampling area is determined, a sufficient number of cores should be taken to acquire a representative sample. This is generally 10 to 20 cores. The depth of sample for surface soils would be 0 to 6 inches or as deep as the primary tillage. Deeper samples to 24 or 36 inches can be taken for residual nitrate-nitrogen. These deep samples would be kept separate from the surface samples and noted accordingly on the bag and submittal form.

Seasonal effects on soil test values

There can be considerable seasonal influence on soil test values and every effort to maintain consistency within season when taking soil tests should be made. The two analytes most affected by seasonal influences are potassium and pH.

In the northern corn belt regions (Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, northern Missouri, Nebraska, northern Kansas and the Dakotas) on soils having medium to high clay contents, potassium soil test values have a tendency to be higher during the winter months.

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Soil pH values can also vary appreciably over the year depending on nitrogen and sulfur inputs, amounts of rainfall or irrigation and soil buffering capacity (amount and types of clay and free carbonates).

Given that soil test values will vary between seasons, one approach as to when soil samples should be taken is during those periods when the variations hit average values. These periods are generally in the early fall (September–November) and again in the late March–April time frames. In attempts to ideally correlate soil test values to yield, tests should be taken to coincide with a given crop's critical nutrient demand period, usually when nutrient uptake is at its fastest rate. Most generally, however, the ideal time frame for taking soil samples should be based on ease of field access, so that differences in soil type, slope, drainage and cropping pattern can be most easily accounted for.

Year to year variation of soil test values can be appreciable as well, depending on the amount and timing of rainfall, and the duration of freezing and thawing over the winter months. Considerable interpretive value can be obtained from soil tests taken consecutively over 5–7 years to establish the extent of yearly variability in attempts to better manage fertilizer and soil amendment inputs for build-up, draw-down or maintenance purposes.

Crop effects on soil test values

Soil sampling events should be consistent as much as possible as significant differences in total nutrient uptake between crops or crop specific nutrient inputs exist that can impact on soil test values. For instance, in the fall, exchangeable potassium will test lower following corn than following soybeans, due to larger seasonal potassium uptake by corn during the growing season. Soil pH may be lower in the early fall following corn vs. following soybeans, due to nitrogen and/or sulfur inputs on the corn. Irrigation requirements vary between crops, leading to possible soil test variations following the irrigation season in the areas of nitrate-nitrogen, sulfate-sulfur, boron, soil pH, sodium, carbonates, and electrical conductivity as a function of soluble salts. Effect of a given crop on seasonal nutrient uptake and crop specific nutrient/irrigation requirements can help explain a great deal of year to year soil test variation.

Reduced tillage, ridge tillage & zero tillage

These tillage systems have been demonstrated to cause significant layered, stratification of organic matter, pH and soil nutrients (especially where subsurface banding of fertilizer is not utilized). Reduced tillage, ridge tillage and zero tillage soil samples should include some samples that are split into 0”-3” and 3”-7” depth increments, to properly assess to what extent stratification is occurring in order to modify fertilizer/soil amendment rates, timing and/or placement. When sampling for ridge till, it is recommended that the sample is taken halfway down the ridge at a 45 º angle to the ridge.

Soil Sampling in fields where fertilizer was banded

Where location of bands are known:

(i) 30-inch band spacing: one in-the-band core for every twenty between-the-band cores.

(ii) 15-inch band spacing: one in-the-band core for every eight between-the-band cores.

Where location of the bands are unknown: at least 20 pairs of cores to make one sample taken in a random pattern. The second core of each pair is taken at a distance of 50% of the band spacing from the first core, perpendicular to the band direction.

Grid soil sampling

Development of site-specific nutrient management via global positioning systems (GPS) and variable rate fertilization (VRF) demands that soil sampling be intensively organized into a systematic grid pattern.

Grid soil samples should be taken at a specific point, either within the grid cell or at intersection points between grid cells, consisting of 8-10 cores per sample taken within a 10-foot radius, as shown in **FIG. 1** (page 12). To more correctly represent soil test variability within a field (especially for implementation of soil test mapping), the grid sample points should be organized into a systematic grid-diamond pattern or a systematic unaligned grid pattern as shown in **FIG. 2** (page 13) and **FIG. 3** (page 14). The grid-diamond pattern is accomplished by shifting the sample points to the left or right of the grid cell center in alternating rows perpendicular to the measurement pattern (established by counting rows, using distance measuring devices, or GPS). The systematic unaligned sampling pattern is best utilized via GPS, following this procedure:

- Divide the field into cells by means of a coarse grid. Square cells are the norm but not mandatory.
- Superimpose a finer grid (reference grid) in each coarse cell. For example, if there are 5 rows and 5 columns in the coarse grid, you might choose to divide each coarse cell into 25 smaller cells.
- Choose a corner of the coarse grid, say top left, and randomly select a reference cell—in this sample, one of the 25 reference cells.
- Move horizontally to the next coarse cell in the top row and keep the X coordinate the same but randomly select a new Y coordinate.
- Repeat the process for all the coarse cells in the top row.
- Return to the upper left corner and repeat the process down the first

column of cells, this time keeping the Y coordinate the same, but changing the X coordinate in each successively lower coarse cell.

- The remaining positions are determined by the X coordinate of the point in the left-hand square of its row and the Y coordinate of the point in the uppermost square of its column.

With this procedure a constant interval both along the rows and down the columns is maintained without alignment.

The size of the grid cell sampling pattern should be based on previous fertilizer response over a given field, and can be further adjusted with ongoing yield data from on-board combine yield monitor systems. Fields that test high to very high in nutrient levels and that have consistently received crop removal fertilization rates should be grid point sampled on a 300 to 450-ft. grid (2.5 to 5.0 acres). Fields that have previously tested less than high in nutrient levels or that have demonstrated response to added fertilizer and also have received consistent crop removal fertilization should be grid point sampled on a grid no larger than 200 ft. (1.5 acres). If a single rate of fertilizer is to be applied, then a larger grid cell pattern can be utilized (450-600 ft:5-10 acres), following a grid cell sampling pattern, as shown in **FIG. 4** (page 15).

Systematic grid - square sampling pattern

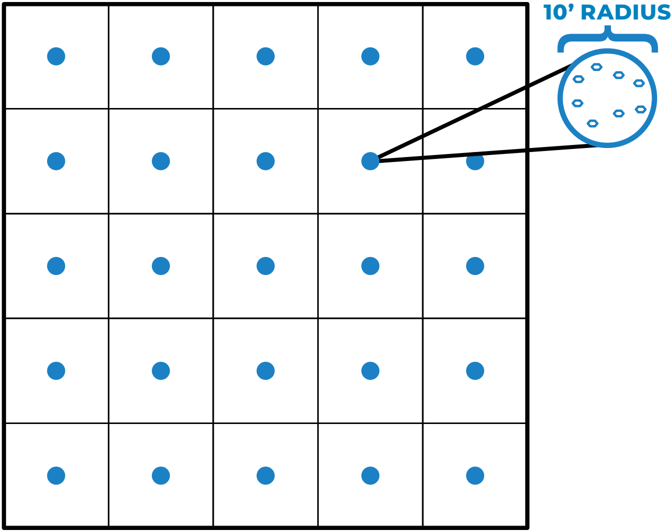

FIG. 1 - Schematic showing the layout of a square grid and locations where soil cores would be collected.

- A grid of equally spaced lines is established.
- 8 soil cores randomly collected within a 10-ft. radius of the grid center.
- Cores composited as one soil sample.

Systematic grid - diamond sampling pattern

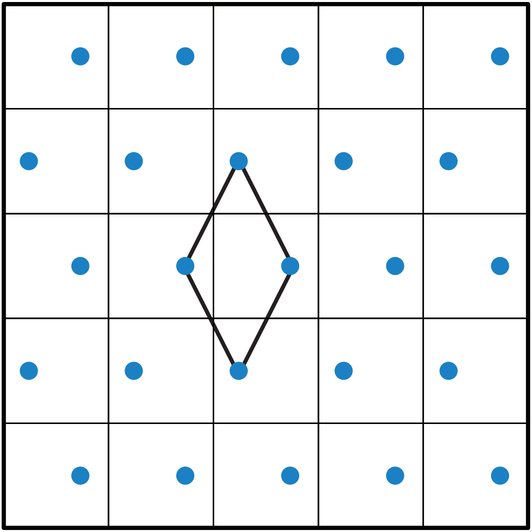

FIG. 2 - Modification of a square grid where alternating rows of sample points are shifted one half the distance from the cell center and edge.

Systematic unaligned grid

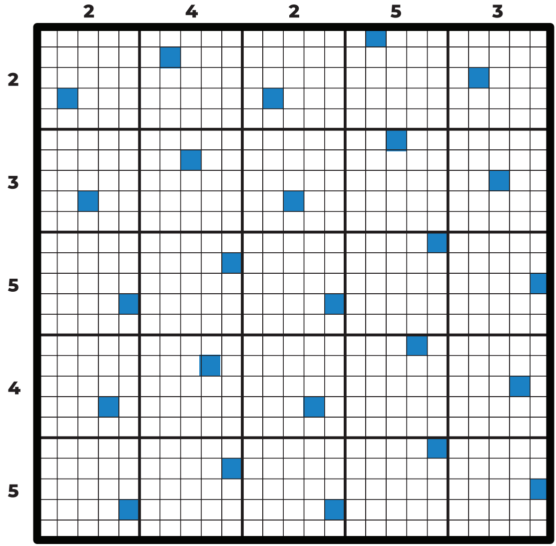

FIG. 3 - Schematic showing the layout of a systematic unaligned grid. The x, y coordinates were determined from a random number table.

Grid cell sampling technique soil test values represent an area

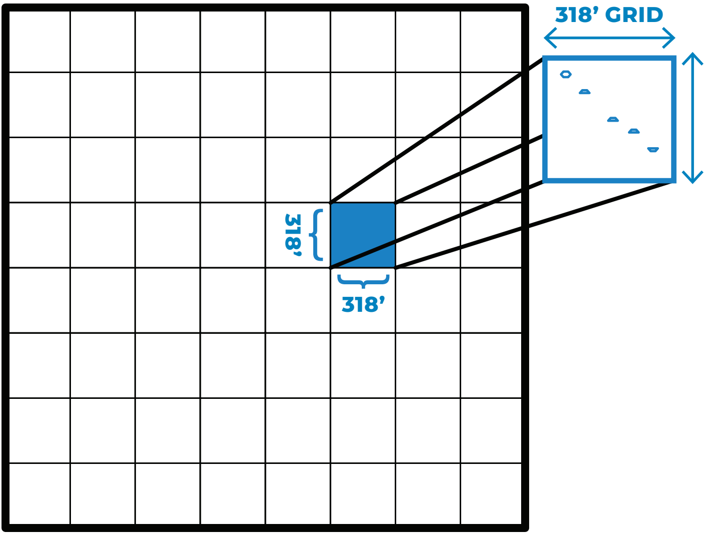

FIG. 4 - Schematic showing layout of 318-ft cells and locations where soil cores would be collected for a 125-acre field (total of 54 samples).

- The field is divided into square cells.
- 5 soil cores collected within the cell.
- Cores composited as one soil sample.

Non-grid soil sampling

While this method is less systematic and precise than grid sampling, reliable results can be obtained if sample points and/or walk patterns are consistent between sampling events (utilizing row counts, distance measuring devices, or GPS). The area represented by each sample should be no more than 20 acres depending on soil type, slope, drainage, old field boundaries and variation in cropping pattern. 15-25 cores per sample are recommended.

A variation on the grid-point sampling technique can be useful in developing more consistent, non-grid sample results. Specific points within the field are chosen based off of soil type and yield data (if available), and 10-15 cores are taken within a 20-foot radius around each point. Using GPS would enhance relocating sample points to insure consistency for this sampling method, see **FIG. 5** (page 17).

Soil Summary

			-- YIELD --	
	SOIL TYPE	**ACRES**	**CORN**	**BEANS**
41A	Muscatine silt loam, 0-2% slope	8.8	167	51
41B	Muscatine silt loam, 2-4% slope	12.1	165	50
67	Harpster silty clay loam	2.6	136	44
68	Sable silty clay loam	9.7	156	51
330	Peotone silty clay loam	1.0	123	42
			159	**50**

Soils map for one field site LaSalle County, IL; 32 acres; scale 300 ft/in

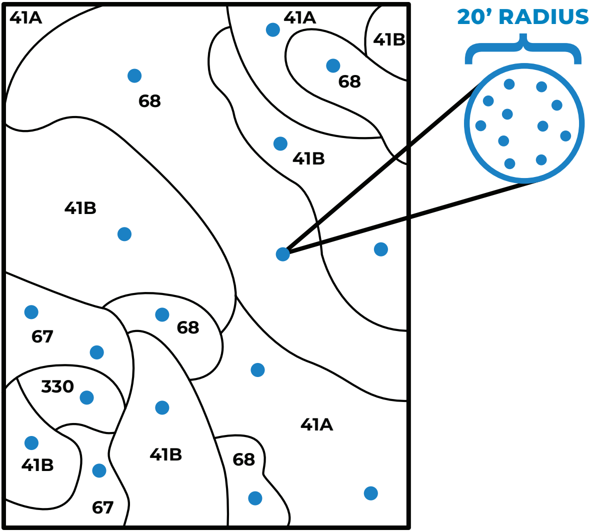

FIG. 5 - Schematic showing the layout of a specific sample point based off of soil type and yield variance.

- Sample points chosen based on soil type and yield variance.
- 10–15 cores randomly collected within a 20-ft. radius of the sample point.
- Cores composited as one sample.

NEMATODE SAMPLING

Soybean cyst nematodes (SCN)

The optimum time to sample for SCN is as close to soybean harvest as possible. The population will tend to fluctuate throughout the season and can be affected by soil temperature, moisture, host suitability and over winter survival. SCN populations tend to be highest when host plants are almost mature to shortly after harvest.

Samples should be taken 0 to 6 inches in depth and taken from similar soil textures. Cores should be taken within two inches of the row. If the row is not identifiable, make use of zigzag pattern throughout the intended field. Areas in the field where significant stress has occurred should be sampled differently. The cores should be taken between the affected plants and healthy plants. Severely stressed plants cannot support the higher populations.

Parasitic nematodes

These nematodes are the microscopic organisms that are found in soils that can feed on many types of plants. Seasonal fluctuations will occur. The populations and nematode activity will decrease as root growth declines and soil temperatures cool between 60½ F and raise above 85½ F. The optimum sampling time would be when soil temperatures are between 60½ and 80½ F. Optimum

moisture content should be 50–80% of field capacity. Samples should be taken 0–6 inches. Roots can also be submitted. All samples should be stored in a cool place if there is a delay in shipping. Sample bags and submittal forms should be clearly marked indicating a nematode analysis is requested.

Sampling for herbicide residue

Normal sampling procedure should be used with certain exceptions. It is imperative that a representative sample is taken from the areas of the field that would demonstrate the highest carryover. Turn rows and lower organic matter areas will typically contain the highest ratios of carryover.

The sampling depth for herbicide residues should correlate to incorporation depth or any tillage performed since the herbicide was applied. Lighter soil types may demand slightly deeper sampling depths. However, this will depend on the leachability of the herbicide.

SUMMARY

Soil tests should be taken in such a manner to maximize their use as a soil fertility index based on comparison between sampling events. Consistency, in the areas of season, location (aided by GPS techniques), crop rotation, soil type and sampling depth must be maintained for proper soil test interpretation. Inconsistencies in any of these areas of soil sampling collection will lessen the interpretation value of soil test changes that occurred since the last soil sample was taken. Along with consistency, soil samples should reflect past soil and fertilizer/amendment management of a given field, taking into account tillage, crop rotation, fertilizer/amendment placement and also soil characteristics (texture, slope and drainage). Following these guidelines will allow soil tests to be used more effectively for nutrient management and crop diagnostics.

REPORT TERMS

Parts per million (ppm)

Results for the major and minor elements are reported in parts per million (ppm) on an elemental basis. An acre of mineral soil 6 to 7 inches deep weighs approximately 2 million pounds. Therefore, to convert parts per million readings to pounds per acre, multiply by 2.

Meq/100q (milliequivalents per 100 grams)

Soil cations, such as calcium, magnesium, potassium, and hydrogen can be expressed in terms of their relative ability to displace other cations. The unit of measure meq/100g serves this purpose.

For example, one milliequivalent of potassium is able to displace exactly one milliequivalent of magnesium. The cation exchange capacity of a soil, as well as the total amounts of individual cations may be expressed using these units.

Millimhos/cm (mmhos/cm)

Electrical conductivity measurements are often used to measure the amount of soluble salts in the soil. Conductivity is generally expressed in mmhos/cm. The conductivity increases with increasing soluble salts, and the soil is considered saline when the conductivity reading of the saturation extract reaches 2 mmhos/cm.

Ratings

Most soil test readings on the report are given a rating of very low (VL), low (L), medium (M), high (H) or very high (VH). The purpose of these ratings is to provide a general guideline for determining optimum nutrient levels for crop growth. Upon request, an unrated form can be obtained. Optimum levels may vary slightly from those shown on the Soil Analysis Report, however, the actual value that is best is dependent on many factors such as crop, yield potential and soil type.

A REPORT NUMBER

XX-YYY-ZZZZ

REPORT DATE

C

RECEIVED DATE

D

B ACCOUNT

1234

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SOIL ANALYSIS REPORT

E INFORMATION SHEET: 123456

LAB NUMBER	SAMPLE IDENTIFICATION	ORGANIC MATTER MODIFIED LOI		PHOSPHORUS P1 (WEAK BRAY)		PHOSPHORUS P2 (STRONG BRAY)		PHOSPHORUS BICARBONATE P		POTASSIUM K		MAGNESIUM Mg		CALCIUM Ca		SODIUM Na		pH SOIL pH 1:1	pH BUFFER INDEX	CATION EXCHANGE CAPACITY C.E.C.	PERCENT BASE SATURATION (COMPUTED) % K	% Mg	% Ca	% H	% Na
		percent	RATE	ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE			meq/100g					
F LAB NUMBER	G SAMPLE IDENTIFICATION	1				2				3			4			5		6	7	8			9		

NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE): POTASSIUM, MAGNESIUM, CALCIUM, SODIUM

LAB NUMBER	NITRATE-N SURFACE ppm	lbs/A	depth (in)	SUBSOIL 1 ppm	lbs/A	depth (in)	SUBSOIL 2 ppm	lbs/A	depth (in)	Total lbs/A	SULFUR S ICAP ppm	RATE	ZINC Zn DTPA ppm	RATE	MANGANESE Mn DTPA ppm	RATE	IRON Fe DTPA ppm	RATE	COPPER Cu DTPA ppm	RATE	BORON B SORB. DTPA ppm	RATE	EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/cm	RATE
				10							11		12		13		14		15		16		17	18	

19 COMMENTS:

REV. 12/03

SOIL ANALYSIS

1 Organic matter

Percent organic matter is a measurement of the amount of plant and animal residue in the soil. The color of the soil is usually closely related to its organic matter content, with darker soils being higher in organic matter.

The organic matter serves as a reserve for many essential nutrients, especially nitrogen. During the growing season, a part of this reserve nitrogen is made available to the plant through bacterial activity.

2 Phosphorus

Three types of phosphorus tests are reported. The P1 (weak Bray) test measures phosphorus which is readily available to plants. The optimum level will vary with crop yield and soil conditions, but for most field crops, 20 to 30 ppm is adequate. Higher levels may be needed for certain vegetable crops or where especially high yields are possible.

The P2 (strong Bray) test measures readily available phosphorus plus a part of the active reserve phosphorus in the soil. A level of 40 to 60 ppm is desired for good yields of most crops.

The Bicarbonate P (sodium bicarbonate) test measures the amount of readily available phosphorus in slightly basic (pH 7.0-7.2) to highly basic soils (pH 7.3 and greater). In basic soils the phosphorus exists mostly as alkaline earth phosphates, and the extraction of dilute sodium bicarbonate correlates with what crops can extract from these soils.

The weak and strong Bray extractions are acidic (low pH) and these extracting solutions are neutralized by the presence of free lime in higher pH soils giving lower phosphorus levels.

The relationship between the P1 and P2 test levels (P1:P2 ratio) can help evaluate the phosphorus status of the soil as well as identify a soil condition that contributes to poor crop performance. The following comments will apply to the P1:P2 ratio in most areas:

A. 1:1 – VL to L Poor history of fertilizer use – adding P2O5 will tend to widen the ratio. Many times the available P2 increases faster than the standard available P1 indicating an increase in the reserve.

B. 1:1 – M to VH Low reserve. Fe and Al "P" bond is very tight – a lime application will release P and increases the Ca availability, generally the ratio will widen as a result of the lime application.

C. 1:2 with P1 M to H. Ideal range with reserve as high as the P1 availability.

D. Greater than a 1:2 ratio. Some may be as high as 1:20 or greater. One or more of the following principles may apply:

1. Response to starter may increase as ratio increases.
2. Presence of free lime in the soil may be indicated.
3. Increasing response to the use of sulfur and zinc. (Use 1 part of zinc with 2 to 4 parts of sulfur. A maximum of 8 pounds of SO_4 –S may be used in a starter band.)

E. When the P2 is over 50 ppm, one can expect greater response to Zn.

F. The amount of P_2O_5 which will be required to increase the P1 reading is dependent on soil texture (or cation exchange capacity), soil pH, and level of P1 and P2. An average value would be 9 lbs. of P_2O_5 required to raise P1, reading 1 ppm.

3 Potassium

This test measures available potassium. The optimum level will vary with crop, yield, soil type, soil physical condition, and other soil related factors. Generally, higher levels of potassium are needed on soils high in clay and organic matter than in soils which are sandy and low in organic matter. Soils containing high levels of magnesium may also need higher levels of potassium. A corrective factor for additional potassium is introduced when magnesium base saturation exceeds 23%. Optimum levels for light-colored, coarse-textured soils may range from 150 to 175 ppm, dark-colored heavy-textured soils range from 175ppm to 250 ppm.

4 Magnesium & calcium

The levels of calcium and magnesium found in the soil are affected primarily by soil type, drainage, liming and cropping practices. These basic cations are closely related to soil pH. As the soil pH gets higher, the levels of calcium and magnesium usually increase. Calcium deficiencies are rare when the soil pH is adequate. Magnesium deficiencies are more common in sandy, low organic matter soils. Adequate magnesium levels normally range from 100 to 250 parts per million. The need for magnesium can be further determined by its base saturation, which should be above 10–12 percent. Soils having magnesium base saturation in excess of 23 percent may exhibit drainage and compaction problems characteristic of cold, wet soils. These soil conditions require special attention regarding potassium application and chemical responses.

5 Sodium

Although sodium is an essential nutrient for some crops, it is usually considered in light of its effect on the physical condition of the soil. High exchangeable sodium (greater than 2.5% sodium saturation) may cause adverse physical and chemical conditions to develop in the soil. These conditions may prevent the growth of plants. Reclamation of these soils involves the replacement of the exchangeable sodium by calcium or magnesium and the removal of the sodium by leaching.

6 Soil pH

The soil pH measures active soil acidity or alkalinity. A pH of 6.9 or less is acid, 7.0 is neutral, values higher than 7.0 are alkaline. Usually the most desirable pH range for mineral soil is 6.5 to 6.9 and for organic soil 5.5 to 6.0.

7 Buffer index

This is an index value used for determining the amount of lime to apply on acid soils with pH less than 7.0. A value is not given for pH's greater than 7.0. The lower the buffer index number, the higher the lime requirement.

8 Cation exchange capacity – (CEC)

Cation Exchange Capacity measures the soil's ability to hold nutrients such as potassium, magnesium, and calcium as well as other positively charged ions such as sodium and hydrogen. The CEC of a soil is dependent upon the amounts and types of clay minerals and organic matter present. The common expression for CEC is in terms of milliequivalents per 100 grams (meq/100g) of soil. On most soils, it will vary from 5 to 35 meq/100g depending upon the soil type. Soils with high CEC will generally have higher levels of clay and organic matter.

For example, one would expect soil with a silty clay loam texture to have a considerably higher CEC than a sandy loam soil. Although high CEC soils can hold more nutrients, good soil management is required if these soils are to be more productive.

9 % base saturation

Percent saturation refers to the proportion of the CEC occupied by a given cation (an ion with a positive charge such as potassium, magnesium, or calcium, or combination of cations referred to as bases). The percentage saturation for each of the following cations for optimum crop performance will usually be within the following ranges:

Potassium 2 to 5
Magnesium 12 to 18
Calcium 65 to 75

10 Nitrate-nitrogen

The soil test measures nitrate-nitrogen (NO_3-N). This form is water soluble and readily available for plant uptake. When considering nitrogen needs for optimum crop performance, this test will indicate where and how much nitrate-nitrogen is present. Depth tests determining NO_3-N will give more detailed information for making nitrogen recommendations. It is important that other soil factors including organic matter content be taken into account when interpreting the nitrate nitrogen soil test and predicting crop response.

11 Sulfur

The soil test measures several forms of sulfur that can be readily available. Higher sulfur levels can occur when soils have reduced internal drainage, high soil pH, or are irrigated with water having a higher sulfur content. Optimum levels for sulfur depend largely on organic matter content, soil texture, drainage, and yield goal. Generally, whenever the following conditions exist, the need for sulfur will be increasingly important for optimum crop performance:

A. Well drained, low CEC Soils
B. Soils low in organic matter
C. Low soil pH (below 6.0)
D. Use of high analysis, low sulfur fertilizers
E. High application rates of nitrogen fertilizer
F. High yield goals

Overall effectiveness of a sulfur application depends largely on the ability of the sulfur product used to break down and become water soluble in the soil.

12 Zinc

DTPA extraction is used to extract the zinc. A 1.8–2.5 ppm test level is usually adequate, however, interactions between zinc, soil phosphorus and soil pH can significantly alter rates of application of zinc to achieve desired crop response. When relatively large amounts of zinc are to be applied (5–10 lbs per acre), broadcast treatments are acceptable, with residual effects of these larger quantities lasting several years. Smaller amounts of zinc are most effective in combination with the application of an N-P-K treatment. Soils that have been leveled and/or terraced should be especially considered for zinc applications.

13 Manganese

Manganese is extracted using the DTPA extraction process. Optimum test levels range from 14–22 ppm. Manganese is its soluble (readily available for plant uptake) form quickly reverts to insoluble (unavailable) forms shortly after application. Row or band treatments along with foliar application are the recommended methods of treatment for optimum crop response and efficiency of applied manganese.

14 Iron

Iron is extracted using the DTPA extraction process. A 12 to 22 ppm test would be optimum in most cases. A soil test indicating iron to be adequate or even optimum may not reflect desired crop response. Soil pH is a very important factor in interpreting the iron soil test. Correcting iron deficiencies is complicated because iron compounds added to the soil quickly react with the soil solution and become unavailable to the growing plant. Chelated forms of iron have been effective as soil treatments, while foliar applications have proven to provide the best results for correcting iron deficiencies.

15 Copper

Copper is extracted using the DTPA extraction process. A 1.2 to 1.8 ppm test level should be sufficient. Several factors enter into conditions contributing to a copper deficiency: soil pH above 7.0, high organic matter soils (peats and mucks,) and soils receiving high rates of nitrogen phosphorus and zinc applications. The crop to be grown and the associated yield goals are also important factors to consider. Soil applications of copper are generally effective for several years, especially on soils with pH's below 7.0.

16 Boron

Boron is extracted from the soil using DTPA/Sorbitol. Adequate levels range from 1 to 1.5 ppm. Boron deficiencies will be most common on sandy, low organic matter soils. Soil pH levels of 7.0 and above contribute to boron deficiencies also. Corrective measures can be effectively done by application of boron fertilizer to the soil. Since the range between boron deficiency and toxicity is narrow for plant growth, broadcast treatments are the desired method of application.

17 Excess lime rate

A visual rating of free lime present. Soils having high amounts of free lime available will have problems with availability of major and minor elements to the plant. Application of elemental sulfur or acid forming fertilizer can be beneficial in keeping phosphorus and micronutrients in a more available or soluble form.

18 Soluble salts

Excessive concentration of various salts may develop in soils. This may be a natural occurrence. It may result from poor irrigation water, excessive fertilization or contamination from various chemicals or industrial wastes. One effect of high soil salt concentration is water stress in a plant such that the plant may wilt or even die. The effect of salinity is negligible if the reading is less than 1.0 mmhos/cm. Readings greater then 1.0 mmhos/cm may affect salt sensitive plants. Readings greater than 2.0 mmhos/cm may require the planting of salt tolerant plants.

19 Comments

This section of the report is used by the agronomists to address certain problems that specific test readings may give in the way of interpretation or crop response. Specific questions or special attention on a certain aspect of the soil test requested by the client may also be answered in the comments section.

Additional analyses

Additional analysis such as chloride, molybdenum, ammoniacal nitrogen and total nitrogen will be shown on an addendum report, if analyzed. If soil texture is determined, the percent sand, silt and clay will be listed on this addendum report as well.

OFFICE INFORMATION

A. Report number

All samples are filed by report number. When contacting our lab concerning a certain report, be sure to refer to this number.

XX–YYY–ZZZZ

XX=Year

Y = Day of Year (Julian calendar)

Z= Report Number

B. Account

An account number has been assigned to each client. The use of this number will speed up the processing and location of samples within the laboratory system.

C. Report date

The date which the sample data was reported is shown here.

D. Received date

The date which the sample was received at the laboratory appears here.

E. Information sheet number

The number of the information sheet which was submitted with the samples in this report is listed here.

F. Lab number

The identification number which was assigned by the laboratory to each individual soil sample is shown here. There may be more than one laboratory number per report.

G. Sample identification

The identification number assigned by the client to each individual sample is reported here. Because of limited space, samples numbers must be limited to 10 digits.

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