

CHAPTER 1512
DEPARTMENT OF AGRICULTURE
SOIL TESTING LABORATORIES; AGRICULTURAL
CHEMICAL RESPONSE COMPENSATION

SOIL TESTING LABORATORY CERTIFICATION

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SOIL TESTING LABORATORY CERTIFICATION**1512.0010 PURPOSE.**

Parts 1512 0010 to 1512.0085 contain certification procedures and standards for laboratories that offer soil testing services and resulting fertilizer recommendations in Minnesota

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0015 DEFINITIONS.

Subpart 1 **Scope.** The definitions in this part apply to parts 1512 0010 to 1512 0085

Subp 2 **Certification.** "Certification" means written acknowledgment by the department of the laboratory's demonstrated capability to perform soil testing procedures within required limits and in compliance with parts 1512 0010 to 1512 0085

Subp 3 **Check sample.** "Check sample" means a processed and prepared soil sample provided by the department to laboratories for performance evaluation

Subp 4 **Department.** "Department" means the department of agriculture

Subp 5 **Enrollment period.** "Enrollment period" means a period in which laboratories not previously certified or laboratories seeking initial certification after revocation may submit an initial certification application and fees of application and certification.

Subp 6 **Initial fee.** "Initial fee" means the sum of the application fee and the annual certification fee provided in Minnesota Statutes, section 18C 141 This fee applies to laboratories requesting certification for the first time and to laboratories seeking certification after revocation

Subp 7 **Lapsed.** "Lapsed" means that fees have not been paid or application submitted to the department in accordance to the deadline, creating a condition for revocation of certification.

Subp 8. **Method.** "Method" means the type of analysis for a given soil analysis

Subp 9. **Procedure.** "Procedure" means a series of specific analytical steps for a given soil analysis method.

Subp 10 **Revoked.** "Revoked" means that the department has canceled certification status because of unacceptable check sample performance or violation of law or rule

Subp 11 **Soil analysis or soil test.** "Soil analysis" or "soil test" means a physical or chemical analysis offered by the soil analysis industry

Subp 12 **Soil analysis and fertility recommendation form.** "Soil analysis and fertility recommendation form" means a soil analysis and fertility recommendation report consisting of one or more pages

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0020 APPLICATION FOR CERTIFICATION AND RENEWAL.

Participation by a laboratory in the Minnesota Soil Testing Laboratory Certification Program is voluntary. Application for initial and renewal certification must be on application forms provided by the department. The enrollment period for laboratories to submit an initial certification application and fees is September 1 to November 30 of any year. The application must include the

- A name, address, and telephone number of the laboratory,
- B names and signatures of laboratory supervisors,
- C names and signatures of fertilizer recommendation supervisors, if different from those in item B;
- D. types of analyses and analysis methods requested for initial or renewal certification;
- E. name of any land grant university whose fertilizer recommendations will be provided on the laboratory's soil analysis and fertility recommendation report forms; and
- F. most current copy of soil analysis and fertility recommendation report form used for Minnesota based clients. This requirement does not apply for laboratories that are not providing soil analysis and fertility recommendation services in Minnesota as indicated on the initial or renewal certification application.

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0025 TERM OF CERTIFICATION.

Laboratory certifications are valid from January 1 to December 31 and must be renewed annually. The department shall send renewal forms no later than 30 days before expiration of certification.

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0030 FEES.

Fees for application and certification are stated in Minnesota Statutes, section 18C 141. Applicable fees for initial or renewal certification must be submitted with an application. Fees may not be prorated. Land grant university soil analysis laboratories in Minnesota and those that are in states contiguous with Minnesota are exempt from all fees.

Laboratories that fail to pay the renewal fee by December 31 of each year, as designated by postmark, must have their certifications classified as lapsed and are subject to initial fee charges to regain certification status. A laboratory certification must be reclassified as revoked if the initial or renewal fees payable are not postmarked within 60 days after the December 31 deadline.

Statutory Authority: *MS s 18C.141*

History: *19 SR 218*

1512.0035 MINIMUM STANDARDS FOR LABORATORY EQUIPMENT AND FACILITIES.

Each laboratory that performs soil analysis must maintain equipment and facilities that are adequate and appropriate for the services offered. Each laboratory must maintain the standards in items A and B.

A. Equipment must be maintained in proper working order and routinely checked to assure accuracy. Instruments must meet the specifications of the methodology for the analysis being performed and must be maintained, monitored, and calibrated to assure accuracy.

B. The laboratory must follow a written plan of quality control assurance. The plan must describe policies and procedures used to.

- (1) track soil samples from time of receipt to analysis;
- (2) calibrate instruments, including frequency;
- (3) maintain functional equipment, including routine maintenance procedures and schedules, and

(4) check internal quality control

Statutory Authority: *MS s 18C.141*

History: *19 SR 218*

1512.0040 MINIMUM PERSONNEL STANDARDS.

Each laboratory that performs soil analysis must be supervised by persons who are responsible for the training and supervision of the laboratory staff. The supervisor must meet one of the following qualifications:

A. be a graduate of an accredited college with a bachelor of science degree and a graduate in one of the chemical, engineering, physical, or biological sciences; or

B have five years prior experience in the supervision or operations of a laboratory that performs soil analysis.

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0045 RECORDS.

Records of sample receipt, sample analysis, soil fertility recommendations, and internal quality assurance must be maintained for at least one year.

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0050 APPROVED SOIL ANALYSIS METHODS AND PROCEDURES.

Soil analysis methods and procedures must be those applicable to Minnesota soils and conditions that are set forth in the most recent edition of the Recommended Chemical Soil Test Procedures for the North Central Region, North Central Regional Publication 221. This publication is incorporated by reference, is not subject to frequent change, and is available from the Minnesota State Law Library, the Minnesota Department of Agriculture, Division of Agronomy Services, or the Soil Testing Laboratory, University of Minnesota, St. Paul.

Alterations in procedures which maintain the integrity of the analytical method are allowable if the check sample analytical data is within the one standard deviation from the mean range as denoted in part 1512.0065, subpart 6, and as specified in the North Central Regional Publication 221

Statutory Authority: *MS s 18C.141*

History: *19 SR 218*

1512.0055 SOIL ANALYSIS METHOD OR PROCEDURE VARIANCE.

The department may grant a variance from requirements of part 1512.0050. To request a variance, a laboratory must provide a written request to the department including

A. the specific methods or procedures for which the variance is being sought including analytical methodology,

B reasons for the request, and

C. documentation and research to show correlation of analytical data to crop response and interpretation of the soil analysis to provide fertilizer recommendations for Minnesota soils and conditions.

The department shall review information submitted with the variance request in consultation with the soil testing advisory panel according to part 1512.0075. The department shall grant or deny the variance within 100 working days of receipt of the request. Analytical methods or procedures that have been granted a variance may be used by any laboratory requesting initial or renewal certification. Analytical methods or procedures that have been granted a variance must be published in the yearly certification program report and provided by any laboratory requesting certification. The department shall send written reasons for a denial of a request for variance within 100 working days of receipt of request.

Statutory Authority: *MS s 18C.141*

History: *19 SR 218*

1512.0060 APPEAL OF ADMINISTRATIVE DECISION.

The department shall notify a laboratory in writing of the reasons for a decision to deny a variance or to deny, suspend, or revoke certification. The laboratory has 30 days from the date of receiving notice of the decision to appeal the decision. A request to appeal the decision must be in writing to the department, must indicate the facts the laboratory disputes, and must be signed by the laboratory supervisor. The appeal may include a request for a personal meeting with the department for purposes of discussing disputed facts and findings. The department must consult with the advisory panel regarding the appeal. The department shall accept or deny the appeal and respond to the laboratory making the appeal within 100 working days of receipt of the request.

Statutory Authority: *MS s 18C.141*

History: *19 SR 218*

1512.0065 ANALYZING CHECK SAMPLES AND ANALYTICAL DATA FOR GRANTING CERTIFICATION.

Subpart 1 Minimum laboratory analytical methods for laboratory certification. Laboratories desiring certification must analyze the check samples for the following parameters as a minimum requirement. Bray or Olsen phosphorus, potassium, nitrate-nitrogen, pH, and organic matter. Any remaining analysis methods, as recognized by North Central Regional Publication 221, are required only if soil fertility recommendations are made. Each check sample must be handled and analyzed in duplicate for all analysis methods and procedures for which the laboratory is requesting initial or renewal certification. Duplicate check samples must be analyzed on different days and reported as individual results.

Subp. 2 Reporting units on check sample analysis report. Analytical data of check samples must be reported in elemental form as follows:

A. nitrate-nitrogen, phosphorus, potassium, sulfate-sulfur, chloride, calcium, and magnesium to the nearest part per million (ppm),

B. organic matter to the nearest tenth of a percentage,

C. pH and buffer pH to the nearest tenth of a pH unit;

D. all micronutrients reported to the nearest tenth of a ppm, and

E. soluble salts reported to the nearest 0.1 mmhos/cm

Subp. 3 Check sample processing and handling. Check samples, other than blind check samples referred to in subpart 7, must be processed and prepared by the department or by a person under contract with the department according to approved soil analysis methods and procedures. Check samples must be shipped in secure containers and be ready for analysis upon receipt.

Subp. 4 Initial certification check samples. Upon receipt of the application form and application and certification fees, the department shall send eight check samples for analysis. Check samples, accompanied by analysis data forms and instructions, must be sent by the department to a laboratory applying for initial certification between September 1 and December 31. The laboratory must submit analytical data to the department within 30 days of receipt of the check samples. Analytical data submitted after this deadline must be considered invalid. The laboratory may not be reimbursed for analysis costs incurred in obtaining initial certification.

Subp. 5 Renewal certification check samples. Laboratories applying for renewal certification must analyze two sets of four check samples on a semiannual basis. Check samples, accompanied by analysis data forms and instructions, must be sent by the department during the following time periods: March 1 to May 1 and August 1 to October 1. The laboratory must submit analytical data to the department within 30 days of receipt of the check samples. Analytical data submitted after this deadline must be considered invalid. The laboratory may not be reimbursed for analysis costs incurred in obtaining renewal certification.

Subp. 6 Statistical guidelines for granting certification. The department shall compile analytical data submitted by laboratories for each set of check samples. Check sample analytical data from qualifying laboratories must be composited by the department to provide statistical means and standard deviations for each soil testing method. Check sample analytical data points outside the range of plus or minus one standard deviation from the mean must be noted.

Statistical guidelines for determining initial and renewal certification are

A Initial certification If more than 20 percent of a laboratory's individual check sample analytical data points are outside the range of plus or minus one standard deviation from the mean, the laboratory shall reanalyze check samples Initial certification must be denied if more than 20 percent of a laboratory's check sample analytical data points are outside the range of plus or minus one standard deviation from the mean.

B Renewal certification If more than 20 percent of the analytical data points of each set of four check samples falls outside the range of plus or minus one standard deviation from the mean, the laboratory must reanalyze the check samples The percent of analytical data points outside the range of plus or minus one standard deviation from the mean for both the analyzed and reanalyzed check samples must then be noted Once both sets of semiannual check samples have been analyzed, the composite analytical data points from both sets of check samples must be combined to determine the percent that falls outside the range of plus or minus one standard deviation from the mean Renewal certification must be denied if more than 20 percent of the total annual composite analytical data points falls outside the range of plus or minus one standard deviation from the mean

Subp 7 **Blind soil check samples to certified and uncertified laboratories.** The department may conduct blind check samples on either certified or uncertified laboratories as stated in Minnesota Statutes, section 18C 141, subdivision 2, paragraph (d) For purposes of this subpart, "blind check sample" means a sample sent to a laboratory by the department under an assumed name, and in a manner to make it appear that the sample came from a client. Check sample preparation as stated in subpart 3 may not be required so that the identity of the sending party is not revealed The department shall bear the cost of requested analyses for blind check samples If analytical data falls outside the range of plus or minus one standard deviation from the mean, the department shall consult with the laboratory concerning the discrepancy or inaccuracy of the blind check samples analytical data produced by the laboratory

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0070 REPORTING CHECK SAMPLE ANALYTICAL DATA, STATISTICS, AND CERTIFIED LABORATORIES.

Subpart 1 **Analytical data and statistical reporting.** The department shall compile reports of analytical data submitted by laboratories and statistics for each set of check samples Laboratories must remain unidentified on the report Each laboratory participating in the certification program must receive a copy of its own data and summary statistics

Subp. 2 **Report of certified laboratories.** The department shall compile a yearly report listing laboratories that meet the certification requirements of the Minnesota Soil Testing Laboratory Certification Program, and the analytical methods for which each laboratory is certified Annual reports must be available April 1 of each year Current lists of certified laboratories will be available from the department

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0075 ADVISORY PANEL.

The department shall appoint a soil testing advisory panel to provide recommendations on appropriate soil analytical methods and procedures for Minnesota climate and conditions, and to provide technical evaluations of requests for analytical variances The advisory panel must include representation from the Minnesota Department of Agriculture, the Agricultural Extension Service, the University of Minnesota College of Agriculture, the fertilizer industry, agricultural crop consultants, and the soil testing laboratory industry The advisory panel shall meet at least once a year Members shall serve three-year terms and have equal voting power Panel meetings must be open to the public

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0080 LABORATORY INSPECTIONS.

The purpose of laboratory inspections is to investigate the general cleanliness of the laboratory, examine equipment used in soil analysis methods and procedures, and review qualifications of personnel. Inspections of laboratories must be conducted during normal business hours by the department to determine compliance with certification requirements. Inspections may be unannounced and done on a random basis.

Statutory Authority: *MS s 18C 141*

History: *19 SR 218*

1512.0085 SOIL ANALYSIS AND SOIL FERTILITY RECOMMENDATION REPORTING.

A. Analytical data of client soil samples must be reported in elemental form as follows:

- (1) phosphorus (P), potassium (K), calcium, and magnesium to the nearest part per million (ppm),
- (2) nitrate–nitrogen, sulfate–sulfur, and chloride in pounds per acre or parts per million for the appropriate sampling depth,
- (3) organic matter to the nearest tenth of a percentage;
- (4) pH and buffer pH to the nearest tenth of a pH unit;
- (5) all micronutrients reported to the nearest tenth of a ppm; and
- (6) soluble salts reported to the nearest 0.1 mmhos/cm.

B. If a certified laboratory provides soil fertility recommendations, the University of Minnesota soil fertility recommendations or that of another land grant university in a contiguous state must be provided in addition to other recommendations, and the source of the recommendations must be identified on the soil analysis and soil fertility recommendation report form. Land grant university soil fertility recommendations must be on the same soil analysis and soil fertility recommendation report form with other soil fertility recommendations as stated by the certified laboratory. If the soil analysis and soil fertility recommendation report form consists of more than one page, the first page of the report form must conspicuously state "University of Minnesota Soil Fertility Recommendations or That of a Land Grant University in a Contiguous State Have Been Provided With This Report." A certified laboratory shall not provide soil fertility recommendations if a request from a client is made that only soil analysis information be provided on the soil analysis and soil fertility recommendation report form.

C. Certified laboratories that provide land grant university soil fertility recommendations must provide these recommendations from only one land grant university to the greatest extent possible. Land grant university soil fertility recommendations must conform to all conditions, requirements, and guidelines established for that state. Soil fertility recommendations of a land grant university from a state contiguous with Minnesota may be substituted if University of Minnesota soil fertility recommendations do not exist or if the selected soil fertility recommendations are more appropriate based on soil or climatic conditions. The origin of land grant university soil fertility recommendations from a state contiguous with Minnesota must be conspicuously stated on the soil analysis and soil fertility recommendation report form. If the certified laboratory makes a soil fertility recommendation in which no University of Minnesota or other suitable land grant university soil fertility recommendation from a contiguous state exist, the laboratory must state on the soil analysis and soil fertility recommendation report form that no land grant university soil fertility recommendations are available. Certified laboratories must update land grant university soil fertility recommendations on an annual basis.

D. Certified laboratories must be certified for any analytical method used to analyze soil for which a soil fertility recommendation is made. If a certified laboratory is not certified for a particular analytical method, this must be noted on the soil analysis and soil fertility recommendation report form. If more than one approved analytical method exists in the North Central Regional Publication 221, the analytical method used must be identified along with the soil fertility recommendation.

E. If soil analysis and soil fertility recommendation report forms are transferred and provided through computer, computer program, electronic, mail, or telephone networks

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from a certified laboratory, all requirements of parts 1512.0010 to 1512.0085 must be met. A printed copy of a soil analysis and soil fertility recommendation report form must be provided to the client of the certified laboratory.

Statutory Authority: *MS s 18C.141*

History: *19 SR 218*