

**RECOMMENDED SOIL TESTING PROCEDURES**  
**FOR THE**  
**NORTHEASTERN UNITED STATES**

*2<sup>nd</sup> Edition*

**Northeastern Regional Publication No. 493**

**Agricultural Experiment Stations of Connecticut, Delaware, Maine,  
Maryland, Massachusetts, New Hampshire, New Jersey, New York,  
Pennsylvania, Rhode Island, Vermont, and West Virginia.**

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# Foreword

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This Second Edition of the Recommended Soil Testing Procedures for the Northeastern United States is a product of cooperative work by all members of the Northeast Region Coordinating Committee on Soil Testing, NEC-67. The Committee was organized in 1986 with the objectives to improve and standardize soil testing methods, discuss recommendations, educate and provide a forum to advance the science and technology of soil testing.

Soil and plant testing has traditionally been used to determine the need for nutrients in the production of field crops. Today, the uses for soil testing information extend beyond field crop production to lawns and gardens, production of specialty crops, urban planning, and to monitoring the quality of our environment.

Since the formation of NEC-67, new tools have been developed to aid in the testing of soils and in the application of the test results. Laboratory instrumentation has been upgraded in accuracy, automation and new technologies. Most laboratory instruments are interfaced with computers and many processes are computer controlled including the use of robots. Quality assurance and quality control measures, such as sample exchanges and proficiency testing, are standard features of today's laboratories. In the field, use of remote sensing and global positioning satellites, which requires "ground truth" soils data, makes possible precision farming which incorporates site-specific features. Development of instruments for on-the-go sensing and harvest yield monitoring is expanding the use of soil testing technology.

The 1991 Edition of the Regional Soil Testing Publication received wide distribution and is an important reference document for soil testing laboratories in the northeast and other regions of the U.S. The Second Edition contains new chapters on quality assurance, cation exchange capacity, soluble salts and interpretation philosophies used by Northeastern laboratories in developing recommendations. The new Edition should receive even wider distribution due to an increased demand for soil testing information.

The Northeast Region Coordinating Committee on Soil Testing is an excellent example of cooperation for the betterment of the entire Region. This publication produced by the Committee is a good example of a product that can be used across the Region and beyond. As with most publications, a few authors accept the challenge of organizing and editing the manuscript. A special word of thanks and appreciation to Dr. Tom Sims and Dr. Ann Wolf for accepting the challenge.

Maurice L. Horton  
USDA Cooperative States Research,  
Education, and Extension Service

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## Northeast Coordinating Committee on Soil Testing (NEC-67)

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NEC-67 is sponsored by the Agricultural Experiment Stations of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia. NEC-67 representatives include:

Connecticut	Thomas Morris
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New Jersey	Joseph Heckman
New York	Stuart Klausner
New York	Shaw Reid
Pennsylvania	Ann Wolf
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Rhode Island	Michael Sullivan
Vermont	William Jokela
Vermont	Donald Ross
West Virginia	Rabinder Singh

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# Soil Testing in the Northeastern United States

*J. Thomas Sims and Ann Wolf\**

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Soil testing programs in the northeastern United States have provided a valuable service to the region for many years. Analytical methods have been developed that can rapidly assess the ability of soils to supply adequate plant nutrients for a wide variety of agronomic and horticultural crops. Economically and environmentally efficient fertilizer recommendations based on these tests are an integral part of soil testing and, as with the analytical methods, are constantly reviewed and refined through research conducted by Agricultural Experiment Stations in the Northeast.

The Northeast, however, is an diverse region, not only in terms of soils, crops and climatic conditions, but also with regard to the soil testing procedures and recommendations that have evolved since soil testing originated in this area in the early 1900's. Although in many cases this diversity is necessary, given the specific properties of soils in a particular state or nutrient requirements of crops grown only in a certain area, it was recognized in 1987 that greater cooperation between states in the Northeast could enhance the effectiveness of soil testing throughout the region. NEC-67, the Northeastern Coordinating Committee for Soil Testing was formed in response to this and has established the following objectives related to soil testing:

- (i) *To improve fertilizer recommendations based on soil test results and other soil and management factors.*
- (ii) *To provide a forum for responding to new challenges in soil testing technology and use.*
- (iii) *To improve the methods and operations of soil testing laboratories in the region.*
- (iv) *To improve Extension education efforts in soil testing.*

In 1991, NEC-67 published the first northeastern regional bulletin on soil testing methods: ***Recommended Soil Testing Procedures for the Northeastern United States***. This bulletin summarized recommended soil testing methods based on those used by northeastern soil testing laboratories. For most tests, several alternative methods were described. The intent of that bulletin was to make an initial effort to standardize, within reasonable limits, the soil testing techniques used in the Northeast. The bulletin was distributed widely throughout the Northeast and quickly became an important reference document for many state and private soil testing laboratories. In 1994, a decision was made to update this regional bulletin and to add chapters on quality assurance, cation exchange capacity, soluble salts, and perhaps most important, the interpretation philosophies used by northeastern soil testing programs to develop profitable and environmentally sound nutrient recommendations. Publication of this revised edition reflects the ongoing commitment of NEC-67 to advance the science and technology of soil testing and to enhance the role of soil testing programs in all aspects of land management in the Northeast.

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\*Delaware and Pennsylvania representatives to NEC-67