

# 2017 North American Proficiency Testing Performance Assessment Program (NAPT-PAP)

[For laboratories to be listed for 2018]

## PROGRAM INTENT

- 1) Develop a means to assess and improve laboratory performance with respect to accurate and precise analytical results using appropriate routine soil analytical methods
- 2) Continue to provide the United States Department of Agriculture Natural Resource Conservation Service (NRCS) with a means to assess laboratories for NRCS related work. This assessment requirement could also comply with other entities requiring proficiency assurance in soil, plant, and water analyses.
- 3) Continue to provide a program to assess laboratories at a reasonable cost.
- 4) Provide a flexible assessment program that other states or agencies could use in the future.

## *Overview*

The Proficiency Assessment program (PAP) is a voluntary program offered as a service through the Soil Science Society of America (SSSA), Madison, WI, and operated as a part of the North American proficiency testing program (NAPT), and is administered by the NAPT Oversight Committee. While the PAP program is offered as a voluntary service to all soil testing laboratories, this program has been adopted by the NRCS as assurance that soil test analyses are being performed using validated testing methods. The PAP program is required by the NRCS for soil analysis laboratories analyzing soils for federal government programs involved with the development of nutrient management plans in certain Western US states.

## *Procedures*

1. To be enrolled as a PAP participant, the laboratory must:
  - a) Also be enrolled in the NAPT program and fully participate in that program;
  - b) Agree to share performance results with NRCS or any other entity cooperating with NAPT;
  - c) Each laboratory is responsible for an annual fee that will be established by the NAPT Oversight Committee;
  - d) Participating laboratories must sign and adhere to a code of ethics.

- e) Agree to have their laboratory listed as being “PAP Approved.”
2. The program shall assess lab performance by grading laboratories quarterly on NAPT proficiency samples.
3. PAP-approved laboratories must submit results for a minimum of pH, P, K, and N03 analyses in every NAPT exchange. There will be an initial limited number of test methods [pH, EC, Buffer pH, P, K and Soil Organic Matter] allowed in the PAP program (Table 1). This list will be continuously reviewed by the NAPT Oversight Committee and NRCS, or any other cooperating entities and updated as needed.
4. Participating laboratories must use the proper analytical methods and associated reporting units required by the local Land Grant University to develop crop nutrient requirements in their region. Correlated test values will not be allowed for approval status, only those values derived by performing the analysis using identified methodology of the local Land Grant University is acceptable.
  - a) The participating laboratory must list the name of all soil test analytical methods and reporting units on every client report (correlated method data is not acceptable for PAP or NRCS).
  - b) The participating laboratory must disclose all analyses that have been subcontracted and identify subcontracted work on client reports. Subcontracted laboratories must meet NAPT-PAP standard.
5. Laboratories must be approved for all analyses required by the state Land Grant University in the region that they plan to provide testing for NRCS programs.
6. The NAPT-PAP program shall assess the participating laboratory soil analysis performance using quarterly NAPT sample exchange data. PAP laboratories will be graded using standards established by the NAPT Oversight Committee (table 1). These standards will be continuously reviewed by the NAPT Oversight Committee and adjusted as needed on a yearly basis.

### ***PAP Reporting Process***

Participating laboratories shall receive quarterly PAP performance statements. Following the 4<sup>th</sup> quarter each PAP laboratory shall receive a final pass/fail report. A minimum score of 80% on all submitted data and 60 % on all individual tests is required to pass and become PAP approved. Laboratories that receive a passing grade will receive a “dated” electronic NAPT-PAP seal, which may be used to advertise their PAP-approved status. The NAPT-PAP seal can be used during the subsequent year following the receiving of a PAP passing report.

### **Approved Laboratories**

A list of approved laboratories will be available on the NAPT web site and sent to NRCS or any other cooperating/interested entity for distribution. Approved

laboratories will be considered PAP approved for 1 year for only the testing methods each laboratory submitted analyses for and subsequently passed.

Laboratories must sign up annually and continue “passing” to keep PAP approval status continuous and current.

### **Failed Laboratories**

Laboratories that do not pass the performance testing, and wish to be reconsidered, must enroll again in NAPT-PAP and successfully provide four quarters of acceptable performance (80% on all data and minimum of 60% on any individual test).

Laboratories evaluated below the minimum standard will not be listed as a PAP-approved laboratory for a period of 1-year

### ***Annual PAP Enrollment***

The enrollment period for PAP is the same as when a laboratory enrolls for the NAPT proficiency program. A laboratory must submit their PAP registration papers at least 2 weeks before the first quarter NAPT proficiency samples are mailed out to laboratories.

### ***PAP Participation Costs***

Cost to participate in the annual PAP proficiency program is \$330 per year. This \$330 fee will be in addition to the standard NAPT program fees for the participating laboratory. Price may change as needed on an annual basis.

### ***Additional Conditions***

The NAPT Oversight Committee manages the PAP program and provides a list of approved laboratories (website). The NAPT Oversight Committee involvement ends with the posting of the PAP-approved laboratory on their website. However, NRCS or any other cooperating entity retains the authority to ask for a laboratory to be removed from the NAPT-posted website laboratory list as determined by the guidelines below.

NRCS may request removal for:

1. Failure to provide the required information on soil-test reports;
2. Violating the ethic statement signed by that laboratory;
3. Not provide satisfactory performance as demonstrated by NRCS-initiated (or other cooperator) randomly checked sample exchanges.

### ***NRCS-initiated sample exchange:***

NRCS will purchase NAPT soil materials for use at their discretion to randomly check laboratory performance. NRCS will randomly check laboratories to verify the PAP program is working. NRCS will work closely with the NAPT program coordinator, PAP chair and the NAPT chair when evaluating any and all laboratory performance.

Table 1. NRCS/WCC-103 Soil analysis methods and initial performance limits for the 2007-2008 NAPT –PAP program.

<b>Analysis</b>	<b>Soil Analysis Methodology<sup>1</sup></b>	<b>Limits<sup>2</sup></b>
pH <sub>sp</sub>	Saturated Paste Method, WCC-103 S-1.10	+ 0.25
pH <sub>1:1</sub>	1:1 (soil:water), Method WCC-130 S-2.20	+ 0.25
SMP/Sikora Buffer pH	SMP Buffer pH, WCC-103 S-2.50[Sikora Buffer pH Soil Sci Soc Am J 70:474-486 (2006)]	+ 0.25
Mehlich Buffer pH	Mehlich Buffer pH, WCC-103 S-2.80	+0.25
EC <sub>sp</sub>	Saturated Paste , Electrical Conductivity 25 °C, Method WCC-103 S2.30	+ 2.5 MADS or 10%
EC (1:2)	Soil water 1:2, Electrical Conductivity 25 °C, Method WCC-103 S-2.30	+ 2.5 MADS or 10%
EC (1:1)	Soil water 1:1, Electrical Conductivity 25 °C, Method WCC-103 S-2.20	+ 2.5 MADS or 10%
NO <sub>3</sub> -N	1:5 Extraction, Cd-Reduction, CTA Colorimetric, or Specific Ion Electrode. Method WCC-103 S-3.10, S-3.30, and S-3.20	+ 2.5 MADS or 10%
PO <sub>4</sub> -P Olsen	Olsen , 1:20 Extraction, Colorimetric at 880 nm Method WCC-103 S-4.10	+ 2.5 MADS or 10%
PO <sub>4</sub> -P Bray 1:7	Bray, 1:7 Extraction, Colorimetric at 880 or 660 nm. Method WCC-103 S-4.20	+ 2.5 MADS or 10%
PO <sub>4</sub> -P Bray 1:10	Bray, 1:10 Extraction, Colorimetric at 880 or 660 nm. Method WCC-103 S-4.20	+ 2.5 MADS or 10%
PO <sub>4</sub> -P Mehlich III	Mehlich III 1:10 Extraction. ICP Method WCC-103 S-4.33	+ 2.5 MADS or 10%
K Ammonim Acetate	Ammonium Acetate 1:10 Extraction, AA or ICP. Method WCC-103 S-5.10	+ 2.5 MADS or 10%
K Olsen	Olsen , 1:20 Extraction, AA or ICP, Method WCC-103 S-4.10	+ 2.5 MADS or 10%
K Mehlich III	Mehlich III, 1:10 Extraction, AA or ICP Method WCC-103 S-4.33	+ 2.5 MADS or 10%
SOM-WB	Walkley-Black, Method WCC-103 S-9.10	+ 2.5 MADS or 10%
SOM-LOI	Gravimetric Mass Loss on ignition, 2 hrs 360 °C	+ 2.5 MADS or 10%

<sup>1</sup> Soil Analytical Methods based on SOIL, PLANT AND WATER REFERENCE METHODS FOR THE WESTERN REGION, 2003

<sup>2</sup> Control limits are based on NAPT laboratory performance data and are subject to revision by the NAPT-PAP committee. The NAPT-PAP committee has the authority to widen acceptable ranges for sample analyte values that may test low or very low. The **PAP committee** will be comprised of a minimum of the, NAPT -PAP program coordinator, PAP sub committee chair, and NAPT chair.

***Complaints, Grievances, and Appeals.***

Laboratories with grievances during the four quarter proficiency testing should immediately contact the NAPT- PAP coordinator and try to remedy the problem. When the laboratory feels they have not gotten immediate or satisfactory results they should contact either the PAP or/and the NAPT chair. The NAPT/PAP chairs will work with the PAP sub-committee and NAPT -PAP program coordinator to quickly remedy complaints. A final decision for all complaints will be made within 30 days of the contacting the NAPT or PAP chair.

**Current for 2017**

**NAPT PAP Program Coordinator** – Grant Cardon

**NAPT Chair** – Tony Provin

**PAP Sub-Committee Chair** – Bryan Hopkins