

**NUMBER:** WCC- 103  
**TITLE:** NUTRIENT MANAGEMENT AND WATER QUALITY  
**DURATION:** OCTOBER 1, 2001 - SEPTEMBER 30, 2006

**DESCRIPTION AND JUSTIFICATION:**

Nutrients utilized for the production of food, feed and fiber have been implicated in the general trend of decreasing water quality. In the West, competition for water among end users has heightened the awareness of potential sources of water quality degradation. Federal agencies and land grant institutions are responding to Congressionally mandated programs to identify and reduce the potentially negative impact of nutrient management on the environment. Best management practices (BMP's) are currently being developed in several western states and may be precursors of regulation of- nutrient management plans by federal agencies.

The BMP's are developed by agency and land grant scientists for implementation by extension and industry agronomists. Scrutinizing current nutrient management practices and developing better practices will provide impetus to strengthen our soil, water and plant nutrient monitoring. Quantifying nutrient cycling in natural systems may provide insight to mechanisms prevalent in managed systems. Credible soil, water and plant analytical information will be increasingly important as these data may determine nutrient application rates if nutrient management becomes regulated. The accreditation of laboratories offering analytical services on agricultural samples could significantly increase the cost of these services to the consumer, perhaps unnecessarily. The need for increased standardization of regional analytical techniques is apparent and maintained by this coordinating committee.

**OBJECTIVES:**

1. To improve nutrient management recommendations based on soil, water and plant analysis results and other management strategies in the western region by:
  - a) exchanging nutrient correlation and calibration data
  - b) working toward uniformity of recommendations across state boundaries and incorporating new analytical and interpretive methodology
  - c) coordinating research and educational projects.
  
2. To develop more effective use of soil, water, plant, compost, etc. analysis information in the following priority areas:
  - a) reducing environmental impact of nutrient application from fertilizer, manure, biosolids, etc.
  - b) assessing nutrient cycling in natural and managed systems
  - c) improving nutrient use efficiency to increase profitability
  - d) developing improved nutrient sampling methodology and recommendations
  - e) improving regional laboratory analytical accuracy and precision.

3. To improve extension education in the use of soil, water and plant analysis for environmentally sound crop production practices by:
  - a) coordinating regional efforts among government agencies, private industry and universities
  - b) encouraging communication of research needs from extension specialists and private industry representatives to government and university researchers
  - c) providing a forum for discussion of research results and subsequent regionally coordinated technology transfer.

### **EXPECTED OUTCOMES:**

The overall expected outcome of the activities of WCC-103 is to increase the ability of western Land Grant Universities to meet the needs of clientele. This will be accomplished by addressing issues across state boundaries. Activities will address current and pending challenges in nutrient management and water quality. The research, extension and private sector representation on WCC-103 allows this committee to be very effective.

Continued support of the North American Proficiency Testing Program for Soil and Plant Analysis Labs will demonstrate agriculture's effort to continually improve the accuracy of laboratory results. Accuracy of laboratory results becomes increasingly important as soil and plant testing are used as part of nutrient management programs to protect and improve water quality. The Western Regional Publication: Plant, Soil, and Water Reference Methods for the Western Region has been reviewed and an updated version will be printed. This publication will also be placed on a regional web site.

The major educational effort of the committee will be to continue holding the Western Nutrient Management Conference. This semiannual conference is scheduled for March 6 & 7, 2003 in Salt Lake City, Utah. The conference attracts university and industry personnel from across the west. The conference proceedings are published and in 2001 will be placed on a regional web site.

To improve nutrient management recommendations across state lines, the committee will produce regional nutrient management guide to improve protein management in wheat. WREP-43 Critical Nutrient Ranges for Northwest Crops will be updated to expand coverage of crops and states. An effort will be initiated to develop a soil sampling guide for the western states outlining principles/methods of soil sampling for precision agriculture.

### **INTERNAL AND EXTERNAL LINKAGES:**

See Appendix E information attached.

**EDUCATIONAL PLAN:**

The educational component of WCC-103 will focus on delivery of the latest BMPs and other technology to both educators and end users. The Western Nutrient Management Conferences and their proceedings give research and extension personnel an opportunity to share their findings across the west. These conferences also foster additional cooperative research and extension efforts.

Coordination with the North American Proficiency Testing Program and associated publications will educate the agricultural industry as well as other interested groups about continuing advances in soil and plant analysis. This effort will support soil and plant analysis programming across the region.

Planned publications outlined under expected outcomes will support state faculty and industry personnel in their ongoing educational efforts in nutrient management and water quality. The efforts of the groups producing these publications will help focus research efforts on those areas where additional data is needed. Committee meetings allows for interchange of research and extension publications produced across the west.

**GOVERNANCE:**

The process for selecting leadership and for decision making is standard.

**AUTHORIZATION:**

Signed Lee E. Sommers \_\_\_\_\_ May 15, 2001  
Administrative Advisor Date

 \_\_\_\_\_ July 18, 2001  
Executive Director, Western Director-s Association Date

**ACCOMPLISHMENTS:**

**WCC-103 (October 1, 1998 - September 30, 2001)**

WCC-103 has held two Western Nutrient Management Conferences in 1999 and 2001. Proceedings of the conferences have been published and supplied to attendees (approximately 100 per conference) and libraries.

The Western Regional Extension Publication (WREP 125) A Plant, Soil, and Water Reference Methods for the Western Region® has been reviewed and is final preparation for publishing.

The WCC-103 committee has continued to support the North America Proficiency Testing Program with enrollment of 150-170 per year.

Annual meetings of WCC-103 has led to working relationships across states that have developed into the planned activities previously reported. Activities in the first three years have developed a strong cooperative group of professionals who are dedicated to providing education and technical assistance to the agricultural industry in the west. Effort from participants led to the publishing of a guide for Nutrient Management for Onions in the Pacific Northwest, in February, 2001. The possibility of publishing two additional regional guides will be pursued, depending upon perceived needs. A regional guide on soil sampling will be drafted during the coming year.

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 Administrative Advisor: Lee E. Sommers, Colorado State University

Participant Name and E-mail Address	Institution and Department	Research					Extension			Objectives				
		CRIS Codes					FTE	Program	1	2	3	4	5	
		RPA	SOI	FOS	SY	PY								TY
Bradford D. Brown <a href="mailto:bradb@uidaho.edu">bradb@uidaho.edu</a>	University of Idaho, Department of Plant Soil and Entomolglcal Sciences	102	1599 1499	1010	0.3		0.3	0.7	Agriculture	X	X	X		
Neil W. Christensen <a href="mailto:Neil.W.Christensen@orst.edu">Neil.W.Christensen@orst.edu</a>	Oregon State Unversity, Dep. Crop and Soil Science	102	199	2061	0.1			0.1	Agriculture	X	X	X		
Dan M. Sullivan <a href="mailto:Dan.Sullivan@orst.edu">Dan.Sullivan@orst.edu</a>	Oregon State University, Dep. Crop and Soil Science							0.1	Agriculture	X	X	X		
John M. Hart <a href="mailto:John.Hart@orst.edu">John.Hart@orst.edu</a>	Oregon State University, Dep. Crop and Soil Science							0.1	Agriculture	X	X	X		
Jeff Jacobsen <a href="mailto:jejf@montana.edu">jejf@montana.edu</a>	Montana State University, Land Res. & Env. Sci.	103	210	1060	0.25	0.25		0.2	Agriculture, Natural Resources & Environment	X	X	X		
Janice Kotuby-Amacher <a href="mailto:jkotuby@mendel.usu.edu">jkotuby@mendel.usu.edu</a>	Utah State University Plants, Soils and Biomet	102	199 210	1060	0.1					X	X	X		
Rich Koenig <a href="mailto:richk@ext.usu.edu">richk@ext.usu.edu</a>	Utah State University Plants, Soils and Biomet	102	199 210	1060	0.1			0.75	Agriculture	X	X	X		
Dwayne G. Westfall <a href="mailto:Dwayne.Westfall@colostate.edu">Dwayne.Westfall@colostate.edu</a>	Colorado State University Soil and Crop Sciences	102	110	1070	0.2									
Robert Stevens <a href="mailto:stevens@wsu.edu">stevens@wsu.edu</a>	Washington State University Crop & Soil Sci	102	110	1060	0.1			0.1	Agriculture	X	X	X		
Greg Schwab <a href="mailto:gschwab@wsu.edu">gschwab@wsu.edu</a>	Washington State University Crop & Soil Sci	102	110	1060	0.1			0.1	Agriculture	X	X	X		
Ray Gavlak <a href="mailto:pfrgg@uaa.alaska.edu">pfrgg@uaa.alaska.edu</a>	University of Alaska	102	199	2000	0.1					X	X	X		

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		CRIS Codes					FTE	Program	1	2	3	4	5				
		RPA	SOI	FOS	SY	PY								TY			
Fairbanks																	
G. Stuart Pettygrove <a href="mailto:gspettygrove@ucdavis.edu">gspettygrove@ucdavis.edu</a>	University of California	102	0110	1060	0.30		1.50	0.25	Agriculture	X	X	X					
		205	0110	1060	0.05			0.10	Agriculture				X				
Tom Thompson	University of Arizona																
Bob McCaslin	New Mexico State University																
Jeff Stark	University of Idaho																
Bart Stevens <a href="mailto:wstevens@uwyo.edu">wstevens@uwyo.edu</a>	University of Wyoming Renewable Resources	102	110	1060	0.1			0.4	Agriculture	X	X	X					
Alan Blaylock	Agrium Denver, CO																
Nat Dellavalle <a href="mailto:ndellavalle@dellavallelab.com">ndellavalle@dellavallelab.com</a>	Dellavalle Labs Fresno, CA																
Al Ludwick	Potash & Phosphate Inst. Bodega Bay, CA																
Robert Miller	Colorado State University																
Terry Tindall <a href="mailto:ttindall@simplot.com">ttindall@simplot.com</a>	JR Simplot Co Pocatello, ID																
Dale Westermann	USDA-ARS	102	110	1010	0.2			0.2	Agriculture	x	x	x					

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		CRIS Codes						FTE	Program	1	2	3	4	5
		RPA	SOI	FOS	SY	PY	TY							
	Kimberly ID													
Michael C Amacher	USDA/Forest Service Logan UT													
Russell Yost <a href="mailto:rsyost@hawaii.edu">rsyost@hawaii.edu</a>	University of Hawaii Honolulu, HI	103	199	1060	0.1			0.1						
Ray Uchida <a href="mailto:ta_svcntr@avax.ctahr.hawaii.edu">ta_svcntr@avax.ctahr.hawaii.edu</a>	University of Hawaii Honolulu, HI	103	199	1060	0.1			0.1						
Robert D. Weaver <a href="mailto:r2w@psu.edu">r2w@psu.edu</a>	Penn State University Ag Econ & Rural Sociology	601	5210	3010	0.05									
TOTAL					2.3	0.3	1.8	3.3						