

Final Report
ODA Groundwater Research and Development Grants
Category 2 - 1997-98

PROJECT TITLE Writing a Winter Wheat Nutrient Management Guide for Western Oregon and Field Testing It's Principles

FUNDING: \$7180

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PROJECT RATIONALE

ODA Groundwater Research and Development Grants and funds, or in-kind materials and services, provided by UNOCAL Chemical Corp., STEEP II, Oregon State University, and growers throughout the Willamette Valley have been used to conduct on-farm winter wheat nitrogen management trials in various rotations for the past three growing seasons. The goal of these trials was to document nitrogen flux in each rotation and to determine if the nitrogen need of a winter wheat crop could be predicted through late-tillering stage soil and tissue tests. We have learned a great deal about nitrogen use by wheat through these trials. We have discovered that several commonly held beliefs about nitrogen fertilization of winter wheat are incorrect. We are now in a position to field test what we think we have learned, to showcase the principles in demonstration trials, and to write a [Winter Wheat Nutrient Management Guide for Western Oregon](#) to replace the current fertilizer guide (FG 9).

PROJECT OBJECTIVES

1. To work with interested county extension agents, growers and agricultural field representatives to establish on-farm trials to test the accuracy of a late-tillering stage tissue and soil test nitrogen need prediction model.
2. To develop a set of plots that can be used to demonstrate nitrogen management effects for educational purposes.
3. To write a winter wheat nutrient management guide for western Oregon.

RESULTS

Model Testing and Demonstration and Teaching Plots

Mr. Dost Mohammad Baloch has done the fieldwork and data analysis associated with the project over the past three growing seasons as part of his [Ph.D. thesis](#). A copy of the second chapter of his thesis, the chapter that deals specifically with the nitrogen fertilizer need prediction model is enclosed. It is the best and most complete summary of this project at this time. The model looks very promising! Mr. Baloch will defend his thesis on July 31, 1998, and a final copy of his thesis will be provided to ODA. Other chapters in his thesis deal with nitrogen mineralization and nitrogen uptake in wheat in western Oregon and may be of use in ODA programs.

Winter Wheat Nutrient Management Guide

Ernie Marx, Extension Cereals Project Research Assistant, has taken Mr. Baloch's thesis work and combined it with other data to write a new nutrient management guide for winter wheat in western Oregon. A draft copy of this publication is attached. It will be submitted for departmental review shortly and will also be shared with western Oregon county agents on September 18, 1998. During this meeting we will discuss strategies on how to widely distribute this information and encourage growers to experiment with the management procedures recommended.

ANTICIPATED ACCOMPLISHMENTS

One Ph.D. thesis, three journal articles and an extension nutrient management guide.