

ARIZONA GRAIN RESEARCH AND PROMOTION COUNCIL
PROJECT PLAN/RESEARCH GRANT PROPOSAL

Project No.

Calendar Year: 2003 Anticipated Duration: 11/03 to 11/04

This Project is: New

Project Leader: Mike Ottman

Location: Maricopa Agricultural Center

Project Title: Fluctuation in Lower Stem Nitrate Concentration in Small Grains

Problem and Its Significance: The lower stem nitrate concentration is used as a guide for fertilization for small grains in Arizona. In the 2002-2003 growing season, the lower stem nitrate concentration was tested at heading, in particular, as a guide for achieving adequate grain protein concentration. The Desert Wheat Growers provided this test as a service to their members. Questions about the fluctuation of lower stem nitrate between irrigations were asked that we do not have data to provide a good answer for. Is the timing of the sampling of the stem in relation to the irrigation cycle a factor in the stem nitrate concentration?

Objectives: Document fluctuation in lower stem nitrate content in small grains between irrigations.

Project's Benefit to Industry: Provide more accurate stem testing procedure to optimize yield and grain protein.

Plans and Procedures: The lower portion of the stem of barley and durum grown at the Maricopa Agricultural Center will be sampled and measured for nitrate. The sampling will occur twice per week starting at the 3-leaf stage and ending near flowering. The crop will be irrigated at about 50% depletion of plant available soil moisture and fertilized with about 250 lbs N/acre. A graph will be generated showing nitrate concentration in the lower stem and fertilization and irrigation events.

Technology and Information Transfer to Industry: Small grain nitrogen fertilizer recommendations using lower stem nitrate content as a guideline and adjusted for sample timing between irrigations, if necessary.

Budget: \$4000

Operations	\$3500
Travel	<u>500</u>
Total	\$4000