

DATE: November 9, 1995

**A PROGRESS REPORT OF THE 1994 - 1995 M-P-A WT™ TREATMENT
TO DRY LAND WINTER WHEAT. (In pre-plant aqua ammonia application)**

TITLE: *Effect of M-P-A WT™, a combination of humic acid, bio-growth stimulants & micro nutrient fertilization, on yield, quality, and nutrient utilization of wheat. (Pre-plant aqua ammonia -1yr of 3yr study)*

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SIGNIFICANT ACCOMPLISHMENTS:

Field plot work completed for year 1 of 3 for the method of applying treatment in the preplant of aqua ammonia. All data except mineral concentration and plant uptake analyzed.

FUNDING HISTORY:

Year Initiated: 1994
Funding for 1994 - 1995, this donor: \$2,500

OBJECTIVE: How additions of micro-nutrients and plant growth stimulants (M-P-A WT™), coupled with aqua ammonia and thio-sol , placed at pre-planting time (prior to the actual plant time), by the method of "Culkins 56' cultiweeder".

EXPERIMENTAL DESIGN

DESCRIPTION OF TEST PLOT

- Location: T 23 N. R 36 E. Sec14, East of Harrington, in the county of Lincoln, Washington State.
- Crop: Winter Wheat Variety: Madson/Rod mix - 50:50 mix
- Application date (Pre-plant): July 10, 1994
- Planting Date: September 10, 1994
- Seeding Rate: 60 pounds an acre
- The field was seeded North to South.
- Plot size: 1,200 acres with 1,140 acres treated & 60 acres un-treated
- Conditions at Planting
 - Air temperature - 82° F
 - Wind direction & Speed- 5-10 North
 - Soil Temperature was 65° F
 - Soil Moisture - Dry.
- Average Rain Fall for this topographical region: 12-14 inches.
- The study is in the middle of a drought, previous crop year brought 9.86 inches of moisture.
- Actual Rainfall for 1994 crop: 9.73 inches. *(below average)
- Tillage: Conventional tillage
- Field:
 - The ground selected was rolling terrain.
 - Soil type was sandy loam.

DESCRIPTION OF TEST AREAS

The test field was divided into two plots. One plot (A) consisting of 1,140 acres was treated with M-P-A WT™. The second plot (B), the control, contained of 60 acres

	WEST		
TOTAL TEST AREA: 1,200/ac	TREATMENT - 1,140 ACRES	PLOT (A)	
	CONTROL - 60 ACRES	PLOT (B)	
	EAST		

APPARATUS

1. **John Deere 16 inch Deep furrow**
 - a. Spacing 16 inches
 - b. Speed: 3.4
 - c. Depth: 3 inches
2. **Harvester**
 - a. John Deere 6602 used on plots A & B.
3. **Injection Set up: Calkins cultivator 12" spacing**
 - a. Depth: 4"
 - b. Speed: 4-5
 - c. Nozzle/Injector type: blumhardt
 - d. Pressure: 30 +

4. Pak Tank - The holding vessel for the solutions used for treatment.

- a. The type of tank used was a 1000/gal Backpacker.
- b. It was a 1000 gallon split tank/splits were 700-300.
- c. The tank was pulled behind tractor in front of cultivator.
- d. The vessel had constant agitation via a by-pass valve from the pump.
- e. Volume: 40/gal. of aqua & 10/gal. of thio-sol
- f. Spacing 12"

TREATMENT DESIGN

Plot No	Treatment/Control	Treatment
Plot A	TREATED	Three (3) quarts of M-P-A WT™ per acre
Plot B	CONTROL	No M-P-A WT™ per acre
Plots A & B	Treated & Control	<ol style="list-style-type: none"> 1. 60 pounds of Nitrogen per acre using aqua ammonia 2. 10 pounds of Sulfur using 12-0-0-26 per acre 3. Spring Top-dress: 10#'s of N derived from Urea.

Pesticides were used throughout all plots which included; Three quarters of a pint of MCP ester, 1 quart of Spreader 90 by United Agri Products per 100 gallons, Banvil SGF at 6 oz per acre, Amber at 0.28 oz per acre and 10 pounds of Urea per acre.

THE EVALUATED VARIABLES

1. Root Mass
2. Number of Tillers
3. Plant Color
4. Yield
5. Grain Test Weights

RESULTS**YIELDS:**

Plot (A) M-P-A Treatment	Two 0.635 acres were measured and cut out of the treated plot	Yield Bushels/Acre
		67.89
		68.23
		Average = 68.06
Plot (B) Control	Three 0.635 acres were measured and cut out of the control plot	57.17
		57.59
		57.56
		Average = 57.44

The yield difference between the treated and the control was 10.59 bushels of wheat per acre. The data is shown in Figure 1.

ROOT MASS:

Though no empirical data was collected, visual comparisons of the root system throughout the length of the trial showed that the root mass of the treated plants was larger than that of the untreated plants.

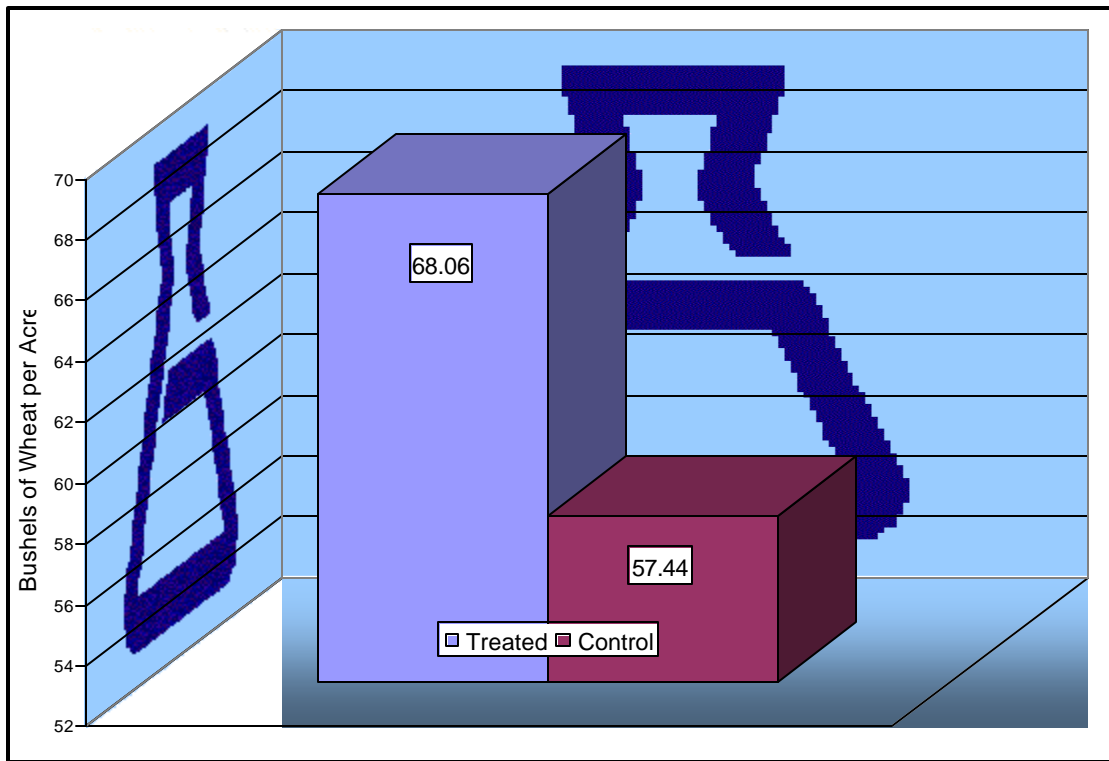


Figure 1. The yields, in bushels of wheat per acre, of the control and treated plots. The values are of a single harvest sample. The treated plants received three quarts of M-P-A WT™ per acre added to the aqua-ammonia during pre-plant fertilization.

TILLERS PER PLANT

No data was collected.

COLOR DIFFERENCES

The control and treated plots were evaluated visually several times over the season. The treated plants were consistently darker green than the untreated plants.

TEST WEIGHT

Plots A & B both were tested for test weight. Both plots were graded as number 1

DISCUSSION

The application of M-P-A WT™ with aqua-ammonia at pre-plant for dry land winter wheat resulted in an increase in yield. The average increase was 10.6 bushels per acre. There was no loss in quality. The plants appeared greener throughout the season.