

Project Title: Plant growth regulator effects on spring wheat height and agronomic performance (4W3644)

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Objectives: To determine the effect of spring wheat growth stage on the activity of Cerone and Palisade plant growth regulators.

#### Results:

This study was conducted in a field which had been in alfalfa for the past four years and was fertilized with 150-30-120-24 lb/A of N-P-K-S. 'Scholar' spring wheat was planted into a conventionally tilled seed bed on April 23. The seed was planted two inches deep, on six inch row spacing's, at a rate of 75 lb/A.

The factorial experiment consisted of two plant growth regulators (PGR's) applied at five growth stages. Cerone and Palisade plant growth regulators were applied at 8 oz/A and 7 oz/A, respectively, in 20 GPA using a backpack sprayer equipped with Teejet XR11002 nozzles. Applications were made to spring wheat at jointing, flag leaf, booting, heading and water ripe stages of development. The experimental design was a randomized complete block, with three replications.

Both compounds reduced wheat height when applied at flag leaf and boot growth stages, reducing plant height by more than 6 inches. In general, yield was not affect by either product, regardless of application timing. However, Cerone applied at heading resulted in a slight yield increase. Neither product had any effect on kernel weight, protein, PPO, or grain moisture content. There was a trend for increased test weights when Palisade was applied at the last three stages of growth.

#### Summary:

Overall, both compounds reduced wheat height without adversely impacting grain yield or quality in the absence of lodging pressure.

Funding Summary: Budget information to be provided by OSP. No other grant support for this project.

MWBC FY2011 Grant Submission Plans: Resubmittal is planned.

Table 1. Effect of Plant growth regulators on spring wheat yield and quality, Kalispell, MT 2011.

Treatment	Timing	Yield (bu/A)	Test wt. (lb/bu)	TKW (g)	Protein (%)	PPO	Moist. (%)	Height (inches)
Check		69.1	61.5	38.0	15.1	0.263	11.0	39.9
Palisade	Joint	64.7	61.9	38.0	15.1	0.246	11.1	37.1
Palisade	Boot	61.3	62.1	38.5	15.2	0.228	10.9	31.2
Palisade	Flag	72.3	62.7	37.1	14.9	0.287	11.0	32.4
Palisade	Head	69.8	62.3	37.3	15.2	0.328	10.9	35.4
Palisade	W. ripe	67.6	62.8	37.4	14.9	0.316	11.0	38.5
mean		67.5	62.2	37.7	15.1	0.278	11.0	35.8
Check		70.1	61.7	36.7	14.9	0.231	11.0	38.5
Cerone	Joint	66.7	61.9	38.4	14.8	0.273	11.1	37.7
Cerone	Boot	73.8	62.0	37.7	14.9	0.304	11.0	35.3
Cerone	Flag	70.9	62.0	37.3	15.1	0.270	10.8	32.9
Cerone	Head	77.0	62.3	37.0	14.8	0.311	11.0	35.0
Cerone	W. ripe	67.6	62.0	38.1	14.9	0.270	11.0	38.6
mean		71.0	62.0	37.5	14.9	0.276	11.0	36.3
Overall Mean		69.2	62.1	37.6	14.9	0.277	10.9	36.0
LSD (p=.05)		8.43	0.772	NS	NS	NS	NS	3.31
CV		7.19	0.73	5.22	2.57	18.48	1.24	5.43
Treatment Prob(F)		0.0683	0.0544	0.9882	0.9224	0.3241	0.5913	0.0002

Palisade was applied at 7 oz/A and Cerone was applied at 8 oz/A.

Planted April 23, harvested August 26, 2011.