

Plant growth regulators (PGRs) are one of the tools that can be used by farmers to manage lodging on their operations. The use of PGR in the production of cereal grains can shorten stems, increase stem diameter and stem weight. The objective of this demonstration was to evaluate the response of four commonly grown Hard Red Spring (HRS) wheat varieties to the Plant growth regulators Manipulator and Moddus. Small plot trials were conducted in 2023 at Melfort, Scott, Yorkton, Prince Albert, Outlook, and Indian Head. Treatment arrangement was a split-plot with No PGR, Manipulator, and Moddus as the main-plot and the HRS varieties AAC Brandon, AAC Alida, AAC Redberry, and AAC Starbuck as the sub-plots. Both products were applied at the recommended growth stage of BBCH 30-32 and at the recommended rate of 700mL/ac (Manipulator) and 340mL/ac (Moddus).

The 2023 conditions were hot and dry at all sites, with mean temperatures increased by 1.4-1.9 °C and cumulative precipitation at 46-70% of the long-term. Despite the conditions, trials were successfully established and harvested at all sites. When PGR was

significant, applying a PGR reduced crop height by an average of 4-8 cm, prolonged days to maturity, and reduced crop lodging compared to no PGR (Table 1). When PGR product was significant, Moddus reduced grain yield and test weight, and Manipulator reduced test weight and protein. When variety was significant, varieties performed as expected, where taller varieties had greater crop height, and varieties with lower seed weight had lower average kernel weights. There were very few varietal interactions with PGR; however, at IHARF, AAC Redberry (fair lodging) was the only variety to demonstrate significant reductions in lodging when a PGR was applied. Additionally, at Indian Head and Scott, AAC Redberry had reduced height with both PGRs, and AAC Brandon had greater height reductions with Manipulator, but the response of AAC Starbuck and AAC Alida to PGR product was not consistent between the two sites. Overall, there were very few differences in varietal response to PGRs, which suggests that these varieties responded to both PGRs in a similar manner in this one-year demonstration.

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Table 1. Effect of PGRs on crop height, days to maturity, and lodging across HRS wheat varieties in 2023. Means within a column followed by the same letter do not significantly differ ($P \leq 0.05$).

PGR	<u>Melfort</u>	Yorkton	Scott	Prince Albert	Outlook	Indian Head
Crop Height (cm)						
<i>p</i> -value	0.0062	0.06	0.0006	0.56	0.0174	0.0021
Manipulator	65 B	68 A	69 B	71 A	86 B	69 B
<u>Moddus</u>	66 B	71 A	67 B	71 A	86 B	72 B
No PGR	72 A	77 A	74 A	73 A	90 A	77 A
Days to Maturity						
<i>p</i> -value	0.41	0.80	0.35	0.81	1.00	0.0184
Manipulator	95 A	97 A	88 A	89 A	91 A	90 A
<u>Moddus</u>	94 A	97 A	90 A	88 A	91 A	89 AB
No PGR	95 A	97 A	89 A	87 A	91 A	89 B
Lodging (0-9)						
<i>p</i> -value	--	0.0429	--	0.38	--	0.0081
Manipulator	0	0.3 B	0	0.4 A	0	0.0 B
<u>Moddus</u>	0	0.3 B	0	0.3 A	0	0.0 B
No PGR	0	0.9 A	0	0.2 A	0	0.2 A