

# MANIPULATOR

## PGR



Manipulator adjusts apical dominance to create more uniform height with main and tiller heads while strengthening and shortening straw to reduce lodging and improve harvest. For growers looking to increase fertility and boost yields, Manipulator is a game changer.

### MAXIMIZE YIELD.

- + More efficient nutrient transfer increases yield

### INCREASE FUNGICIDE EFFICACY.

- + Uniform flowering increases T3 (head timing) fungicide efficacy

### FASTER HARVEST.

- + Improved combine speeds, reduced wear and tear, less fuel and a more efficient harvest

### LODGING RESISTANCE.

- + Shorter, stronger stems with thicker walls improve standability in adverse growing conditions

### APPLICATION FLEXIBILITY.

- + “Slow release” technology allows for application from herbicide timing to early flag leaf

### Treated vs Untreated Stems



## TRIAL RESULTS

Belchim trials 2016 - 2024	Height (cm)				Yield (bu/ac)				
	UTC	Treated	Change (cm)	Change (%)	UTC	Treated	Change (bu/ac)	Change (%)	# Trials
AAC Brandon	78.9	71.6	-7.3	-9.3%	73.8	77.3	3.5	4.8%	43
AAC Elie	75.6	69.1	-6.5	-8.6%	75.1	78.7	3.6	4.0%	5
AAC Hockley	72.4	73.5	1.1	1.5%	70.7	73.8	3.1	4.3%	3
AAC Hodge	78.1	75.2	-2.8	-3.6%	69.5	71.4	1.9	2.7%	3
CDC Landmark VB	79.4	70.9	-8.5	-10.7%	73.5	76.8	3.3	5.0%	13
AAC Leroy	103.5	97.8	-5.7	-5.5%	43.4	45.2	1.8	4.1%	1
AAC Starbuck	74.8	72.6	-2.2	-2.9%	83.8	86.1	2.3	2.7%	4
AC Stettler	96.4	81.4	-15	-15.5%	72.9	79.1	6.2	9.4%	4
AAC Viewfield	75.4	64.6	-10.8	-14.3%	78.3	83.5	5.2	6.5%	11
AAC Wheatland	-	-	-	-	90	94.8	4.8	5.3%	1

Even in varieties that show moderate reduction in height, plants develop stronger, thicker stems that improve standability and increase yield.



# COMBINE SPEEDS

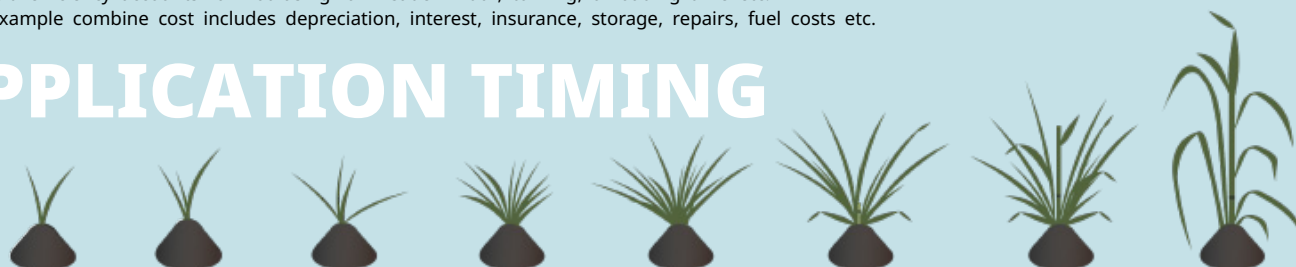
This chart outlines the cost savings with a faster harvest in a Manipulator treated crop.

Header Width	Combine Speed	Field Efficiency*	Op. Cost / hr.**	Acres / hr.	Cost per / ac.
35'	3.5 mph	80%	\$275	11.88	\$23.15
35'	4 mph	80%	\$275	13.57	\$20.26
35'	4.5 mph	80%	\$275	15.27	\$18.01
35'	5 mph	80%	\$275	16.97	\$16.21

\*Field efficiency accounts for not using full header width, turning, unloading time etc.

\*\*Example combine cost includes depreciation, interest, insurance, storage, repairs, fuel costs etc.

## APPLICATION TIMING



True Leaf Emergence			Tillering			Stem Elongation		
GS 10	GS 12	GS 13	GS 21	GS 22	GS 23	GS 30	GS 35	GS 39
1-leaf	2-leaf	3-leaf	1-tiller	2-tillers	3-tillers	1-node	5-nodes	Flag leaf visible
			full application window					
			herbicide timing					
						separate pass		
			split					flag timing
								split

## RATES & PACKAGING

	Spring Wheat, Durum Wheat	Winter Wheat	Oats	Barley
Standard Rate	1.8 L/Ha (0.71 L/ac)	1.8 L/Ha (0.71 L/ac)	2.3 L/Ha (0.9 L/ac)	2.3 L/Ha (0.9 L/ac)
"Flex Rate"	1.25 L/Ha (0.5 L/ac)	N/A		
Split Application	0.8 L/Ha (0.3 L/ac) followed by 1 L/Ha (0.4 L/ac)		1.15 L/Ha (0.45 L/ac) followed by 1.15 L/Ha (0.45 L/ac)	
Package Size:		Case: 2 x 10 L Jugs	Drum: 56 L	Tote: 450 L

"I expect an ROI on Manipulator, but what I like is that it helps us harvest faster without worrying about lodged crop or rocks. Straw management through the combine is better allowing for improved planting conditions for our disc drill the following year." Aaron Hargreaves, Brandon MB