

**WEED CONTROL IN PROCESSING  
VEGETABLES**

**RESEARCH RESULTS – 2023**

**PREPARED FOR:  
THE ONTARIO PROCESSING VEGETABLE  
GROWERS**

## **ACKNOWLEDGEMENTS**

### **Purpose Of This Booklet**

This booklet is provided as a guide to the 2023 processing vegetable weed control research control plots. The experiments outlined in this booklet are located at Ridgetown Campus. We appreciate the funding, cooperation and assistance provided by the Ontario Processing Vegetable Growers and the Ontario Food Processors Association. As well, we would like to thank the chemical companies and their representatives, Ag Extension personnel, and other research scientists for their ideas, plant material and herbicide samples that were used in these trials. Funding for the 2023 research program was provided by:

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### **Technical Support**

Research Technician  
Kris McNaughton

Research Assistants  
Jared Jeynes  
Candace Lawton

We trust that the information provided by this research will further the science of weed control by assisting with the registration of herbicides through the minor use system. We also hope this information will be of use in the extension of proper herbicide recommendations, thereby enabling growers to achieve consistent, broad spectrum weed control with a minimum of crop damage.

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## Trial 5: Tolerance of Preemergence Tankmixes in Cucumber

**Objective:** Determine the tolerance of cucumber to preemergence applications of Sandea, Dual II Magnum, and Prowl H20.

### Materials & Methods:

**Crop:** Cucumber

Variety: Vlasstar

Planting rate: 87 500 seeds/ha

Row spacing: 75 cm

Planting date: May 30, 2023

Depth: 4 cm

Emergence date: June 6, 2023

Harvest date: July 24, 2023

**Design:** Randomized Complete Block Design

Plot width: 2.0 m

Plot length: 8 m

Reps: 4

**Field Preparation:** Fertilized with 19-19-19 to ensure trial area had 110 kg/ha actual N. Fertilizer was incorporated using an S-tine cultivator.

### Soil Description:

Sand: 49.6%

Silt: 28.4%

Clay: 22.0%

OM: 4.1%

pH: 6.2

CEC 12.4

Texture: Loam

Soil: Watford/Brady Series

### Application Information:

	A
APPLICATION DATE	June 1
TIME OF DAY	10:00 AM
TIMING	PRE
AIR TEMP (c)	30.1
RH (%)	48.6
WIND SPEED (KPH)	5.5
SOIL TEMP (c)	28
CLOUD COVER (%)	15

### Spray Equipment:

Application Method: CO2 Backpack

Nozzle Type: AIR INDUCTION

Nozzle Spacing: 50 cm (20")

Spray Volume: 200 L/ha (20 GAL/AC)

Pressure: 207 KPA (30 PSI)

Nozzle Size: ULD120-02

Boom Width: 2.0 m (79")

**Table 5.1. Effect of herbicide treatment on ‘Vlasstar’ cucumber visual injury 7, 14 and 28 days after emergence (DAE) and stand count.**

Herbicide	Rate	Visual Injury (%)			Plant Stand #/4 m
		7 DAE	14 DAE	28 DAE	
Untreated Control		0 a	0 c	0 b	47 a
Sandea	20 g/ac	0 a	1 c	5 b	46 a
Prowl H2O	890 ml/ac				
Sandea	20 g/ac	0 a	10 b	4 b	49 a
Dual II Magnum	700 ml/ac				
Prowl H2O	890 ml/ac	0 a	12 b	8 b	51 a
Dual II Magnum	700 ml/ac				
Sandea	20 g/ac	0 a	16 a	23 a	48 a
Prowl H2O	890 ml/ac				
Dual II Magnum	700 ml/ac				
LSD (P <0.05)		0	3	8	7

Note: Means followed by the same letter are not significantly different (P=0.05, LSD).

**Table 5.2. Effect of herbicide treatment on ‘Vlasstar’ cucumber yield.**

Herbicide	Rate	Yield (T/AC)					Total
		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
Untreated Control		0.57 a	0.83 a	3.95 a	3.33 a	0.61 a	9.29 a
Sandea	20 g/ac	0.84 a	0.77 a	3.86 a	3.15 a	1.17 a	9.78 a
Prowl H2O	890 ml/ac						
Sandea	20 g/ac	0.56 a	0.82 a	4.22 a	3.01 a	0.79 a	9.39 a
Dual II Magnum	700 ml/ac						
Prowl H2O	890 ml/ac	0.59 a	0.86 a	3.50 a	2.19 ab	0.64 a	7.79 a
Dual II Magnum	700 ml/ac						
Sandea	20 g/ac	0.78 a	0.82 a	2.40 a	1.23 b	0.17 a	5.40 a
Prowl H2O	890 ml/ac						
Dual II Magnum	700 ml/ac						
LSD (P <0.05)		0.25	0.35	1.66	1.34	0.77	3.15

**Conclusions:**

This trial was kept weed-free to test for the effect of preemergence Sandea, Prowl H2O, and Dual II Magnum applications on cucumber visual injury, plant stand and yield.

The 3-way combination of Sandea, Prowl H2O, and Dual II Magnum caused increased injury, compared to the untreated control, at 14 and 28 DAE. While the increased injury did not result in a decreased cucumber stand or statistically reduced total cucumber yield, there was a numerical reduction of total yield, which combined with the observed injury could be concerning.

The observed visual injury noted at 14 DAE for the 2-way tankmix of Sandea + Dual II Magnum and Prowl H2O + Dual II Magnum was greater or equal to the commercially accepted injury level of 10%, and was also greater than the untreated control. However, by 28 DAE the observed injury for these two tankmix combinations had decreased and was similar to the untreated control. No 2-way tankmix decreased plant stand or yield compared to the untreated control.