

**WEED CONTROL IN PUMPKINS &
SQUASH**

RESEARCH RESULTS – 2006

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**FOR THE ONTARIO PROCESSING
VEGETABLE GROWERS**

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Purpose Of This Booklet

This booklet is provided as a guide to the 2006 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, agextension personnel, and other research scientists for their ideas, plant material and herbicide samples that were used in these trials. Funding for the 2006 research program was provided by:

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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 1. Tolerance of Pumpkin to KIH-485 and Impact

Objective: Determine the tolerance of pumpkin to preemergence applications KIH-485 and Impact.

Materials & Methods:

Crop: Pumpkin

Variety: Appalachian

Planting rate: 5000 plants/ha

Row spacing: 3m

Planting date: May 29

Depth: 2.5 cm

Design: Randomized Complete Block Design

Plot width: 2m

Plot length: 10m

Reps: 4

Field Preparation: Trial fertilized with 400 kg/ha of 18-19-19 and 100 kg/ha of 46-0-0 on May 20.

Soil Description:

Sand: 51%

Silt: 29%

Clay: 21%

OM: 5.1%

pH: 7.1

CEC 12

Texture: Loam

Soil: Watford/Brady Series

Application Information:

APPLICATION DATE	A
TIME OF DAY	MAY 31
TIMING	10:00AM
AIR TEMP (c)	PRE
RH (%)	34
WIND SPEED (KPH)	40
SOIL TEMP (c)	2
CLOUD COVER (%)	34
CROP STAGE	90
	PRE

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: 1.5 m (60")

Table 1.1. Effect of herbicide treatment on pumpkin visual injury 7, 14 and 28 days after application, pumpkin number per plot and yield.

HERBICIDE	RATE	VISUAL INJURY			#/PLOT	YIELD T/AC
		7D	14D	28D		
1. Check (WEEDFREE)		0A	0A	0A	18A	20.1A
2. IMPACT	22.5 ML/AC	0A	0A	0A	16A	15.7AB
3. IMPACT	45 ML/AC	0A	0A	0A	19A	19.9A
4. KIH-485	100 G/AC	0A	0A	3A	16A	15.1AB
5. KIH-485	200 G/AC	0A	0A	6A	12A	12.5B
LSD (P <0.05)		0	0	8	5	4.8

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

Conclusions:

This trial was kept weed-free to test for the effect of preemergence applications of Impact and KIH-485 on visual injury, height, dry weight and yields of pumpkin. Impact is a new broadleaf corn herbicide with activity on pigweed, lambsquarters and other broadleaf weeds, while KIH-485 is a residual grass corn herbicide.

No visual injury was noted in the Impact treatments. Though some initial growth distortion was observed in the KIH-485 treatments, the pumpkins did not show commercially unacceptable injury. Impact did not reduce the number of pumpkins per plot or yield. Significant reductions in pumpkin number and yield were observed at the high rate of KIH-485.

Dual II Magnum was registered in pumpkin at a rate of 0.47 L/ac, applied either soil applied or postemergence to pumpkins at the 1-2 leaf stage, but before weed emergence (URMULE 2006-0335).

Trial 2. Tolerance of Squash to KIH-485 and Impact

Objective: Determine the tolerance of pumpkin to preemergence applications KIH-485 and Impact.

Materials & Methods:

Crop: Squash

Variety: Teye Belle

Planting rate: 5000 plants/ha

Row spacing: 3m

Planting date: May 29

Depth: 2 cm

Design: Randomized Complete Block Design

Plot width: 2m

Plot length: 10m

Reps: 4

Field Preparation: Trial fertilized with 300 kg/ha of 18-19-19 and 250 kg/ha of 27-0-0 on May 29/04.

Soil Description:

Sand: 51%

Silt: 29%

Clay: 20%

OM: 5.1%

pH: 7.1

CEC 12

Texture: Loam

Soil: Tavistock

Application Information:

APPLICATION DATE	A
TIME OF DAY	MAY 31
TIMING	10:00 AM
AIR TEMP (c)	PRE
RH (%)	34
WIND SPEED (KPH)	40
SOIL TEMP (c)	2
CLOUD COVER (%)	34
CROP STAGE	90
	PRE

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: 1.5 m (60")

Table 2.1. Effect of herbicide treatment on squash visual injury 7, 14 and 28 days after application, squash number per plot and yield.

HERBICIDE	RATE	VISUAL INJURY			#/PLOT	YIELD T/AC
		7D	14D	28D		
1. Check (WEEDFREE)		0B	0B	0B	51A	20.8AB
2. IMPACT	22.5 ML/AC	0B	0B	0B	51A	21.3AB
3. IMPACT	45 ML/AC	0B	0B	0B	51A	22.0A
4. KIH-485	100 G/AC	0B	0B	0B	45A	20.0AB
5. KIH-485	200 G/AC	13A	14B	9A	45A	16.4B
LSD (P <0.05)		2	3	3	5	6.5

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

Conclusions:

This trial was kept weed-free to test for the effect of preemergence applications of Impact and KIH-485 on visual injury, height, dry weight and yields of squash. Impact is a new broadleaf corn herbicide with activity on pigweed, lambsquarters and other broadleaf weeds, while KIH-485 is a residual grass corn herbicide.

No visual injury was noted in the Impact treatments, and Impact did not reduce the number of squash per plot or yield. Growth distortion and reductions were observed at the 2X rate of KIH-485. Though squash number was not significantly reduce, there was a significant yield reduction at the high rate of KIH-485.

Dual II Magnum was registered in pumpkin at a rate of 0.47 L/ac, applied either soil applied or postemergence to pumpkins at the 1-2 leaf stage, but before weed emergence (URMULE 2006-0335).