ACKNOWLEDGEMENTS

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:

- Ontario Processing Vegetable Growers
- Ontario Food Processors Association
- Summer Job Service 2006
- Summer Career Placements 2006
- Agriculture & Agri-Food Canada
- Agchemical Companies

Technical Assistants

- Research Technician: Dave Bilyea, Kristen McNaughton
- Research Assistants: Michelle Verbeek, Kyle Vink, Jamie Lynn Lather, Darcy Vink, Sean Vink

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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<td>6</td>
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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 date: May 29
Planting rate: 5000 plants/ha  Depth: 2.5 cm
Row spacing: 3m

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%  OM: 5.1%  Texture: Loam
Silt: 29%  pH: 7.1  Soil: Watford/Brady Series
Clay: 21%  CEC 12

Application Information:

Application Date: MAY 31
Time of Day: 10:00AM
Timing: PRE
Air Temp (°C): 34
RH (%): 40
Wind Speed (KPH): 2
Soil Temp (°C): 34
Cloud Cover (%): 90
Crop Stage: PRE

Spray Equipment:

Application Method: CO2 Backpack  Pressure: 207 KPA (30 PSI)
Nozzle Type: AIR INDUCTION  Nozzle Size: ULD120-02
Nozzle Spacing: 50 cm (20")  Boom Width: 1.5 m (60")
Spray Volume: 200 L/ha (20 GAL/AC)
Table 1.1. Effect of herbicide treatment on pumpkin visual injury 7, 14 and 28 days after application, pumpkin number per plot and yield.

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>VISUAL INJURY</th>
<th>#/PLOT</th>
<th>YIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7D</td>
<td>14D</td>
<td>28D</td>
<td>T/AC</td>
</tr>
<tr>
<td>1. Check (WEEDFREE)</td>
<td>0A</td>
<td>0A</td>
<td>0A</td>
<td>18A</td>
</tr>
<tr>
<td>2. IMPACT 22.5 ML/AC</td>
<td>0A</td>
<td>0A</td>
<td>0A</td>
<td>16A</td>
</tr>
<tr>
<td>3. IMPACT 45 ML/AC</td>
<td>0A</td>
<td>0A</td>
<td>0A</td>
<td>19A</td>
</tr>
<tr>
<td>4. KIH-485 100 G/AC</td>
<td>0A</td>
<td>0A</td>
<td>3A</td>
<td>16A</td>
</tr>
<tr>
<td>5. KIH-485 200 G/AC</td>
<td>0A</td>
<td>0A</td>
<td>6A</td>
<td>12A</td>
</tr>
</tbody>
</table>

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: Taye Belle  
Planting date: May 29  
Planting rate: 5000 plants/ha  
Depth: 2 cm  
Row spacing: 3m

*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  
Texture: Loam  
CEC 12  
Soil: Tavistock

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

*Spray Equipment:*  
Application Method: CO2 Backpack  
Pressure: 207 KPA (30 PSI)  
Nozzle Type: AIR INDUCTION  
Nozzle Size: ULD120-02  
Nozzle Spacing: 50 cm (20")  
Boom Width: 1.5 m (60")  
Spray Volume: 200 L/ha (20 GAL/AC)
Table 2.1. Effect of herbicide treatment on squash visual injury 7, 14 and 28 days after application, squash number per plot and yield.

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>VISUAL INJURY</th>
<th>#:PLOT</th>
<th>YIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7D</td>
<td>14D</td>
<td>28D</td>
<td>T/AC</td>
</tr>
<tr>
<td>1. Check (WEEDFREE)</td>
<td>0B</td>
<td>0B</td>
<td>0B</td>
<td>51A</td>
</tr>
<tr>
<td>2. IMPACT 22.5 ML/AC</td>
<td>0B</td>
<td>0B</td>
<td>0B</td>
<td>51A</td>
</tr>
<tr>
<td>3. IMPACT 45 ML/AC</td>
<td>0B</td>
<td>0B</td>
<td>0B</td>
<td>51A</td>
</tr>
<tr>
<td>4. KIH-485 100 G/AC</td>
<td>0B</td>
<td>0B</td>
<td>0B</td>
<td>45A</td>
</tr>
<tr>
<td>5. KIH-485 200 G/AC</td>
<td>13A</td>
<td>14B</td>
<td>9A</td>
<td>45A</td>
</tr>
</tbody>
</table>

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).