ROUNDUP HERBICIDE APPLIED PREHARVEST FOR PERENNIAL WEED CONTROL

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Product Development
PREHARVEST ROUNDDUP: TECHNICAL UPDATE

TECHNICAL FIT AND BENEFITS

Primary Benefit - Perennial Weed Control

Quackgrass, Canada Thistle, Perennial Sow Thistle, Milkweed, and Dandelion

Why Preharvest?

– Wider Application Window
– Ideal Timing
– Most Consistent Results
– Excellent Min-till/Direct Seeding Fit
– More Flexible Options
PREHARVEST ROUNDUP: TECHNICAL UPDATE
TECHNICAL FIT AND BENEFITS

Improved Harvest Benefits

Thorough Drydown of Crop and Weeds

- Improved Harvest Benefits
  Earlier Harvest
  More Efficient Combining
  Higher Crop Grades, Quality
- Improved Straw Management
- Reduced Annual Weed “Seedbank”
- Lower Drying/Storage Costs
**PREHARVEST ROUNDUP: TECHNICAL UPDATE**

**APPLICATION GUIDELINES**

<table>
<thead>
<tr>
<th>CROP STAGE</th>
<th>-30% S.M.C.</th>
<th>-7-14 DAYS BEFORE HARVEST</th>
<th>TYPICALLY 3-4 DAYS BEFORE SWATHING</th>
<th>-3-7 DAYS PRIOR TO LAST CUT</th>
<th>USE IN FINAL YEAR OF FORAGE STAND</th>
<th>-1-2 L/ACRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLICATION</td>
<td>GROUND ONLY</td>
<td>-1L/ACRE ROUNDUP</td>
<td>-50-100 L/ACRE WATER</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| WEED STAGE | - AS PER ROUNDUP LABEL | - SAME |

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PREHARVEST ROUNDDUP: TECHNICAL UPDATE
EFFECT OF CANADA THISTLE COMPETITION ON CROPS

* CROP YIELD EXPRESSED AS % OF WEED F'REE CHECK
Source: Ag Canada

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## Preharvest Roundup: Technical Update

### Canada Thistle Control

<table>
<thead>
<tr>
<th>ROUNDUP RATE</th>
<th>PERFORMANCE RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litres/ Ac</td>
<td>% Control (# Trials)</td>
</tr>
<tr>
<td>1</td>
<td>92. (21)</td>
</tr>
</tbody>
</table>

**MAT = Months after treatment**

Source: Monsanto Research Trials 1984 - 94
# PREHARVEST ROUNDDUPTECHNICAL UPDATE

## PRE HARVEST VS. POST HARVEST

### CANADA THISTLE CONTROL

<table>
<thead>
<tr>
<th>TIME OF APPLICATION</th>
<th>ROUNDUP RATE (L/AC)</th>
<th>% CONTROL AT 1 YAT</th>
<th>CONTROL RANGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE HARVEST</td>
<td>1</td>
<td>86 (25)</td>
<td>75 - 99</td>
</tr>
<tr>
<td>POST HARVEST</td>
<td>1 - 2</td>
<td>48 (11)</td>
<td>0 - 89</td>
</tr>
</tbody>
</table>

* DENOTES # OF TRIALS

NOTE: 1 YAT = 1 YEAR AFTER TREATMENT

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TECHNICAL UPDATE

QUACKGRASS CONTROL

PERCENT CONTROL

ROUNDUP RATE (L/ACRE)

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ROUNDUP PREHARVEST PERENNIAL WEED CONTROL

ROUNDUP PREHARVEST 1 LITRE/ACRE
PREHARVEST ROUNDUP: TECHNICAL UPDATE

SUMMARY

PREHARVEST ROUNDUP TECHNICAL FIT AND BENEFITS:

PRIMARY BENEFITS:
EXCELLENT PERENNIAL WEED CANADA THISTLE (86% AT 1 YAT)
QUACKGRASS (91% AT 1 YAT)

IMPROVED HARVEST:
FASTER, EARLIER HARVEST
IMPROVED STRAW MANAGEMENT TILL FIT
HIGHER RECOVERABLE YIELDS, IMPROVED CROP GRADES/QUALITY
PREHARVEST ROUNDUP: TECHNICAL UPDATE

SUMMARY

NEW LABELS

CROP:
  FORAGES

WEEDS:
  - TOADFLAX, DANDELION

STRAW FEEDING:
  - ALL CROPS APPROVED

NEW FORMULATIONS:
  - ROUNDUP DRY