

# Soil-Applied Herbicide

May 2006

## Think Soil-Applied For Serious Weed Problems

*Half of all sugarbeet growers indicated weed control was their greatest challenge.*

Kochia was listed as the most serious weed problem by 41 percent of growers. Common Lambsquarter and Redroot Pigweed were listed as the most serious weed problems by 25 percent and 21 percent of all growers, respectively.

Soil-applied herbicides are an excellent option to achieve maximum weed control in heavy weed pressure fields. For the top 50 grower group, from 2001-2005, just over 40 percent used a soil-applied herbicide. American Crystal Sugar Company growers, as a whole, used a soil-applied herbicide 28 percent of the time.

### Use Soil-Applied Herbicides for

- Resistant Kochia control
- Some Lambsquarter species
- Powell Amaranth
- Fields with severe weed problems
- Fields with poor stands
- Other difficult-to-control weeds

Research on predicting sugarbeet root losses, done by USDA Weed Scientist E.E. Schweizer, found that growers can lose two to three tons per acre for every 10 percent loss in Kochia control. Soil-applied herbicides can greatly help growers who experience these local weed problems. A single Kochia plant per 100 feet of row can reduce yields by over five percent. Late-emerging weeds can also become a real problem as the season progresses. The use of soil-applied herbicides can reduce late season weed problems and help control ALS-resistant Kochia.

### Currently Available Soil-Applied Herbicides Include:

- Nortron SC/Ethotron
- Dual Magnum
- Ro-Neet
- Outlook/Propel
- Treflan/Trifluralin
- Fargo

### Cost Per Acre (22" Row)

(Herbicide costs may vary widely from year to year.)

Product	Rate	Broadcast	11" Band	7" Band
Nortron/ Ethofumesate (\$85/gal)	7.5 pt/A	\$80	\$40	\$27
Dual Magnum (\$96/gal)	1.67 pt/A	\$20	\$10	\$7
Outlook (\$199/gal)	21 oz/A	\$33	\$16	\$11
Ro-Neet (\$65/gal)	5.3 pt/A	\$43	\$22	\$14
Treflan (\$18/gal)	1.5 pt/A	\$3	\$2	\$1

**Nortron SC/Ethotron:** Offers broad spectrum weed control and is exceptionally good on ALS-resistant Kochia. It also offers long season control—up to 10 weeks. Weeds that do emerge are more easily controlled with post-emergence herbicides. Can be applied pre-plant incorporated (PPI), pre-emerge or tank mixed with the micro-rate. Costs for this product have declined greatly in the last four years. The relative responses for various weed species, when Nortron is applied pre-emerge, can be seen in Table 1.

**Dual Magnum:** Application methods are the same as for Nortron; however, care should be given for soil texture and organic matter content. Beet damage has occurred when soil has remained cool and wet.

Dual Magnum can be successfully used as well, although crop injury risk is greater. Research data from 2004 at NDSU is presented in Table 2. Dual Magnum gave increased Redroot Pigweed and Common Lambsquarters control over micro-rate use alone. It will improve Kochia control, but is less effective than Nortron.

Dual Magnum has been known to cause injury to seedling beets; however, pre-emerge Dual Magnum applications have caused less injury than PPI applications of Dual Magnum.



YOUR WAY TO GROW

Fertility | Variety Selection | Stand Establishment | Weed Control | Disease and Insect Control | Harvest

**Ro-Neet:** Ro-Neet is effective on Redroot Pigweed and a good choice when following potatoes or planting into fields with a Redroot Pigweed history. It is relatively safe to use and must be applied PPI to get the greatest benefit.

**Outlook/Propel:** Outlook or Propel are good herbicides for controlling Redroot Pigweed, but are weak on Kochia. These products should only be used as a lay-by treatment. Optimum timing of application is on four-leaf beets. Many times, they can be tank mixed with the third or fourth micro-rate application. If visual injury symptoms occur, they are usually temporary. Less injury occurs when applied on larger beets. Rain is needed within seven days after application to fully activate this product, however, incorporation with a light harrow or rotary hoe can increase performance.

**Treflan/Trifluralin:** Can be used when beets are about the six- to eight-leaf stage to help control late weed flushes. Post-applied Treflan should be incorporated and extreme care should be given to not allow treated soil to contact the beet crown. Deformed hour-glass beets have been observed from Treflan due to environmental conditions where the chemical is extremely active due to rain or slowed beet growth moving through the treated zone. Cost is lowest of all soil-applied products.

**Fargo:** Fargo is primarily used for Wild Oat control where post-emergence herbicides have given inadequate control.

**Table 1. NDSU Research by Dr. Alan Dexter: 2005 Weed Response to Pre-emerge Nortron**

Treatment, Pt/A	Common Lambsquarter Control Morris, MN	Redroot Pigweed Control Reynolds, ND	Kochia Control 2 locations	Sugarbeet Injury 7 locations
	weed control	weed control	weed control	injury
<b>Micro-Rate (4X)</b>	<b>80%</b>	<b>98%</b>	<b>48%</b>	<b>8%</b>
PRE Nortron 6 pt/A fb MR (3X)	85%	100%	57%	8%
PRE Nortron 7.5 pt/A fb MR (3X)	93%	100%	67%	10%
<b>PRE Nortron 6 pt/A fb MR (4X)</b>	<b>99%</b>	<b>100%</b>	<b>72%</b>	<b>11%</b>
PRE Nortron 6 pt/A fb conv. rate (4X)	100%	100%	94%	16%
LSD (0.05)	5%	NS		3%

fb = followed by MR = micro-rate

**Table 2. NDSU Research by Dr. Alan Dexter: 2004 Weed Response to Dual Magnum/Nortron**

Treatment, Pt/A	Common Lambsquarter Control Morris, MN	Redroot Pigweed Control Reynolds, ND	Kochia Control 2 locations	Sugarbeet Injury 7 locations
	weed control	weed control	weed control	injury
<b>Micro-Rate (3X)</b>	<b>72%</b>	<b>68%</b>	<b>26%</b>	<b>6%</b>
PRE Dual Magnum 2 pt/A fb MR (3X)	80%	100%	41%	16%
PPI Dual Magnum 2 pt/A fb MR (3X)	89%	97%	36%	23%
<b>PRE Nortron 7.5 pt/A fb MR (3X)</b>	<b>93%</b>	<b>100%</b>	<b>67%</b>	<b>10%</b>
LSD (0.05)	5%	5%	7%	3%

fb = followed by MR = micro-rate

**Weed Control Rating**

Product	E. Black Nightshade	Barnyardgrass	Cocklebur	Canada Thistle	Foxtail (pigeongrass)	Kochia	Smartweed	Common Lambsquarter	Common Mallow	Redroot Pigweed	Prostrate Pigweed	Common Ragweed	Russian Thistle	Sunflower, Volunteer	Wild Buckwheat	Wild Mustard	Wild Oats
<b>Nortron/Ethofumesate</b>	F-G	P	P	N	F-G	F-G	G	P-F	P	G-E	F-G	P	F-G	P	F-G	P-F	F-G
<b>Dual Magnum</b>	P	G	N	N	G	P	P	F	P	G-E	G-E	P-F	P-F	P	P	P	P-F
<b>Outlook</b>	F-G	F-G	N	N	G-E	P	P	F	P	G-E	G	P	P	N	P	P-F	P
<b>Ro-Neet</b>	F-G	G	P	N	G-E	P	P	F-G	F-G	F-G	F-G	F	P	N	P-F	P	G-E
<b>Treflan</b>	N	E	N	N	E	F	P	G	P	G	F-G	P	G	N	P	N	P

P=Poor F-G=Fair to Good G=Good G-E=Good to Excellent E=Excellent N=None

For additional information, contact your agriculturist, university specialist, crop consultant, chemical dealer or manufacturer. See the weed control section of the current Sugarbeet Pocket Production Guide. See Ag Note #481. Also, see the weed control sections of the annual Sugarbeet Research and Extension Reports.

**Web sites:** [www.sbreb.org](http://www.sbreb.org) [www.crystalsugar.com](http://www.crystalsugar.com)

