

Evaluation of burndown herbicides prior to canola

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Evaluation of burndown herbicides prior to canola

- **Current herbicide use in canola in a no-till system:**
 - Roundup burndown
 - Roundup POST in RR canola
 - Liberty POST in LL canola
 - Applied 1 or 2 times POST
 - Roundup and Liberty can also be applied as a burndown
- **This frequent use can lead to weed resistance, especially in a tight canola rotation.**
- **Glyphosate-resistant kochia and horseweed are more common now.**
- **Liberty is more effective in a warm, sunny, humid conditions.**
- **Would be helpful to have a burndown herbicide with different mode of action.**

- **Aim**
 - **Can be applied PP/PRE in canola**
 - **Limited weed spectrum**
 - **Must be applied to very small weeds**

- **Two products used as burndown herbicides in other crops:**
 - **Reviton (Helm Agro)**
 - **Elevore (Corteva) (labeled for POST use in winter rapeseed in Europe, but spring canola does not have sufficient tolerance)**

Reviton



REVITON

A nonselective burndown herbicide with the active ingredient TERGEO™

| | |
|--------------------------------|---------|
| ACTIVE INGREDIENT: TIAFENACIL* | 30.0 % |
| OTHER INGREDIENTS | 70.0 % |
| TOTAL | 100.0 % |

*methyl N-[2-[[2-chloro-5-[3,6-dihydro-3-methyl-2,6-dioxo-4-(trifluoromethyl)-1(2H)-pyrimidinyl]-4-fluorophenyl]thio]-1-oxopropyl]-β-alaninate

Reviton is formulated as a suspension concentrate (SC) and contains 2.83 pounds of active ingredient per gallon of formulated product (339 grams per liter).

EPA Reg. No. 71512-37-74530

- Helm Agro
- Group 14 PPO Inhibitor
- Common name: Tiafenacil
- Has less residual than Sharpen
- “Reviton has no preemergence activity”
- Currently has a 14-day planting interval to soybean, but will be changed to 0-day in the future.
- 0-day planting interval for corn and wheat; 30-60 days for sugarbeet
- 4-6 months for other crops
- 2024 before labeled for other crops

Reviton label

PRODUCT INFORMATION

Weed Efficacy Information:

Postemergence Activity. Reviton is a nonselective contact (burndown) herbicide used to control or suppress a broad spectrum of emerged broadleaf and grass weeds. Reviton has excellent burndown activity on most young (generally less than 5 inches tall) annual weeds and suppresses the growth of perennial weeds by desiccating green foliage.

- Reviton must be applied with an adjuvant for optimum burndown activity (refer to adjuvant section for details).
- It is essential to obtain complete coverage of target weeds for adequate weed control. Inadequate coverage of target weeds, improper application technique, and/or application to mature, large (taller than 5 inches), stressed, or mown weeds will usually result in unacceptable weed control.
- Burndown activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions, or when weeds are growing under drought or other stress conditions.

Preemergence Activity. Reviton rapidly degrades following application and as a result, Reviton has no preemergence activity.

Reviton

- **“Used to control or suppress a broad spectrum of emerged broadleaf and grass weeds”**
- **Has grass activity, good on wild oat**
- **Not as good on horseweed compared to Sharpen**

Elevore herbicide:

- Contains Halauxifen (Group 4)
- Preplant burndown
- 14 day preplant interval to canola
- Control: Horseweed, lambsquarters, pigweed, vol flax, ragweed, others
- Suppress: **Kochia**, wild buckwheat, mustards, sunflower, p. lettuce, others

Specimen Label

HALAUXIFEN-METHYL

GROUP

4

HERBICIDE



Elevore®

Arylex™ active

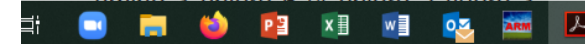
HERBICIDE

®™Trademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners

For pre-plant burndown control of annual broadleaf weeds.

Active Ingredient:

halauxifen-methyl; 2-pyridinecarboxylic acid, 4-



Project objectives

1. Evaluate canola tolerance to Reviton and Elevore applied preplant or preemergence.
2. Evaluate burndown weed control with Reviton and Elevore compared to Roundup and Liberty.

Canola tolerance to PP and PRE herbicides (2021)

| | | PP canola density | PRE canola density | DAP | Rain |
|------------------------|---------|----------------------|-----------------------|-----|------|
| Treatment ^a | Rate | 3 WAP | 3 WAP | 5 | 0.07 |
| | (fl oz) | m of row | m of row | 7 | 0.23 |
| Roundup | 32 | 6.5 | 6.5 | 15 | 0.35 |
| Reviton | 1 | 2.5 | 5.3 | 18 | 0.47 |
| Reviton | 2 | 1.3 | 4.6 | | |
| Reviton | 4 | 0.7 | 3.1 | | |
| | | | | | |
| | | | | | |
| LSD (0.05) | | 1.7 | 1.7 | | |

^a Reviton applied with AMS + MSO (8.5 lb/100 gal + 1%). Elevore applied with MSO (1%)

Canola tolerance to preplant herbicides (2021)

| | | PP canola density | PP visual injury | PRE canola density | PRE visual injury |
|------------------------|---------------|----------------------|---------------------|-----------------------|----------------------|
| Treatment ^a | Rate | 3 WAP | 6 WAP | 3 WAP | 6 WAP |
| | | m of row | % | m of row | % |
| Roundup | 32 (fl oz) | 6.5 | 0 | 6.5 | 0 |
| Reviton | 1 | 2.5 | 60 | 5.3 | 20 |
| Reviton | 2 | 1.3 | 78 | 4.6 | 42 |
| Reviton | 4 | 0.7 | 95 | 3.1 | 47 |
| | | | | | |
| | | | | | |
| LSD (0.05) | | 1.7 | 9.7 | 1.7 | 9.7 |

^a Reviton applied with AMS + MSO (8.5 lb/100 gal + 1%). Elevore applied with MSO (1%)

Canola tolerance to preplant herbicides (2021)

| | | PP canola density | PP visual injury | PRE canola density | PRE visual injury |
|------------------------|---------------|----------------------|---------------------|-----------------------|----------------------|
| Treatment ^a | Rate | 3 WAP | 6 WAP | 3 WAP | 6 WAP |
| | | m of row | % | m of row | % |
| Roundup | 32 (fl oz) | 6.5 | 0 | 6.5 | 0 |
| Reviton | 1 | 2.5 | 60 | 5.3 | 20 |
| Reviton | 2 | 1.3 | 78 | 4.6 | 42 |
| Reviton | 4 | 0.7 | 95 | 3.1 | 47 |
| Elevore | 1 | 4.9 | 11 | 5.1 | 10 |
| Elevore | 2 | 5.1 | 13 | 5.1 | 13 |
| LSD (0.05) | | 1.7 | 9.7 | 1.7 | 9.7 |

^a Reviton applied with AMS + MSO (8.5 lb/100 gal + 1%). Elevore applied with MSO (1%)

Kochia control with Reviton, Elevore, and Rup (2021)

| | | Kochia control | | |
|------------------------------|----------------|-----------------------|--|--|
| Treatment^a | Rate | Jun 3 | | |
| | (fl oz) | -----%----- | | |
| Untreated | | 0 | | |
| Roundup PM | 32 | 67 | | |
| Reviton | 1 | 45 | | |
| Reviton + Rup | 2 + 32 | 76 | | |
| Elevore | 1 | 43 | | |
| Elevore + Rup | 1 + 32 | 65 | | |
| Liberty | 29 | 83 | | |
| LSD (0.05) | | 7.2 | | |

^a Reviton applied with AMS + MSO (8.5 lb/100 gal + 1%). Elevore applied with MSO (1%). Liberty applied with AMS (3 lb)

*Applied May 27 to 0.5-2 inch kochia, 20-200 plants/ft²

Kochia control with Reviton, Elevore, and Rup (2021)

| | | Kochia control | | |
|------------------------|---------|----------------|--------|--|
| Treatment ^a | Rate | Jun 3 | Jun 10 | |
| | (fl oz) | -----%----- | | |
| Untreated | | 0 | 0 | |
| Roundup PM | 32 | 67 | 73 | |
| Reviton | 1 | 45 | 40 | |
| Reviton + Rup | 2 + 32 | 76 | 73 | |
| Elevore | 1 | 43 | 42 | |
| Elevore + Rup | 1 + 32 | 65 | 71 | |
| Liberty | 29 | 83 | 82 | |
| LSD (0.05) | | 7.2 | 5.4 | |

^a Reviton applied with AMS + MSO (8.5 lb/100 gal + 1%). Elevore applied with MSO (1%). Liberty applied with AMS (3 lb)

*Applied May 27 to 0.5-2 inch kochia, 20-200 plants/ft²

Kochia control with Reviton, Elevore, and Rup (2021)

| | | Kochia control | | |
|------------------------|--------|----------------|--------|-------|
| Treatment ^a | Rate | Jun 3 | Jun 10 | Jul 2 |
| (fl oz) | | -----%----- | | |
| Untreated | | 0 | 0 | 0 |
| Roundup PM | 32 | 67 | 73 | 25 |
| Reviton | 1 | 45 | 40 | 0 |
| Reviton + Rup | 2 + 32 | 76 | 73 | 22 |
| Elevore | 1 | 43 | 42 | 18 |
| Elevore + Rup | 1 + 32 | 65 | 71 | 23 |
| Liberty | 29 | 83 | 82 | 25 |
| LSD (0.05) | | 7.2 | 5.4 | 7.0 |

^a Reviton applied with AMS + MSO (8.5 lb/100 gal + 1%). Elevore applied with MSO (1%). Liberty applied with AMS (3 lb)

*Applied May 27 to 0.5-2 inch kochia, 20-200 plants/ft²

Summary

- **Reviton applied PP or PRE significantly reduced canola density. Would not recommend a label for canola.**
- **Elevore caused slight reduction in canola density and very slight visual injury. Plan to re-evaluate in 2022.**
- **Neither product controlled kochia.**

Future research considerations

- Products labeled in Canada:
 - Prospect (Aim + Elevore)
 - Certitude (Armezon + Bromoxynil)
 - Conquer (Vida + Bromoxynil)
 - Conquer II (Aim + Bromoxynil)