

Spring weed burndown options for sunflower



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PP/PRE burndown herbicides used in Sunflower

- Roundup (resistance to Roundup now common)
- Aim
- Spartan Charge (Spartan + Aim)
- Gramoxone

Soil-Applied Herbicides Labeled in Sunflower

Herbicide	Common Name	Kochia efficacy (residual)	
Eptam	EPTC	N-P	
Prowl	Pendimethalin	P-F	
Treflan	Trifluralin	P-F	E = 90-100
Sonalan	Ethalfluralin	P-G	G = 80-90
Dual II Magnum	Metolachlor	N-P	F = 65-80
Spartan Charge	Sulf + Carf	F-E	P = 40-65
Spartan Elite	Sulf + Metolachlor	F-E	
Authority Supreme	Sulf + Pyroxasulfone	F-E	
Anthem Flex	Carf + Pyroxasulfone	P	
Zidua	Pyroxasulfone	P	

Why were kochia or other weeds not controlled?

- **Must distinguish between emerged vs. non-emerged weeds**
- **Foliar vs. residual control**
- **Avoidance due to heavy density (need higher water volume?)**
- **Weed size (spray weeds < 3 inches tall)**
- **Environment (cold, cloudy conditions, drought stress?)**
- **Weed resistance**

Aim 1 and 2 oz
with AMS + MSO

6 DAT

Kochia sprayed
at 2-2.5"

3 reps



Aim 1 and 2 oz
with AMS + MSO

13 DAT

Kochia sprayed
at 2-2.5"

3 reps



- Roundup (resistance common)
- Aim (resistance starting)
- Gramoxone

Sunflower tolerance to PP/PRE herbicides

Herbicide Trade Name	Common Name
Spartan Charge	Sulfentrazone + Carfentrazone
Aim	Carfentrazone
Liberty	Glufosinate
Reglone	Diquat
Gramoxone	Paraquat
Elevore	Halauxifen
Pixxaro	Halauxifen + Fluroxypyr
Buctril	Bromoxynil
Armezon	Topramezone

Spartan Charge: Standard herbicide used in sunflower

Reglone: pre-harvest dessicant

Gramoxone: pre-harvest dessicant

Liberty: Primarily used POST in soybean, corn, canola. Can be used PP/PRE.

**Elevore: Used preplant in soybean. Good on horseweed, but not on kochia.
Labeled for sunflower use in Europe.**

Pixxaro: Elevore + Starane. Used PP/POST in small grains.

Buctril: Used POST in small grains and flax.

Sunflower tolerance to soil-applied herbicides (2022)

Treatment ^{ab}	Rate	Sunflower injury		
		Jun 23	Jul 28	Aug 8
	(fl oz)	%	%	%
Untreated		0	0	0
Spartan Charge	5	9	1	0
Liberty	29	0	0	0
Reglone	24	0	0	0
Gramoxone	32	0	0	0
Elevore	1	0	0	0
Pixxaro	6	0	0	0
Buctril	16	0	0	0
Roundup PM3	20	0	0	0
Buctril + Armezon	8 + 0.25	0	0	0
LSD (0.05)		1.8	NS	NS
^a All treatments applied with label-recommended adjuvants				
^b Planted and PRE applied June 3				

Future research considerations

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

Canola tolerance to soil-applied herbicides (2022)

		Injury	Injury	Yield	Test wt	Oil
Treatment ^a	Rate	Jun 23	Jul 28	Aug 31	Aug 31	Aug 31
	(fl oz)	%	%	lb/A	lb/bu	%
Roundup PM3	30	0	0	2905	51.9	41.3
Elevore	1	0	0	2780	51.9	41.1
Elevore	2	0	0	2808	51.9	41.1
Elevore + Aim	1 + 0.5	0	0	2926	52.0	41.1
Buctril + Armezon	8 + 0.25	0	0	2831	52.0	41.1
Buctril + Aim	8 + 0.5	0	0	2831	51.9	41.0
Pixxaro	6	0	0	2825	51.8	40.8
LSD (0.05)		NS	NS	NS	NS	0.34

^a All treatments applied with MSO (1%) except Roundup

2023 research plans

- **Repeat Sunflower tolerance study**
- **Evaluate kochia control**