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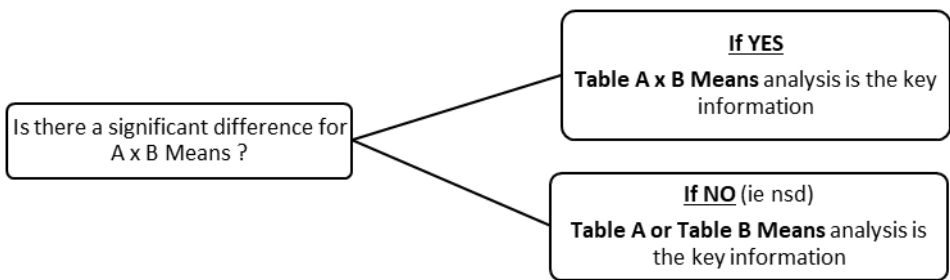
Knockdown Control of Common Sowthistle

Trial ID: **BD1906** Location: **Bective** Trial Year: **2019**
Investigator: **Branko Duric**

Objective:	To evaluate alternatives to glyphosate for the knockdown control of common sowthistle	
Situation:	Fallow	
Application:	A 1 st Knock	B 2 nd Knock
Application Date:	18/06/2019	26/06/2019
Application Timing:	Early post emergent	8 days after Application A
Weed:	Common Sowthistle	
Weed Population at Application:	1.5 plants/m ²	
Majority Weed Stage at Application:	8 leaf	
Nozzles:	AIXR110015	
Volume:	100 L/ha	
Pressure:	300 kPa	
Keywords:	Common sowthistle, knockdown, double knock, fallow	

Trial designed and analysed as a Strip Plot

	In Simple Terms
Table of A Means:	Mean of 'FIRST KNOCK' performance with ALL 'SECOND KNOCK' treatments
Table of B Means:	Mean of 'SECOND KNOCK' performance with ALL 'FIRST KNOCK' treatments
Table of A x B Means:	'FIRST KNOCK' performance with EACH 'SECOND KNOCK' treatment



NB: 2nd knock treatment was Gramoxone 1.6 L /ha + Sharpen 9 g/ha + Hasten 1%

Knockdown Control of Common Sowthistle

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Table 1 – % Burndown 8 DAA (immediately prior to second knock application)

Scientific Name				<i>Sonchus oleraceus</i>
Pest Name				Common Sowthistle
Assessment Date				26/06/2019
Assessment Type				BURNDOWN
Assessment Unit				%
Treatment-Evaluation Interval				8 DAA
ARM Action Code				AA
Trt No.	Treatment	Product Rate	Appl. Code	
1	Roundup CT	1000ml/ha	A	1g
2	Roundup CT	2000ml/ha	A	0g
3	Roundup CT	2000ml/ha	A	23ef
	Amicide 700	1600ml/ha	A	
	Hasten	1% v/v	A	
4	Amicide 700	1600ml/ha	A	22ef
	Hasten	1% v/v	A	
5	Tordon 75-D	1000ml/ha	A	13f
6	Roundup CT	2000ml/ha	A	100a
	Sharpen	17g/ha	A	
	Hasten	1% v/v	A	
7	Amicide 700	1600ml/ha	A	100a
	Sharpen	9g/ha	A	
	Hasten	1% v/v	A	
8	Group HC V	600ml/ha	A	29e
	Hasten	1% v/v	A	
9	Gramoxone	1600ml/ha	A	97b
10	Paradigm	25g/ha	A	0g
	Agritone	200ml/ha	A	
11	Group C A	2500g/ha	A	67d
	Group R R	3500ml/ha	A	
	Hasten	1% v/v	A	
12	Experimental	4000ml/ha	A	84c
	Uptake	0.5% v/v	A	
13	Pixxaro	400ml/ha	A	23ef
14	Basta	3750ml/ha	A	77cd
15	Basta	5000ml/ha	A	89bc
16	Basta	3750ml/ha	A	67d
	Amicide 700	1600ml/ha	A	
		LSD P=		9.7t
		Treatment Prob.(F)=		0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

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Key analysis information is in the Table of A x B Means

Table 2 – % Burndown 42 DAB

Scientific Name				<i>Sonchus oleraceus</i>
Pest Name				Common Sowthistle
Assessment Date				7/08/2019
Assessment Type				COUNT
Assessment Unit				/m ²
Treatment-Evaluation Interval				42 DAB
Trt No.	Treatment	Product Rate	Appln. Code	
TABLE OF A MEANS (First Knock)				
1	Roundup CT	1000ml/ha	A	0.21b
2	Roundup CT	2000ml/ha	A	0.05d
3	Roundup CT	2000ml/ha	A	0.06d
	Amicide 700	1600ml/ha	A	
	Hasten	1% v/v	A	
4	Amicide 700	1600ml/ha	A	0.00d
	Hasten	1% v/v	A	
5	Tordon 75-D	1000ml/ha	A	0.02d
6	Roundup CT	2000ml/ha	A	0.00d
	Sharpen	17g/ha	A	
	Hasten	1% v/v	A	
7	Amicide 700	1600ml/ha	A	0.00d
	Sharpen	9g/ha	A	
	Hasten	1% v/v	A	
8	Group HC V	600ml/ha	A	0.00d
	Hasten	1% v/v	A	
9	Gramoxone	1600ml/ha	A	0.16bc
10	Paradigm	25g/ha	A	0.81a
	Agritone	200ml/ha	A	
11	Group C A	2500g/ha	A	0.13c
	Group R R	3500ml/ha	A	
	Hasten	1% v/v	A	
12	Experimental	4000ml/ha	A	0.04d
	Uptake	0.5% v/v	A	
13	Pixxaro	400ml/ha	A	0.00d
14	Basta	3750ml/ha	A	0.00d
15	Basta	5000ml/ha	A	0.00d
16	Basta	3750ml/ha	A	0.00d
	Amicide 700	1600ml/ha	A	
TABLE OF B MEANS (Second Knock)				
1	First knock only	-	-	0.15-
2	Gramoxone	1600ml/ha	B	0.03-
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	

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Scientific Name				<i>Sonchus oleraceus</i>
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Assessment Date				7/08/2019
Assessment Type				COUNT
Assessment Unit				/m ²
Treatment-Evaluation Interval				42 DAB
Trt No.	Treatment	Product Rate	Appl. Code	
TABLE OF A x B MEANS (First Knock x Second Knock)				
1	Roundup CT	1000ml/ha	A	0.28bc
1b	Roundup CT	1000ml/ha	A	0.15cd
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
2	Roundup CT	2000ml/ha	A	0.09de
2b	Roundup CT	2000ml/ha	A	0.00e
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
3	Roundup CT	2000ml/ha	A	0.11de
	Amicide 700	1600ml/ha	A	
	Hasten	1% v/v	A	
3b	Roundup CT	2000ml/ha	A	0.00e
	Amicide 700	1600ml/ha	A	
	Hasten	1% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
4	Amicide 700	1600ml/ha	A	0.00e
	Hasten	1% v/v	A	
4b	Amicide 700	1600ml/ha	A	0.00e
	Hasten	1% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
5	Tordon 75-D	1000ml/ha	A	0.04de
5b	Tordon 75-D	1000ml/ha	A	0.00e
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
6	Roundup CT	2000ml/ha	A	0.00e
	Sharpen	17g/ha	A	
	Hasten	1% v/v	A	
6b	Roundup CT	2000ml/ha	A	0.00e
	Sharpen	17g/ha	A	
	Hasten	1% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	

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Scientific Name				<i>Sonchus oleraceus</i>
Pest Name				Common Sowthistle
Assessment Date				7/08/2019
Assessment Type				COUNT
Assessment Unit				/m ²
Treatment-Evaluation Interval				42 DAB
Trt No.	Treatment	Product Rate	Appl. Code	
7	Amicide 700	1600ml/ha	A	0.00e
	Sharpen	9g/ha	A	
	Hasten	1% v/v	A	
7b	Amicide 700	1600ml/ha	A	0.00e
	Sharpen	9g/ha	A	
	Hasten	1% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
8	Group HC V	600ml/ha	A	0.00e
	Hasten	1% v/v	A	
8b	Group HC V	600ml/ha	A	0.00e
	Hasten	1% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
9	Gramoxone	1600ml/ha	A	0.26bc
9b	Gramoxone	1600ml/ha	A	0.06de
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
10	Paradigm	25g/ha	A	1.28a
	Agritone	200ml/ha	A	
10b	Paradigm	25g/ha	A	0.33b
	Agritone	200ml/ha	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
11	Group C A	2500g/ha	A	0.26bc
	Group R R	3500ml/ha	A	
	Hasten	1% v/v	A	
11b	Group C A	2500g/ha	A	0.00e
	Group R R	3500ml/ha	A	
	Hasten	1% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
12	Experimental	4000ml/ha	A	0.07de
	Uptake	0.5% v/v	A	
12b	Experimental	4000ml/ha	A	0.00e
	Uptake	0.5% v/v	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	

Knockdown Control of Common Sowthistle in Fallow

Trial ID: BD1906

Location: Bective

Trial Year: 2019

Scientific Pest Name				<i>Sonchus oleraceus</i>
Pest Name				Common Sowthistle
Assessment Date				7/08/2019
Assessment Type				COUNT
Assessment Unit				/m ²
Treatment-Evaluation Interval				42 DAB
Trt No.	Treatment	Product Rate	Appln. Code	
13	Pixxaro	400ml/ha	A	0.00e
13b	Pixxaro	400ml/ha	A	0.00e
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
14	Basta	3750ml/ha	A	0.00e
14b	Basta	3750ml/ha	A	0.00e
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
15	Basta	5000ml/ha	A	0.00e
15b	Basta	5000ml/ha	A	0.00e
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	
16	Basta	3750ml/ha	A	0.00e
	Amicide 700	1600ml/ha	A	
16b	Basta	3750ml/ha	A	0.00e
	Amicide 700	1600ml/ha	A	
	Gramoxone	1600ml/ha	B	
	Sharpen	9g/ha	B	
	Hasten	1% v/v	B	

COMPLETE STRIP-BLOCK AOV						
<i>Sonchus oleraceus</i> - Common Sowthistle						
7/08/2019						
COUNT /m ²						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	95	5.586291				
R	2	0.028035	0.014017	2.148	0.1343	
A	15	3.654192	0.243613	74.191	0.0001	0.07
RA	30	0.098508	0.003284			
B	1	0.321502	0.321502	15.337	0.0594	0.13
RB	2	0.041924	0.020962			
AB	15	1.246399	0.083093	12.736	0.0001	0.13
RAB	30	0.195730	0.006524			

Assessment Type

BURNDOWN = % Burndown/brown out

ARM Action Codes

AA = Automatic arcsine square root % transformation

DAA = Days after Application A

DAB = Days after Application B

Knockdown Control of Common Sowthistle

Trial ID: **BD1906**Location: **Bective**Trial Year: **2019****Conclusions:**

This trial was conducted to evaluate alternative 1st knock options to glyphosate for the control of common sowthistle. Application was on common sowthistle at a population of ~1.5/m² at early stem elongation (70% at 8 leaf stage, 10% had side shoots visible). A 2nd knock of Gramoxone 1600 mL/ha + Sharpen 9 g/ha + Hasten 1% was applied 8 days later over all treatments.

Burndown from the 1st knock treatments was assessed 8 days after 1st knock application. Levels of burndown varied from 100% (treatments that included Sharpen) to 0% (Roundup CT 2L/ha or Paradigm + Agritone).

Surviving counts were made 50 days after the 1st knock application (42 days after the 2nd knock). Complete control was provided by first knock treatments of Amicide 700, Roundup CT + Sharpen, Amicide 700 + Sharpen, Group HC V, Pixarro, Basta (3750 or 5000 mL/ha) and Basta + Amicide 700.

The majority of 1st knock treatments provided complete control when followed by the 2nd knock application. The only double knocked treatments that did not provide complete control were those of Roundup CT at 1L/ha, Gramoxone at 1.6L/ha and Paradigm 25 g/ha + Agritone 200 mL/ha. In this situation a number of options provided at least equivalent control of common sowthistle to Roundup CT 2L/ha when applied alone or when followed with a 2nd knock of Gramoxone + Sharpen.

Application Description		
	A	B
Application Date:	18/06/2019	26/06/2019
Application Start Time:	9:30 AM	11:00 AM
Application Stop Time:	11:30 AM	12:00 PM
Application Method:	SPRAY	
Application Placement:	FOLIAR	
Air Temperature, Unit:	15 C	19 C
% Relative Humidity:	61	50
Wind Velocity, Unit:	0.5 m/s	3.2 m/s
Wind Direction:	SW	
Dew Presence (Y/N):	No	
% Cloud Cover:	95	10

Pest Stage at Each Application				
	A		B	
Pest:	Common Sowthistle			
Stage Majority, Percent:	18	70%	18	70%
Stage Minimum, Percent:	12	20%	12	20%
Stage Maximum, Percent:	21	10%	21	10%
Density, Unit:	1.5	m ²	1.5	m ²

Application Equipment		
	A	B
Application Equipment:	Polaris	
Equipment Type:	BOOM	
Operation Pressure, Unit:	300 kPa	
Nozzle Type:	AIXR	
Nozzle Size:	110015	
Nozzle Spacing, Unit:	50 cm	
Boom Length, Unit:	4 m	
Boom Height, Unit:	50 cm	
Ground Speed, Unit:	7.2 km/h	
Carrier:	WATER	
Spray Volume, Unit:	100 L/ha	