

Demonstration of new herbicide technologies in non-crop plots at Rochester , MN in 2014

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The objective of this demonstration was to show the efficacy, limitations, and management concerns with new weed control systems. The goal was to introduce the new technologies and highlight strengths and weakness of the herbicides to assist growers with more successful weed management. The trial was implemented in a non-crop situation using a randomized complete block design replicated three times. Herbicides were applied preemergence (PRE) and postemergence (POST I, POST II, and POST III) to evaluate weeds control and duration of residual activity. Engenia, 2,4-D amine, and Callisto were applied PRE, POST I (1-2 inch weeds), POST II (3-4 inch weeds), and POST III (5-6 inch weeds). Balance Pro was only applied as a PRE treatment. In total, fourteen treatments were demonstrated.

Table 1 provides application timing and environmental conditions. Table 2 provides details of each treatment. Visual differences were observed in relation to residual control, efficacy of the herbicides on large weeds, and the spectrum of weeds controlled. Photographs highlighting each treatment over time are included in this report and provide a visual story of the limitations of each treatment. The demonstration was shown and discussed during the 2014 Crop Management Field Day. (University of Minnesota Extension Regional Office, Rochester, and Southern Research and Outreach Center, Waseca, MN).

Table 1. Application timing and environmental conditions.

	A	B	C	D
Application Date:	May-6-2014	May-27-2014	Jun-6-2014	Jun-16-2014
Application Time:	4:00 PM	12:00 PM	1:50 PM	3:00 PM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	POST I	POST II	POST III
Applied By:	FRB	FRB	FRB	FRB
Air Temperature, Unit:	63.5 F	72.0 F	80.0 F	79.0 F
% Relative Humidity:	52	71	43	50
Dew Point	31	62	56	59
Wind Velocity, Unit:	9 MPH	5 MPH	5 MPH	26 MPH
Wind Direction:	ESE	VARI	SE	S
Dew Presence (Y/N):	N no	N no	N no	N no
Soil Temperature, Unit:	58.5 F	75.2 F	79.0 F	70.9 F
Soil Moisture:	NORMAL	NORMAL	NORMAL	SLIWET
% Cloud Cover:	85	95	25	100

Table 2. Herbicide treatment, rate, and growth stage or weeds at application.

Trt No.	Treatment Name	Rate	Unit	Growth Stage	Appl Code	Application Description
1	GENGENIA	25.6 fl oz/a		PRE	A	PRE
2	2,4-D AMINE	2 qt/a		PRE	A	PRE
3	CALLISTO	6 fl oz/a		PRE	A	PRE
4	BALANCE PRO	2.5 fl oz/a		PRE	A	PRE
5	GENGENIA	12.8 fl oz/a		EAPOWE	B	1-2 INCH WEEDS
	INDUCE NIS	0.25 % v/v		EAPOWE	B	1-2 INCH WEEDS
6	2,4-D AMINE	2 pt/a		EAPOWE	B	1-2 INCH WEEDS
	INDUCE NIS	0.25 % v/v		EAPOWE	B	1-2 INCH WEEDS
7	CALLISTO	3 fl oz/a		EAPOWE	B	1-2 INCH WEEDS
	COC	1 % v/v		EAPOWE	B	1-2 INCH WEEDS
	N-PAK AMS	3.3 gal/100 gal		EAPOWE	B	1-2 INCH WEEDS
8	GENGENIA	12.8 fl oz/a		MIDPOWE	C	3-4 INCH WEEDS
	INDUCE NIS	0.25 % v/v		MIDPOWE	C	3-4 INCH WEEDS
9	2,4-D AMINE	2 pt/a		MIDPOWE	C	3-4 INCH WEEDS
	INDUCE NIS	0.25 % v/v		MIDPOWE	C	3-4 INCH WEEDS
10	CALLISTO	3 fl oz/a		MIDPOWE	C	3-4 INCH WEEDS
	COC	1 % v/v		MIDPOWE	C	3-4 INCH WEEDS
	N-PAK AMS	3.3 gal/100 gal		MIDPOWE	C	3-4 INCH WEEDS
11	GENGENIA	12.8 fl oz/a		LAPOWE	D	5-6 INCH WEEDS
	INDUCE NIS	0.25 % v/v		LAPOWE	D	5-6 INCH WEEDS
12	2,4-D AMINE	2 pt/a		LAPOWE	D	5-6 INCH WEEDS
	INDUCE NIS	0.25 % v/v		LAPOWE	D	5-6 INCH WEEDS
13	CALLISTO	3 fl oz/a		LAPOWE	D	5-6 INCH WEEDS
	COC	1 % v/v		LAPOWE	D	5-6 INCH WEEDS
	N-PAK AMS	3.3 gal/100 gal		LAPOWE	D	5-6 INCH WEEDS
14	UNTREATED					

**Trt. 1 (SOA 4)
ENGENIA 25.6 oz/a
PRE Sprayed 5/6/14**



June 3, 2014



June 16, 2014

**Trt. 1 (SOA 4)
ENGENIA 25.6 oz/a
PRE Sprayed 5/6/14**



June 30, 2014

Trt. 5 (SOA 4)
ENGENIA 12.8 oz/a + Induce NIS 0.25% v/v
POST I (1-2" weeds) sprayed 5/27/14



June 3, 2014



June 16, 2014

Trt. 5 (SOA 4)
ENGENIA 12.8 oz/a + Induce NIS 0.25% v/v
POST I (1-2" weeds) sprayed 5/27/14



June 30, 2014

Trt. 8 (SOA 4)
ENGENIA 12.8 oz/a + Induce NIS 0.25% v/v
POST II (3-4" weeds) sprayed 6/6/14



June 3, 2014



June 16, 2014

**Trt. 8 (SOA 4)
ENGENIA 12.8 oz/a + Induce NIS 0.25% v/v
POST II (3-4" weeds) sprayed 6/6/14**



June 30, 2014

Trt. 11 (SOA 4)
ENGENIA 12.8 oz/a + Induce NIS 0.25% v/v
POST III (5-6" weeds) sprayed 6/16/14



June 16, 2014



June 23, 2014

Trt. 11 (SOA 4)
ENGENIA 12.8 oz/a + Induce NIS 0.25% v/v
POST III (5-6" weeds) sprayed 6/16/14



June 30, 2014

**Trt. 2 (SOA 4)
2,4-D AMINE 2 qt/a
PRE Sprayed 5/6/14**



June 3, 2014



June 16, 2014

**Trt. 2 (SOA 4)
2,4-D AMINE 2 qt/a
PRE Sprayed 5/6/14**



June 30, 2014

Trt. 6 (SOA 4)
2,4-D AMINE 2 pt/a + Induce NIS 0.25% v/v
POST I (1-2" weeds) sprayed 5/27/14



June 3, 2014



June 16, 2014

Trt. 6 (SOA 4)
2,4-D AMINE 2 pt/a + Induce NIS 0.25% v/v
POST I (1-2" weeds) sprayed 5/27/14



June 30, 2014

Trt. 9 (SOA 4)
2,4-D AMINE 2 pt/a + Induce NIS 0.25% v/v
POST II (3-4" weeds) sprayed 6/6/14



June 9, 2014



June 23, 2014

Trt. 9 (SOA 4)
2,4-D AMINE 2 pt/a + Induce NIS 0.25% v/v
POST II (3-4" weeds) sprayed 6/6/14



June 30, 2014

**Trt. 12 (SOA 4)
2,4-D AMINE + Induce NIS 0.25% v/v
POST III (5-6" weeds) sprayed 6/16/14**



June 16, 2014



June 23, 2014

**Trt. 12 (SOA 4)
2,4-D AMINE + Induce NIS 0.25% v/v
POST III (5-6" weeds) sprayed 6/16/14**



June 30, 2014

**Trt. 3 (SOA 27)
CALLISTO 6 oz/a
PRE Sprayed 5/6/14**



June 3, 2014



June 16, 2014

**Trt. 3 (SOA 27)
CALLISTO 6 oz/a
PRE Sprayed 5/6/14**



June 30, 2014

Trt. 7 (SOA 27)
CALLISTO 3 oz/a + COC 1% v/v +
N-PAK AMS 3.3 gal/100 gal
Post I(1-2" weeds) sprayed 5/27/14



June 3, 2014



June 16, 2014

Trt. 7 (SOA 27)
CALLISTO 3 oz/a + COC 1% v/v +
N-PAK AMS 3.3 gal/100 gal
Post I(1-2" weeds) sprayed 5/27/14



June 30, 2014

Trt. 10 (SOA 27)
CALLISTO 3 oz/a + COC 1% v/v +
N-PAK AMS 3.3 gal/100 gal
Post II(3-4" weeds) sprayed 6/6/14



June 9, 2014



June 16, 2014

Trt. 10 (SOA 27)
CALLISTO 3 oz/a + COC 1% v/v +
N-PAK AMS 3.3 gal/100 gal
Post II(3-4" weeds) sprayed 6/6/14



June 30, 2014

Trt. 13 (SOA 27)
CALLISTO 3 oz/a + COC 1% v/v +
N-PAK AMS 3.3 gal/100 gal
Post III(5-6" weeds) sprayed 6/16/14



June 16, 2014



June 23, 2014

**Trt. 13 (SOA 27)
CALLISTO 3 oz/a + COC 1% v/v +
N-PAK AMS 3.3 gal/100 gal
Post III(5-6" weeds) sprayed 6/16/14**



June 30, 2014

Trt. 4 (SOA 27)
BALANCE PRO 2.5 oz/a
PRE Sprayed 5/6/14



June 3, 2014



June 16, 2014

**Trt. 4 (SOA 27)
BALANCE PRO 2.5 oz/a
PRE Sprayed 5/6/14**



June 30, 2014