

# Unbelievable Success Stories of Weed Control in Potatoes

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# Linuron (Linex)

## Advantages

- Inhibitor of photosystem II, site B (group 7)
- Less potato crop tolerance issues with linuron
- Control weeds that may be hard to kill with other herbicides
- 1/12<sup>th</sup> as soluble as metribuzin

## Challenges

- No aerial application allowed
- Cost
- Doesn't work well in soils with high clay content or high OM
- Preemergence only

# Today's Focus

- Quantifying the effects of Linex + Metribuzin preemergence, at emergence, and postemergence on weed control and yield.



# Procedures

- Location: Ottertail, MN
- Planting date: 5 May 2014
  - In-row spacing: 14 inches, depth: 1 in below ground
- Emergence: 5 June 2014
- Harvest date: 23 September 2014
- Soil: 90% sand, pH 6.8, OM 1.4%
- Sprayer setup: nine-foot CO<sub>2</sub> backpack sprayer calibrated to deliver 15 gal/acre using XR11002 nozzles.

# Treatments

<b>Treatment</b>	<b>Rate</b>	<b>Date</b>	<b>Timing</b>
1 Untreated			
2 Linex 4L	12 fl oz	29 May	Preemergence
Metribuzin	0.7 lb/a		
3 Linex 4L	12 fl oz	5 June	50% Emergence
Metribuzin	0.7 lb/a		
4 Linex 4L	12 fl oz	21 June	8-10 inch tall
Metribuzin	0.7 lb/a		
5 Linex 4L	24 fl oz	29 May	Preemergence
Metribuzin	0.7 lb/a		
6 Linex 4L	24 fl oz	5 June	50% Emergence
Metribuzin	0.7 lb/a		
7 Linex 4L	24 fl oz	21 June	8-10 inch tall
Metribuzin	0.7 lb/a		

# Measurement

- Visual estimate of crop injury, biomass, chlorosis, necrosis, and weed efficacy
  - 14 and 28 DAT
- Graded yield



# Estimated Injury

Treatment	Rate	Timing	Crop injury	Crop injury	Biomass	Biomass
			14 DAT	28 DAT	14 DAT	28 DAT
1 Untreated			0c	0b	100a	100a
2 Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	PRE	0c	0b	96a	100a
3 Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	50% emergence	0c	0b	100a	100a
4 Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	8-10 in tall	50b	23a	84b	71b
5 Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	PRE	0c	0b	96a	100a
6 Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	50% emergence	0c	0b	100a	100a
7 Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	8-10 in tall	65a	19a	74c	71b



5 DAT Linex (24 oz/a) + Metribuzin (0.7 lb/a) at 8-10 inch tall  
26 June 2014, Ottertail, MN





5 DAT Linex (24 oz/a) + Metribuzin (0.7 lb/a) at 8-10 inch tall  
26 June 2014, Ottertail, MN

# Metribuzin Damage



# Chlorosis & Necrosis

Treatment	Rate	Timing	Chlorosis	Chlorosis	Necrosis	Necrosis
			14 DAT	28 DAT	14 DAT	28 DAT
1 Untreated			0c	0	0c	0c
2 Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	PRE	0c	0	0c	0c
3 Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	50% emergence	0c	0	0c	0c
4 Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	8-10 in tall	9b	0	40b	11a
5 Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	PRE	0c	0	0c	0c
6 Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	50% emergence	0c	0	0c	0c
7 Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	8-10 in tall	16a	0	53a	8b

# Chlorosis at 4 DAT



Linex (24 oz/a) + Metribuzin (0.7 lb/a) at 50% Emergence  
9 June 2014, Ottertail, MN

# Chlorosis at 4 DAT



Linex (12 oz/a) + Metribuzin (0.7 lb/a) at 50% Emergence  
9 June 2014, Ottertail, MN

# Chlorosis at 8 DAT

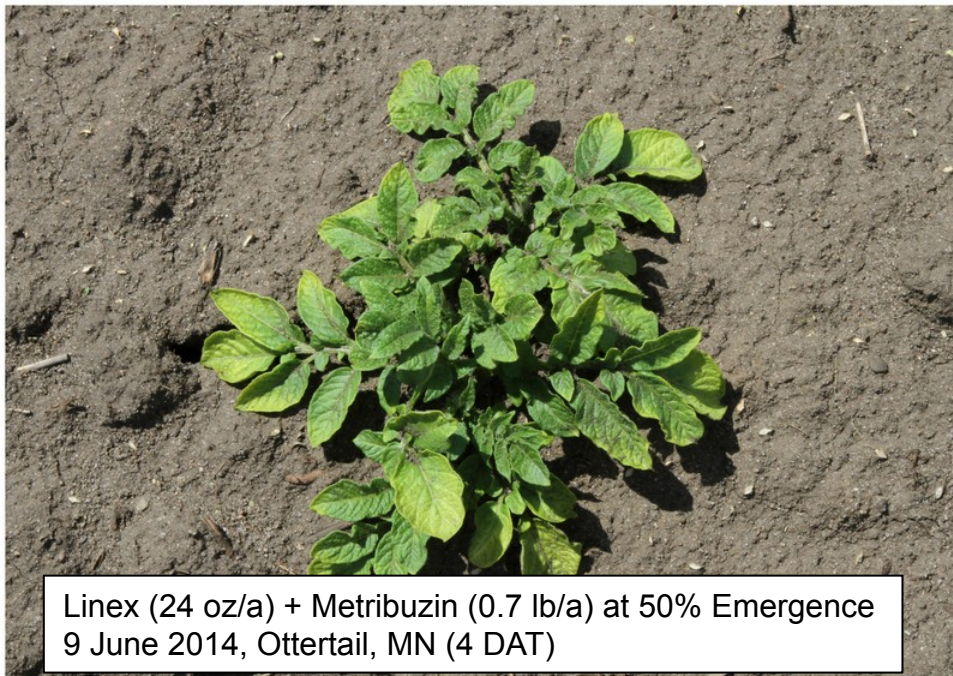


Linex (24 oz/a) + Metribuzin (0.7 lb/a) at 50% Emergence  
13 June 2014, Ottertail, MN

# Chlorosis at 8 DAT



Linex (12 oz/a) + Metribuzin (0.7 lb/a) at 50% Emergence  
13 June 2014, Ottertail, MN



Linex (24 oz/a) + Metribuzin (0.7 lb/a) at 50% Emergence  
9 June 2014, Ottertail, MN (4 DAT)



Linex (12 oz/a) + Metribuzin (0.7 lb/a) at 50% Emergence  
13 June 2014, Ottertail, MN (8 DAT)

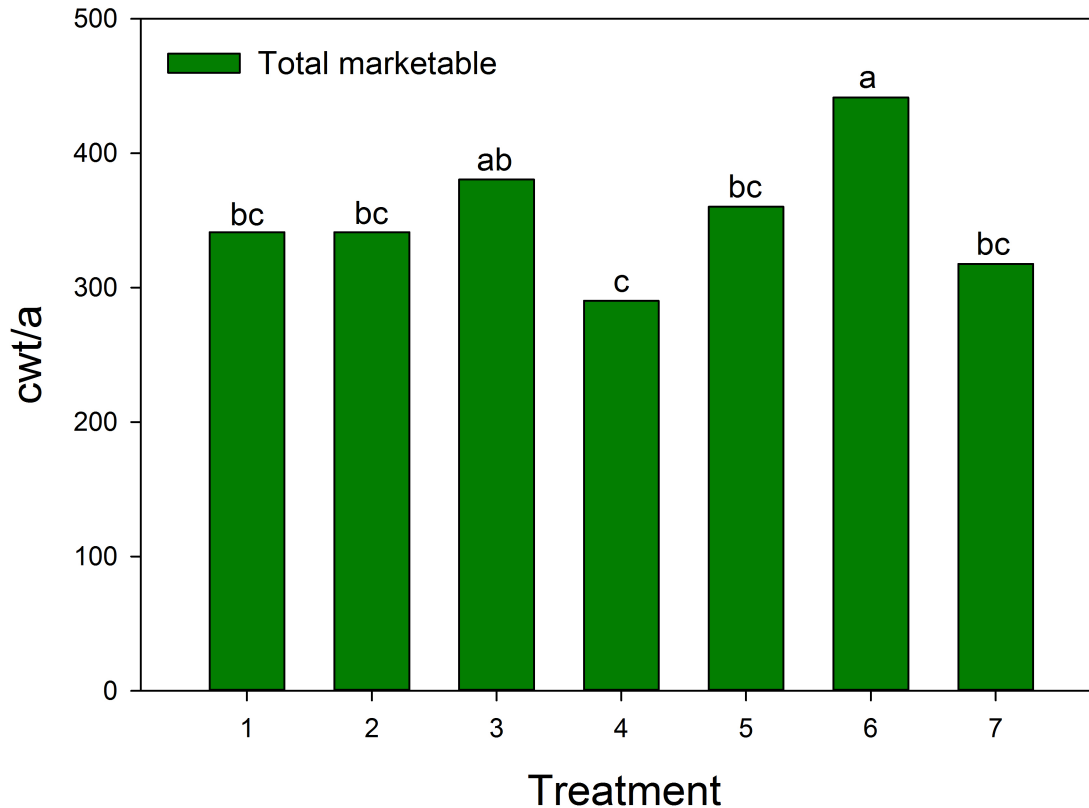




# Weed Control

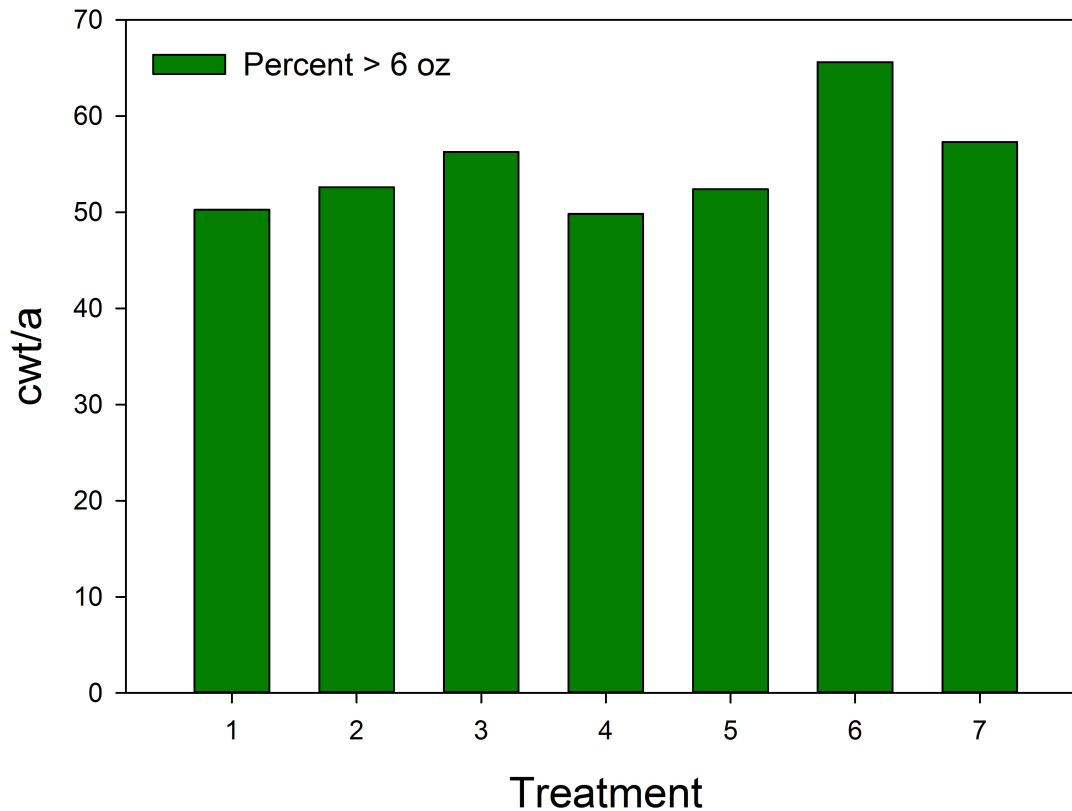
Treatment	Rate	Timing	Wild proso millet	Wild proso millet
			14 DAT	28 DAT
			%	
1	Untreated		0c	0c
2	Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	PRE	53b
3	Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	50% emergence	100a
4	Linex 4L + Metribuzin	12 oz/a + 0.7 lb/a	8-10 in tall	98a
5	Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	PRE	99a
6	Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	50% emergence	98a
7	Linex 4L + Metribuzin	24 oz/a + 0.7 lb/a	8-10 in tall	88a

# Marketable Yield



Treatment	Rate	Timing
1	Untreated	-
2	Linex 4L Metribuzin	Preemergence
3	Linex 4L Metribuzin	50% Emergence
4	Linex 4L Metribuzin	8-10 inch tall
5	Linex 4L Metribuzin	Preemergence
6	Linex 4L Metribuzin	50% Emergence
7	Linex 4L Metribuzin	8-10 inch tall

# Percent > 6 oz



Treatment	Rate	Timing
1 Untreated	-	-
2 Linex 4L	12 fl oz	Preemergence
Metribuzin	0.7 lb/a	
		50%
3 Linex 4L	12 fl oz	Emergence
Metribuzin	0.7 lb/a	
4 Linex 4L	12 fl oz	8-10 inch tall
Metribuzin	0.7 lb/a	
5 Linex 4L	24 fl oz	Preemergence
Metribuzin	0.7 lb/a	
		50%
6 Linex 4L	24 fl oz	Emergence
Metribuzin	0.7 lb/a	
7 Linex 4L	24 fl oz	8-10 inch tall
Metribuzin	0.7 lb/a	

# Take Home Message

- Application at 50% emergence had no crop injury, chlorosis, necrosis, or biomass loss. Weed control was excellent and yields generally were the best.
- Apply Linex + Metribuzin as close to emergence as you are comfortable.

# Questions / Comments?

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