

Cornell Cooperative Extension Vegetable Program

Part 2 of 3

ORDP Report No. 2: In-Season Management of Perennial Sow Thistle with Stinger

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Cornell Cooperative Extension Vegetable Program

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In-Season Management of Perennial Sow Thistle (Main)





In-Season Management of Perennial Sow Thistle (Main)

Treatment	Rate	Crop Stage	Weed Stage	Date
1. Untreated Weedy Check				
2. Hand weeded Check		4-leaf	NE to EB	Jun-18
3B. Loop + Kill Plot:				
Stinger	4 fl oz	Loop	NE to ER	May-9
Stinger	8 fl oz	2.5-leaf	NE to LR	Jun-7
Stinger	8 fl oz	4-leaf	NE to MB	Jun-20
Stinger	8 fl oz	7-8 leaf	EB to MB	Jul-5
8. 4 fl oz x 4:				
Stinger	4 fl oz	2.5-leaf	NE to LR	Jun-7
Stinger	4 fl oz	4-leaf	NE to MB	Jun-20
Stinger	4 fl oz	6-leaf	NE to Ebud	Jun-27
Stinger	4 fl oz	7-8 leaf	EB to MB	Jul-5
9. 8 fl oz x 2:				
Stinger	8 fl oz	2.5-leaf	NE to LR	Jun-7
Stinger	8 fl oz	4-leaf	NE to MB	Jun-20

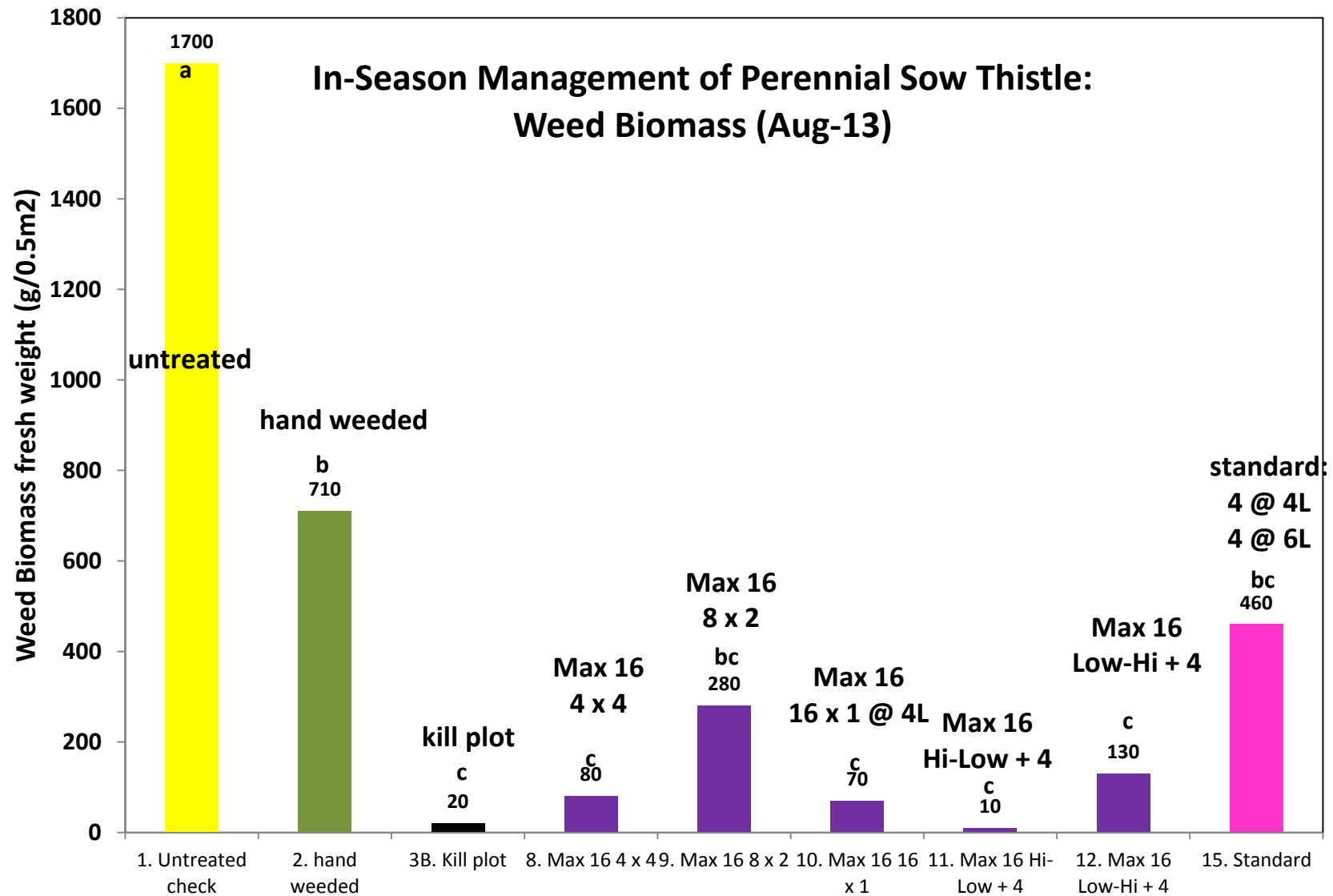


In-Season Management of Perennial Sow Thistle (Main)

Treatment	Rate	Crop Stage	Weed Stage	Date
10. 16 fl oz x 1: Stinger	16 fl oz	4-leaf	NE to EB	Jun-20
11: High-Low + 4: Stinger Stinger Stinger	8 fl oz 4 fl oz 4 fl oz	2.5-leaf 4-leaf 6-leaf	NE to LR NE to MB NE to Ebud	Jun-7 Jun-20 Jul-5
12. Low-High + 4: Stinger Stinger Stinger	8 fl oz 4 fl oz 4 fl oz	2.5-leaf 4-leaf 7-8 leaf	NE to LR NE to MB EB to Mbud	Jun-7 Jun-20 Jul-5
15. Standard: Stinger Stinger	4 fl oz 4 fl oz	4-leaf 6-leaf	NE to LR NE to MB	Jun-20 Jul-5



In-Season Management of Perennial Sow Thistle (Main)





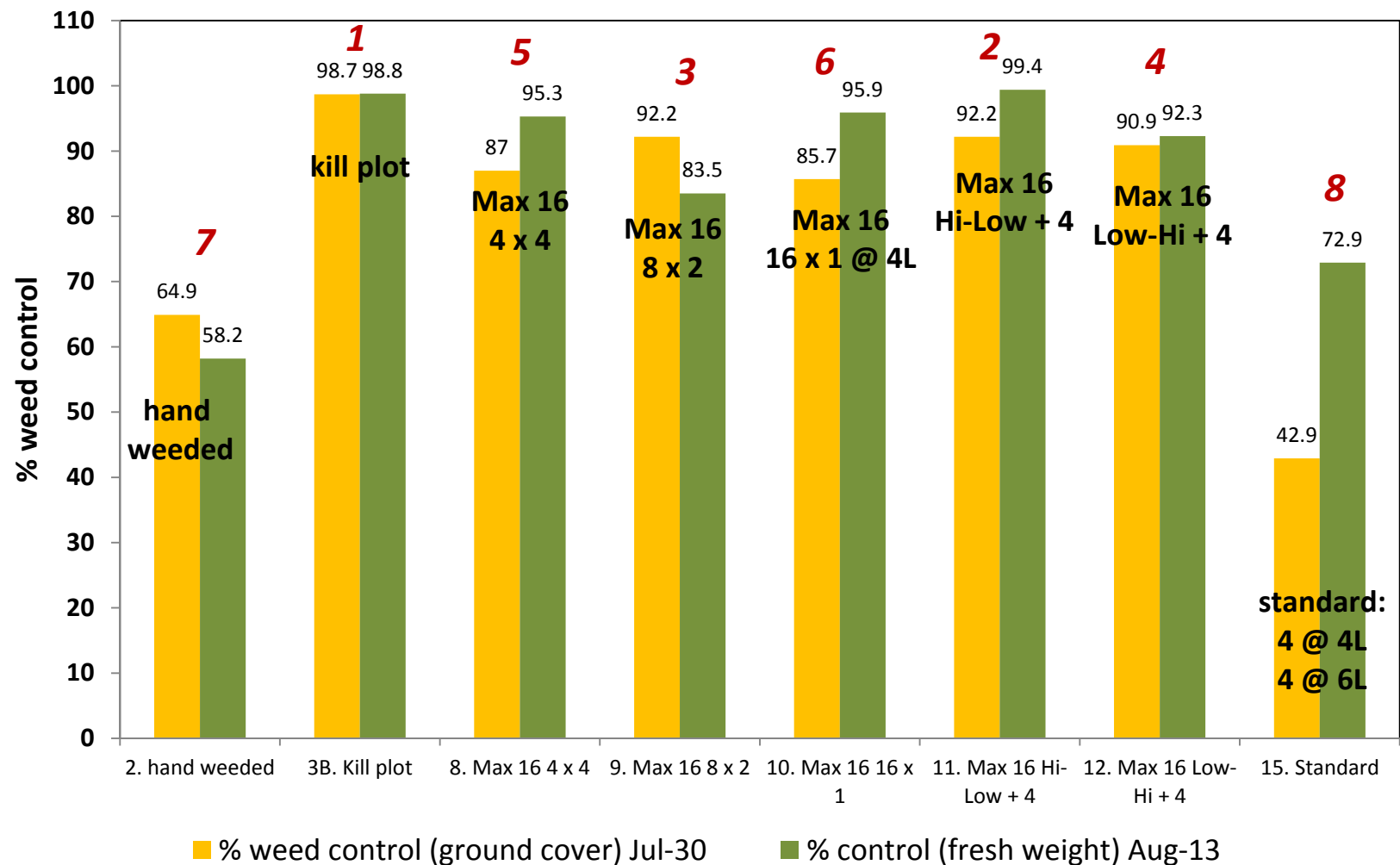
**Ground Cover Measured by: No. live plants
every foot per 2 transects per plot**





In-Season Management of Perennial Sow Thistle (Main)

In-Season Management of Perennial Sow Thistle:
% Weed Control (Jul-30 & Aug-13)





In-Season Management of Perennial Sow Thistle (Main)

- The **most susceptible stage** of perennial sow thistle to kill with Stinger pre-solstice is the **mid-rosette stage**.
 - 5-9 leaves
 - 4-7 inches in diameter
- Weed is self-sufficient, not depending on parent rhizome for nourishment





In-Season Management of Perennial Sow Thistle (Main)

- Late-rosette and early-bolt stages of perennial sow thistle most difficult to control pre-solstice.
- Energy flow is generally upward



Early Bolt plants are those with any sign of a vertical shoot up to about 6" tall.



Large rosette plants have many expanded leaves, are >7 inches across, and have not yet started to grow a flower stalk.



In-Season Management of Perennial Sow Thistle (Main)

1. Untreated



Jun-27-3013



Jul-30-3013



In-Season Management of Perennial Sow Thistle (Main)

15. Standard: Stinger 4 fl oz at 4-leaf & 6-leaf



Jul-30-3013



In-Season Management of Perennial Sow Thistle (Main)

8. 4 fl oz x 4: Stinger 4 fl oz at 2.5-leaf, 4-leaf, 6-leaf & 7-8-leaf



June 27, 2013

Killed 90% of rosettes



Jul-30: rhizomes not healthy

Early and mid-bolt
escapes with injury



In-Season Management of Perennial Sow Thistle (Main)

9. 8 fl oz x 2: Stinger 8 fl oz at 2.5-leaf & 4-leaf



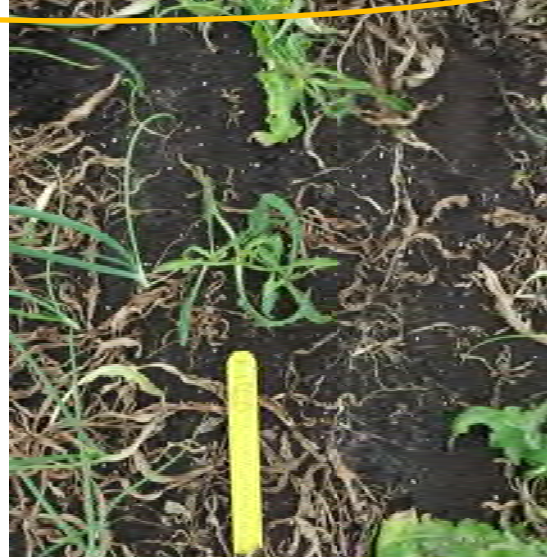
90% kill overall, including rosettes and early-bolt

June 27, 2013



In-Season Management of Perennial Sow Thistle (Main)

12. Low+High + 4: Stinger 4 fl oz (2.5-leaf) + 8 fl oz (4-leaf) + 4 fl oz (6-leaf)



60% kill overall, including rosettes and some early-bolt.

Early-bolt that escaped first app were not killed by the second app.

New emergence.



June 27, 2013



In-Season Management of Perennial Sow Thistle (Main)

11. High-Low + 4: Stinger 8 fl oz (2.5-leaf) + 4 fl oz (4-leaf) + 4 fl oz (6-leaf)



June 27, 2013



70% kill overall:
Rosettes & some
early-bolt killed,
minor new
emergence, early-
bolt struggling to
survive.



plants that are dead above-
ground also have dead rhizomes



some root pruning



In-Season Management of Perennial Sow Thistle (Main)



June 27, 2013



In-Season Management of Perennial Sow Thistle (Main)

10. 16 fl oz x 1: Stinger 16 fl oz at 4-leaf



Excellent below-ground kill



Best control of large weeds pre-solstice (LB)
Jul-30-2013

NE continued to grow untreated



In-Season Management of Perennial Sow Thistle (Main)

10. 16 fl oz x 1: Stinger 16 fl oz at 4-leaf



Aug-7, 2013



In-Season Management of Perennial Sow Thistle (Main)

3B. Kill Plot: Stinger 4 fl oz at loop + 8 fl oz (2.5-leaf, 4-leaf & 7-8-leaf)



Stinger 8 fl oz eventually killed most of escapes from loop stage app. No NE.
Best treatment overall!

Jul-30-3013



In-Season Management of Perennial Sow Thistle (Main)

2. Hand weeded at 4-leaf (Jun-18)



Hand weeded when onions at 4-leaf on Jun-18



Jun-27-3013



In-Season Management of Perennial Sow Thistle (Main)



Hand weeding stimulates bud-break on rhizomes



In-Season Management of Perennial Sow Thistle (Main)

2. Hand weeded at 4-leaf



Compared to untreated, weeds in hand weeded plots were delayed, parent rhizomes had fewer adventitious roots and buds.



In-Season Management of Perennial Sow Thistle

Future Research Plans:

- Investigate 6 fl oz and 12 fl oz
- Trial Starane and Garlon for feasibility of controlling perennial sow thistle in onions including efficacy and crop tolerance
- Investigate strategies to align susceptible weed stage with crop tolerance of growth regulator herbicides.