Low rates of glyphosate for controlling medusahead in a sagebrush system

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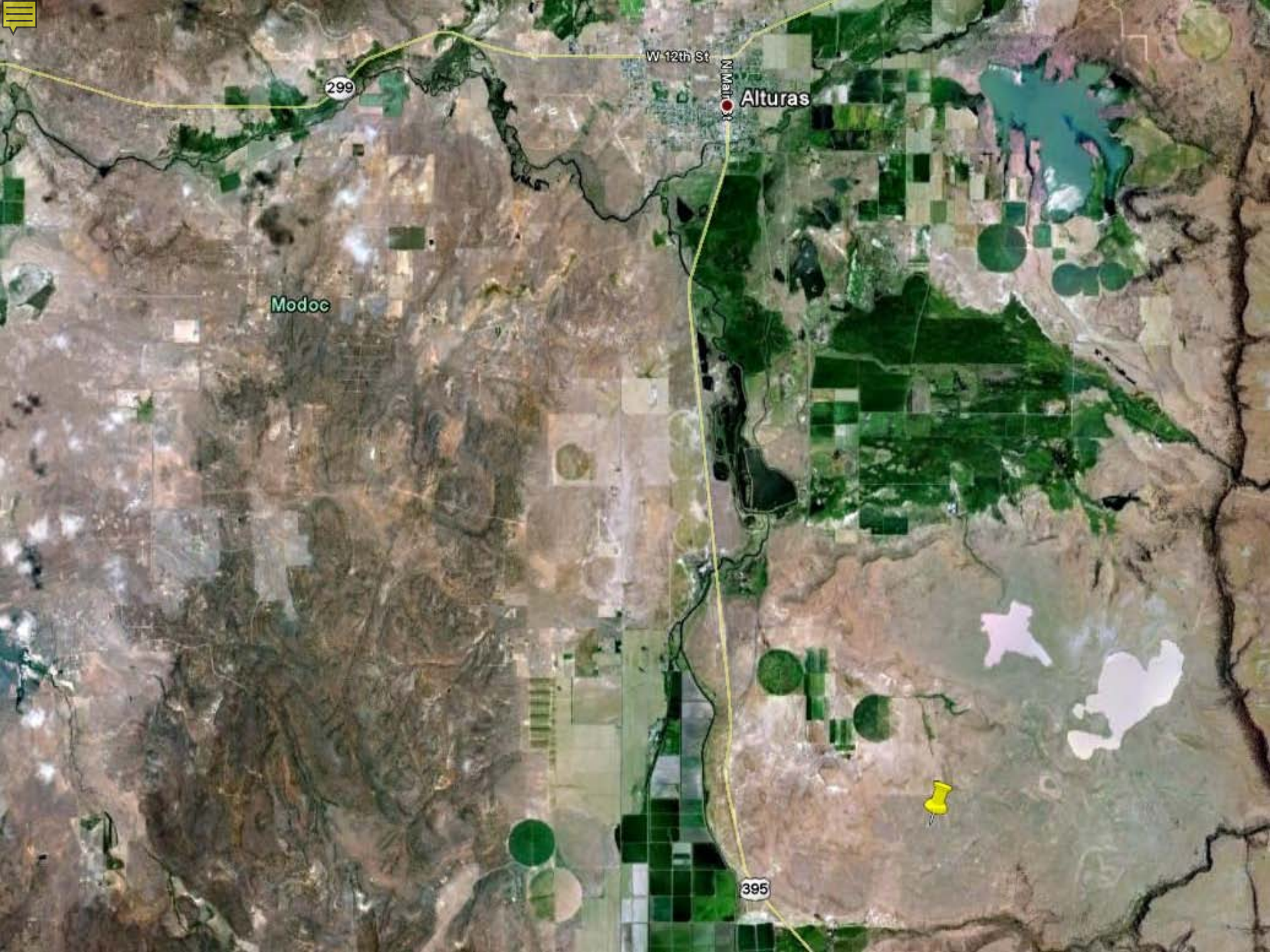
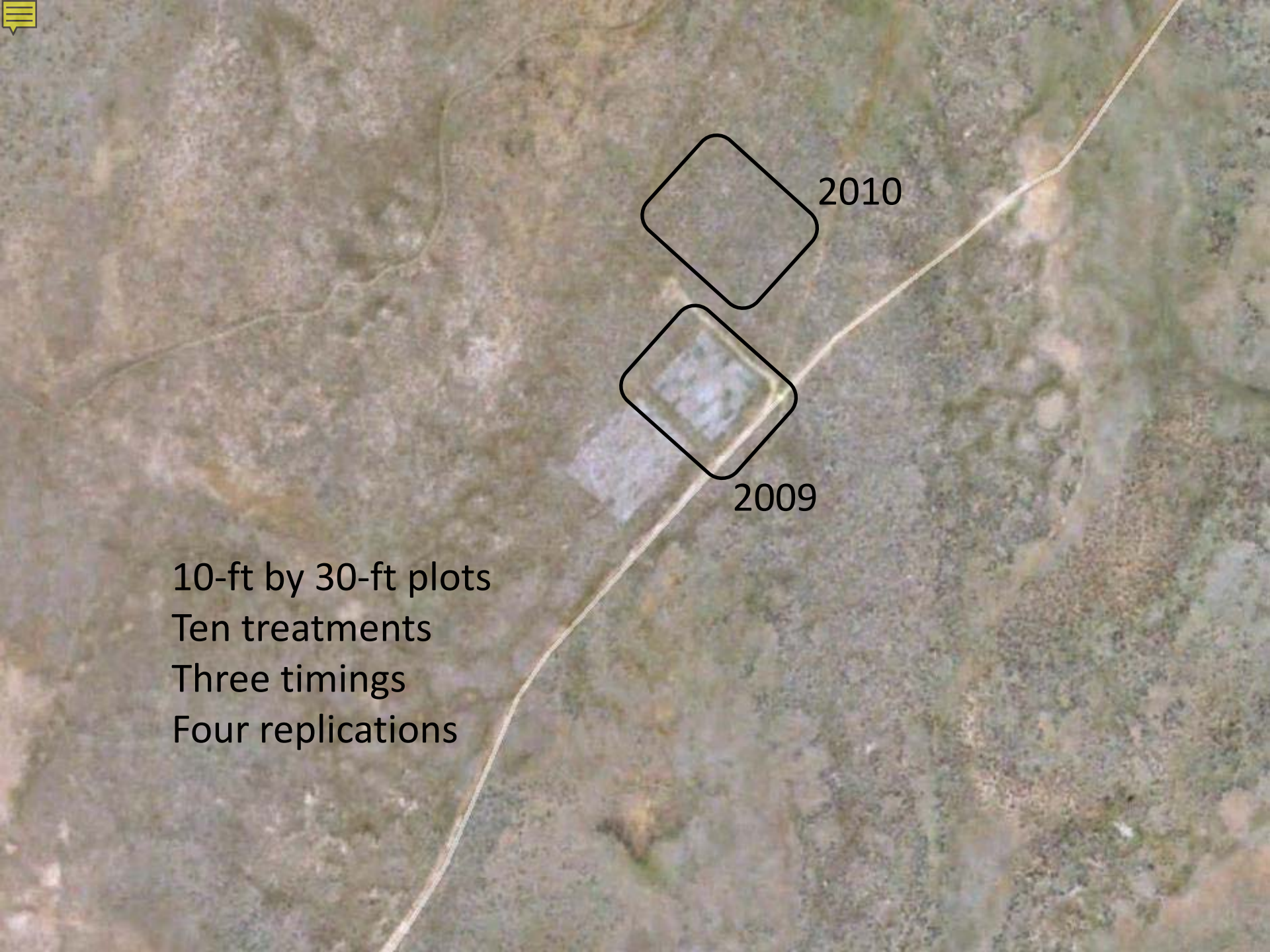

W 12th St
N Main St
Alturas
299
Modoc
395


2010
2009
10-ft by 30-ft plots
Ten treatments
Three timings
Four replications

Concept: low rate of glyphosate as a "selective" herbicide

Apply over-the-top of weeds & native species
Has been tested on perennial grasses

Roundup ProMax at 0, 2, 4 … 18 oz per acre

CO_2 backpack sprayer, 10-ft boom; 15 gpa spray solution
All treatments included 2.5% ammonium sulfate (~40% solution)

Times of application

	2009	2010
Early seedlings to 5 cm	March 18	March 19
Middle up to 10 cm, first tillers	May 8	April 30
Late boot to early heading	May 27	June 8

Evaluations

Early to mid July, before medusahead senescence

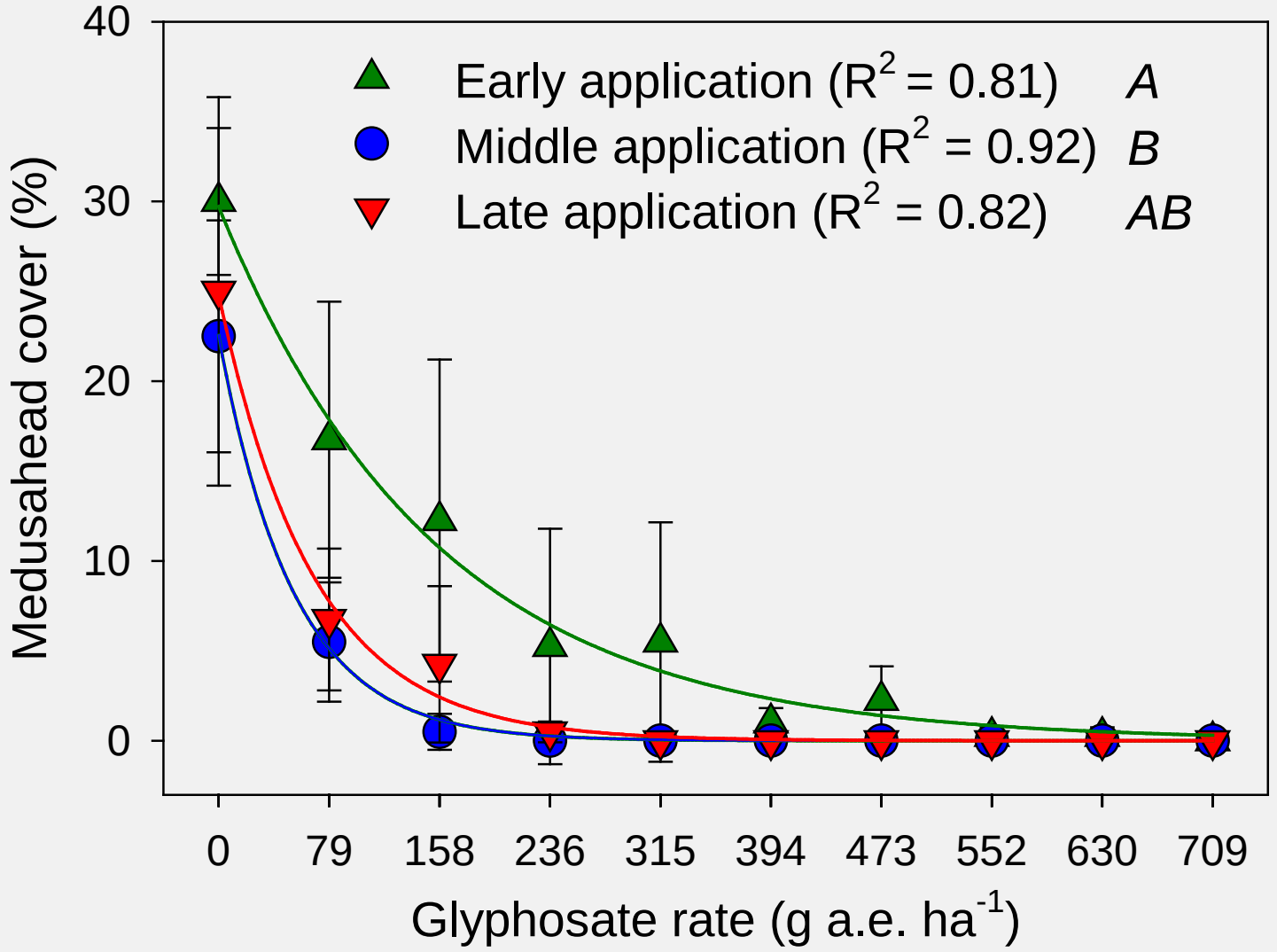
Vegetative cover estimates

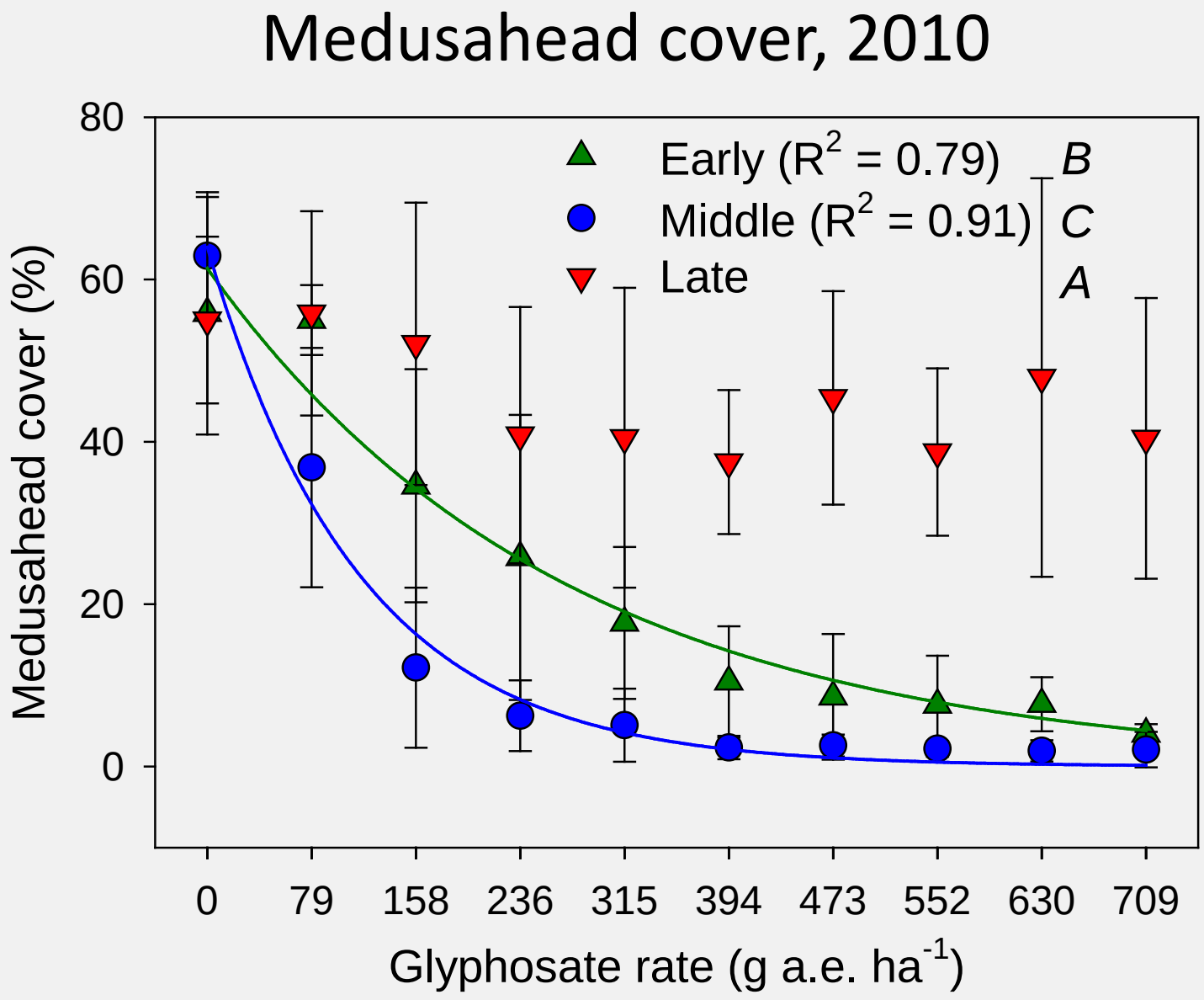
- Three 1-m^2 quadrats along center line of plot
  - Cover estimates for all species
  - Vigor estimates for medusahead and cheatgrass
- Visual estimate of *Artemisia* total cover & health

Biomass / seedhead samples

- Three 1000-cm^2 quadrats along center line of plot
- Samples dried and weighed for biomass
- Seeds of medusahead and cheatgrass counted, germ tested

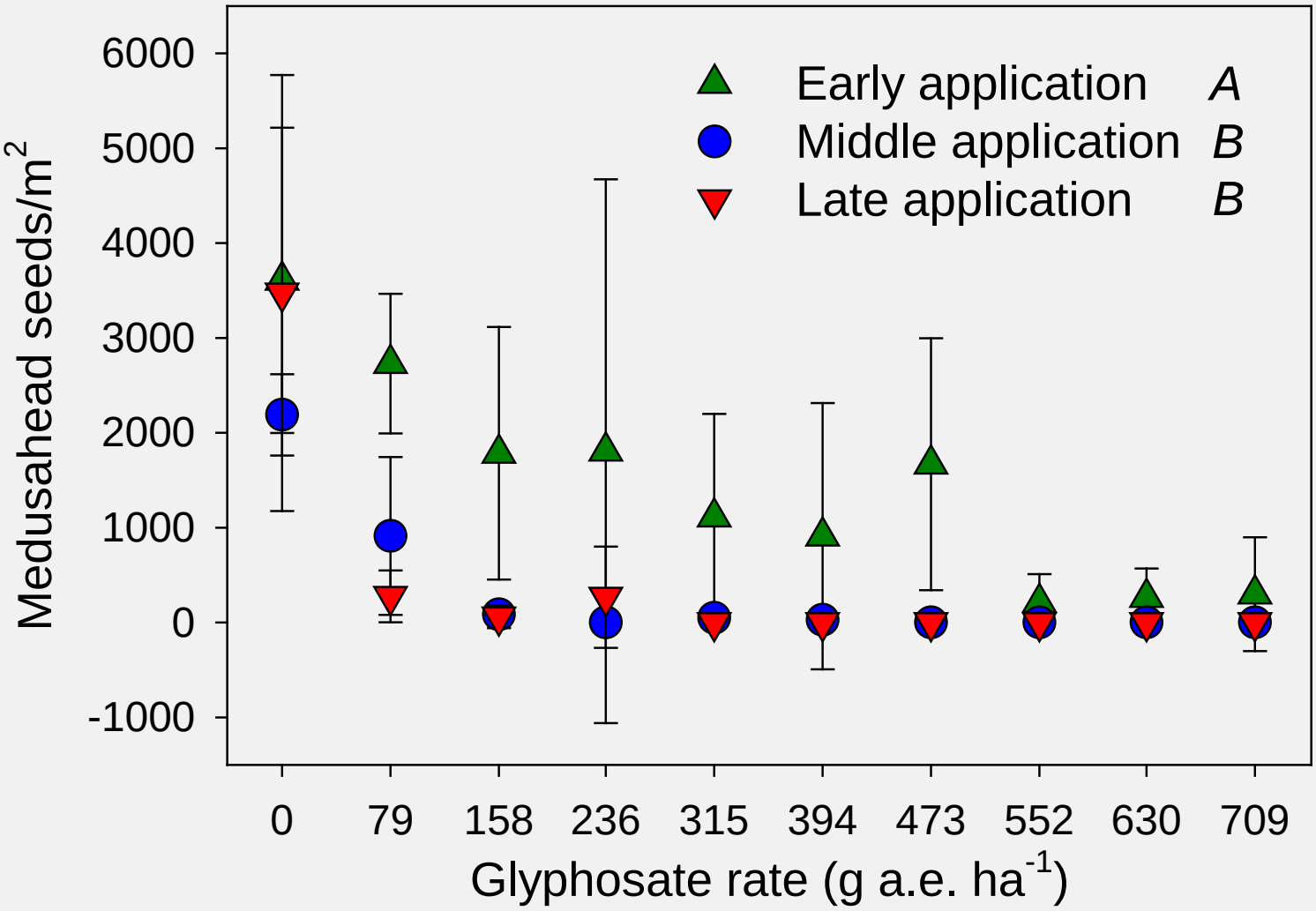
Medusahead cover, 2009



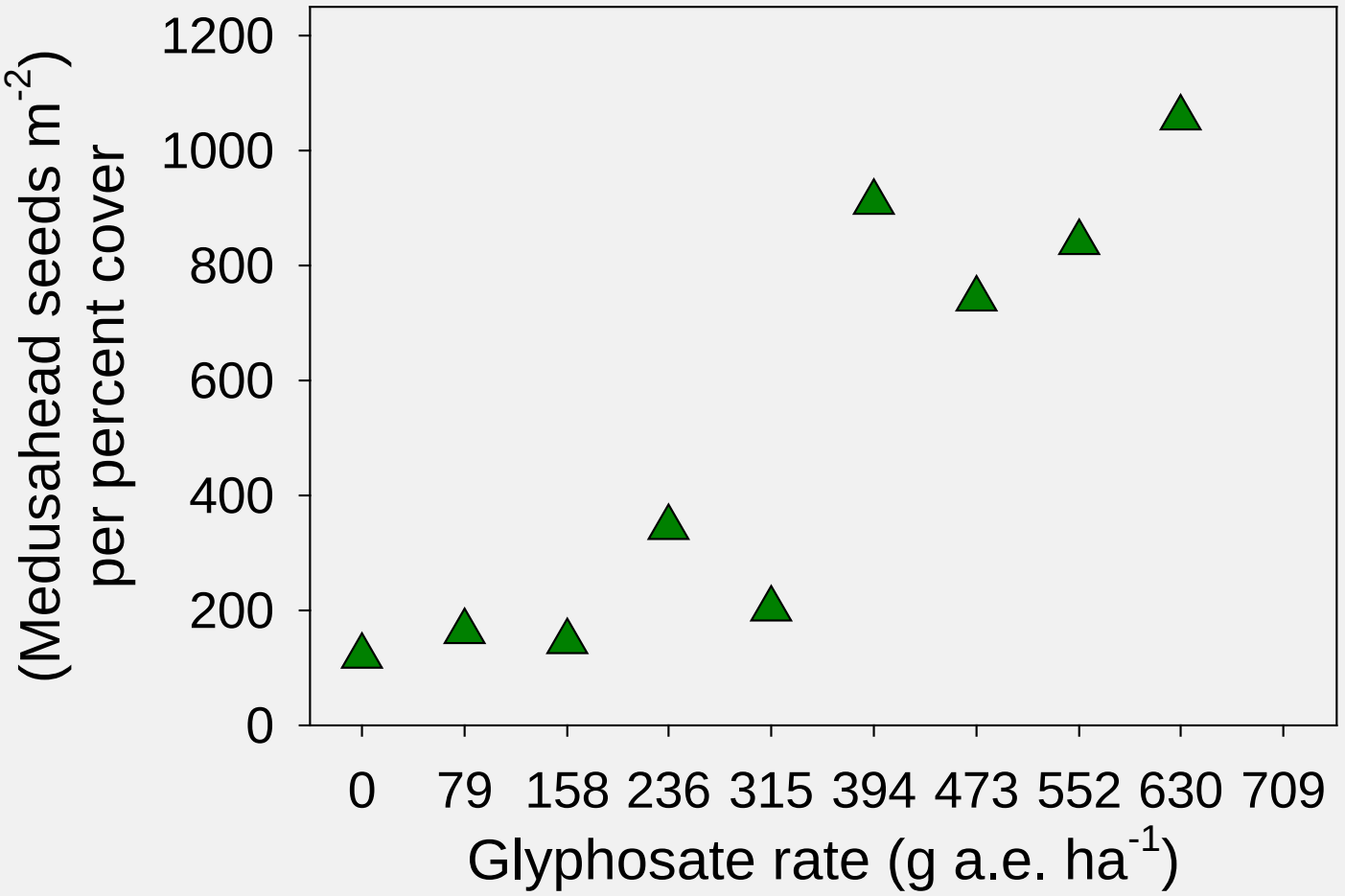

Medusahead cover, 2010
Medusahead cover (%)
80
60
40
20
0
Early (R^2 = 0.79)
Middle (R^2 = 0.91)
Late
B
C
A
0
79
158
236
315
394
473
552
630
709
Glyphosate rate (g a.e. ha^{-1})

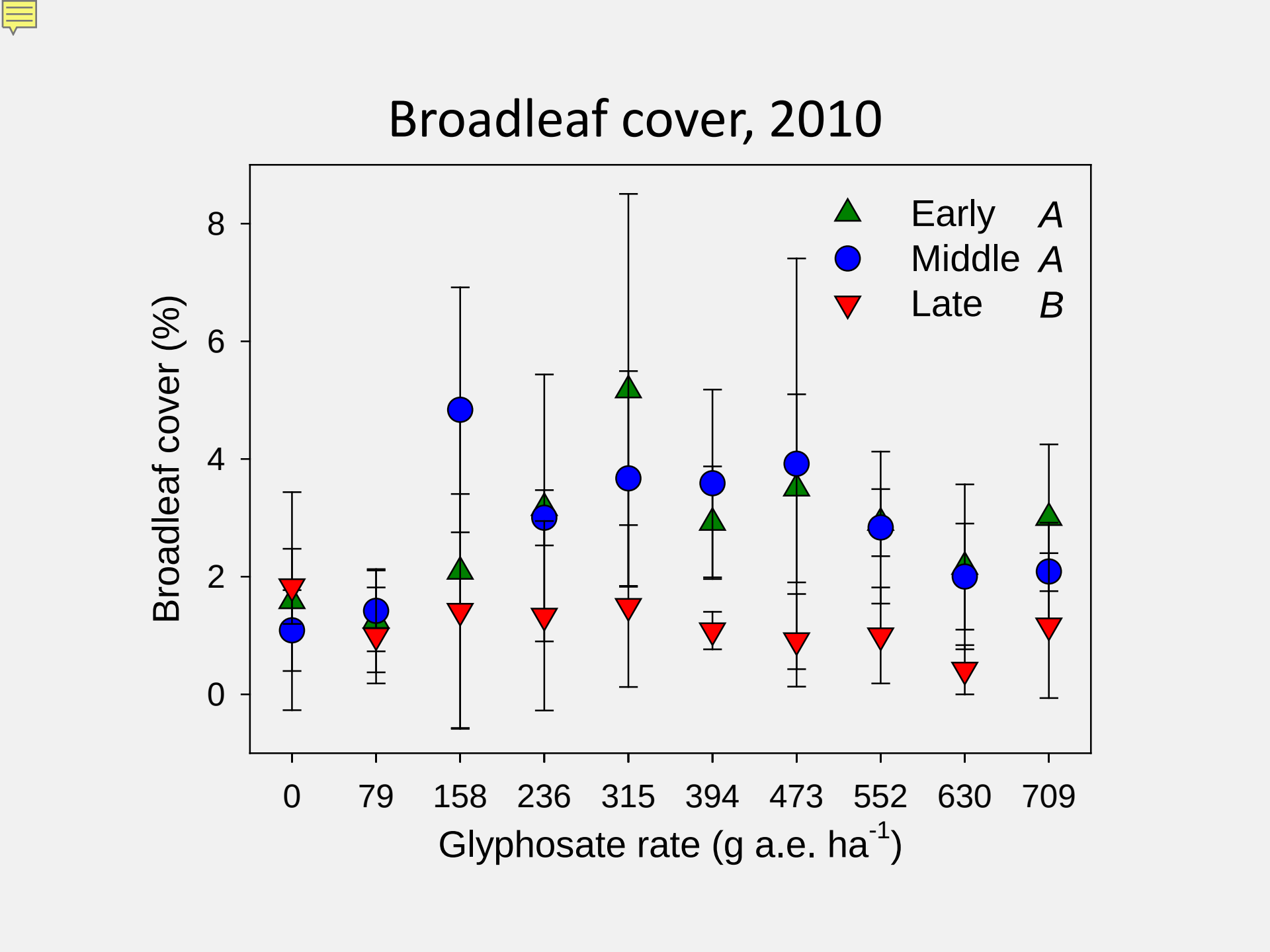

1 29

Medusahead seeds/m^2, 2009

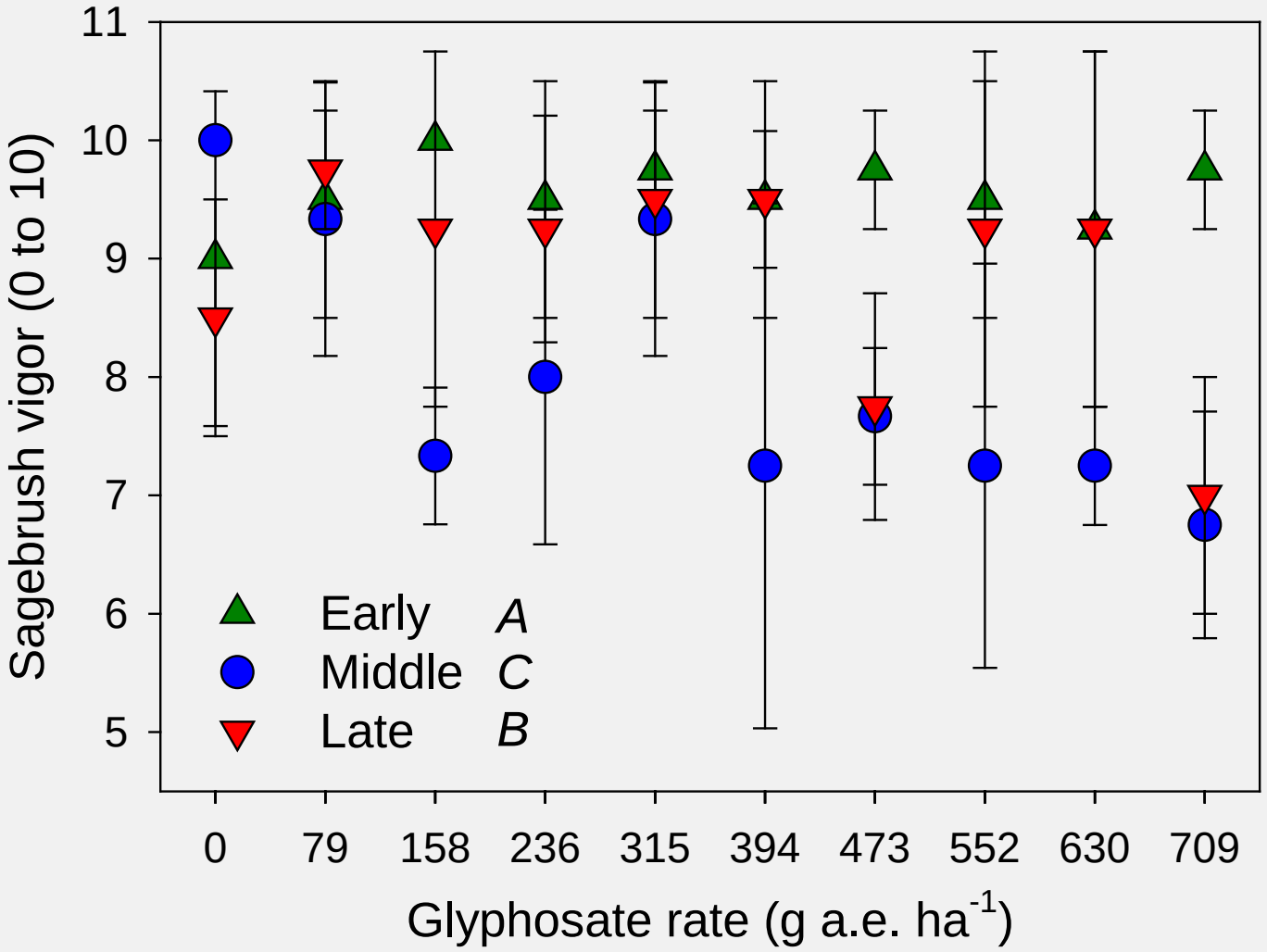


Compensatory seed production



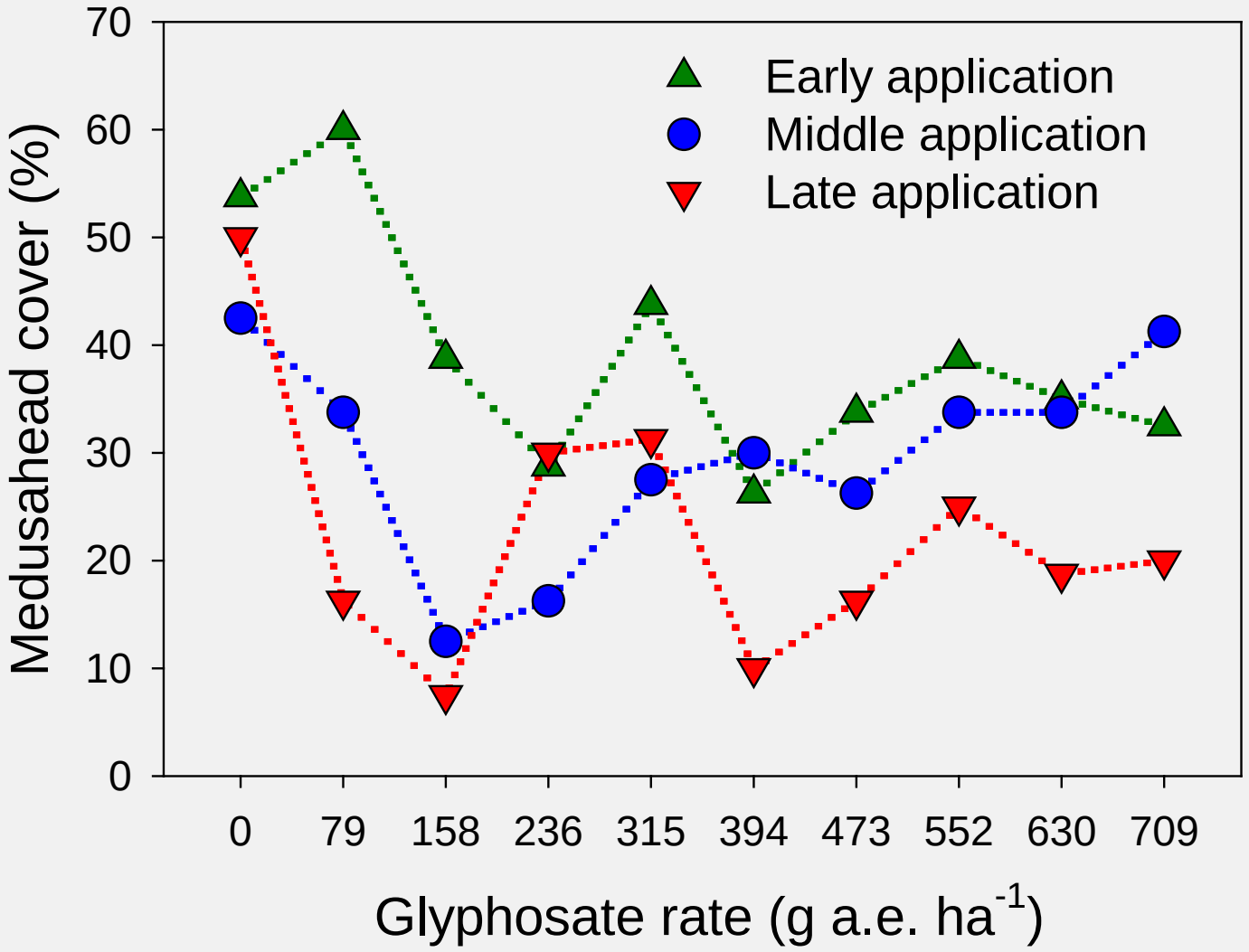

Broadleaf cover, 2010
Broadleaf cover (%)
0
2
4
6
8
Early A
Middle A
Late B
0
79
158
236
315
394
473
552
630
709
Glyphosate rate (g a.e. ha-1)

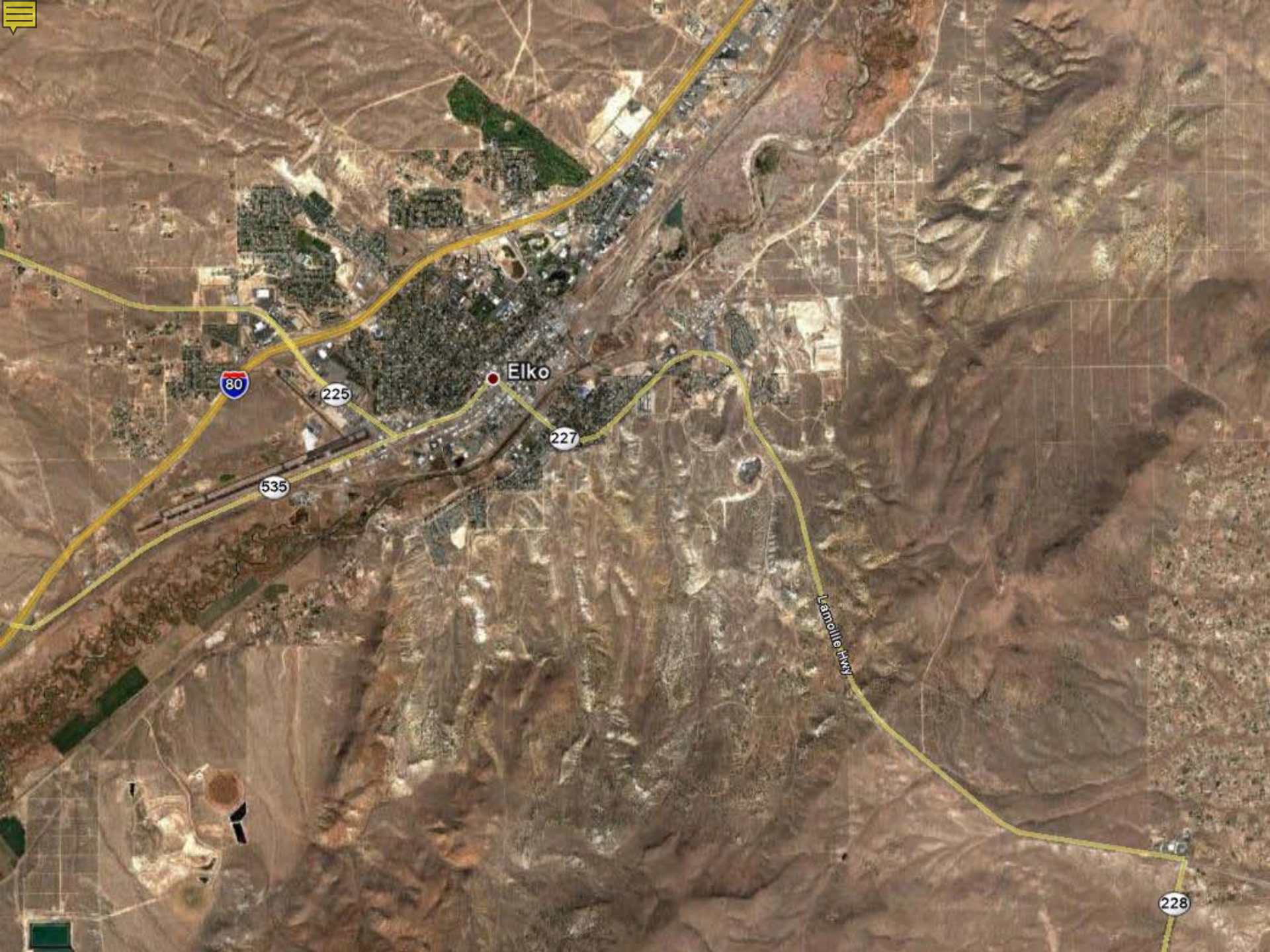
Artemisia vigor, 2010



Medusahead cover

2010, year after 2009 treatment




Elko
80
225
227
535
Lamoille Hwy
228


Problems
• Late rainfall
• Seedbank
• Resistance?


Thanks to
Alan Uchida, BLM, Alturas
Jimin Zhang, postdoc, UCD