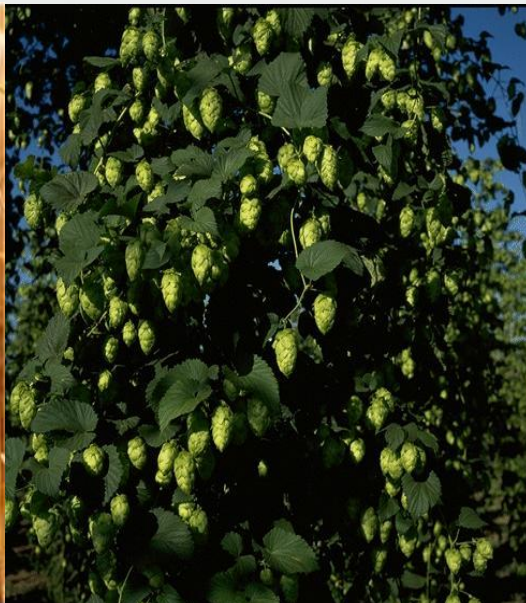


Local Grain Research

[Dr. Heather Darby](#)

Erica Cummings, Rosalie Madden, Amanda Gervais

[University of Vermont Extension- Crops & Soils Program](#)



Grain Variety Trials

- Spring & Winter Wheat
- Heirloom Spring Wheat
- Malting Barley
- Oats
- Soybeans
- Corn

Grain Quality Testing

- Falling Number
- Protein
- Moisture
- Ash
- Test weight
- Mycotoxins



BARLEY PREGERMINATION IMAGES.

VIABLE, NO PREGERMINATION



VIABLE, PREGERMINATED



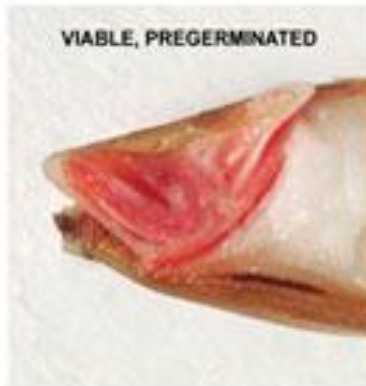
VIABLE, PREGERMINATED



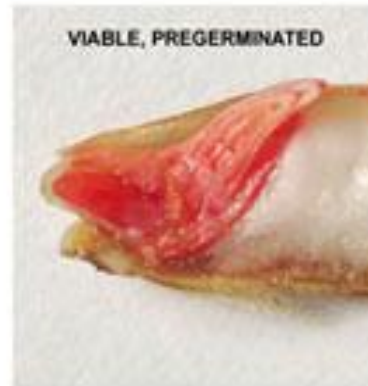
VIABLE, PREGERMINATED



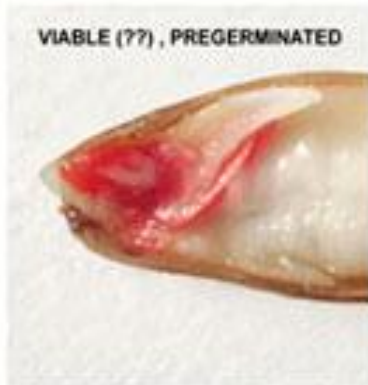
VIABLE, PREGERMINATED



VIABLE, PREGERMINATED



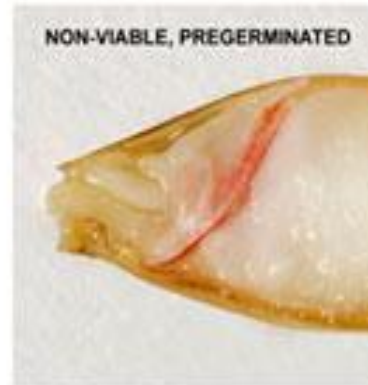
VIABLE (??) , PREGERMINATED



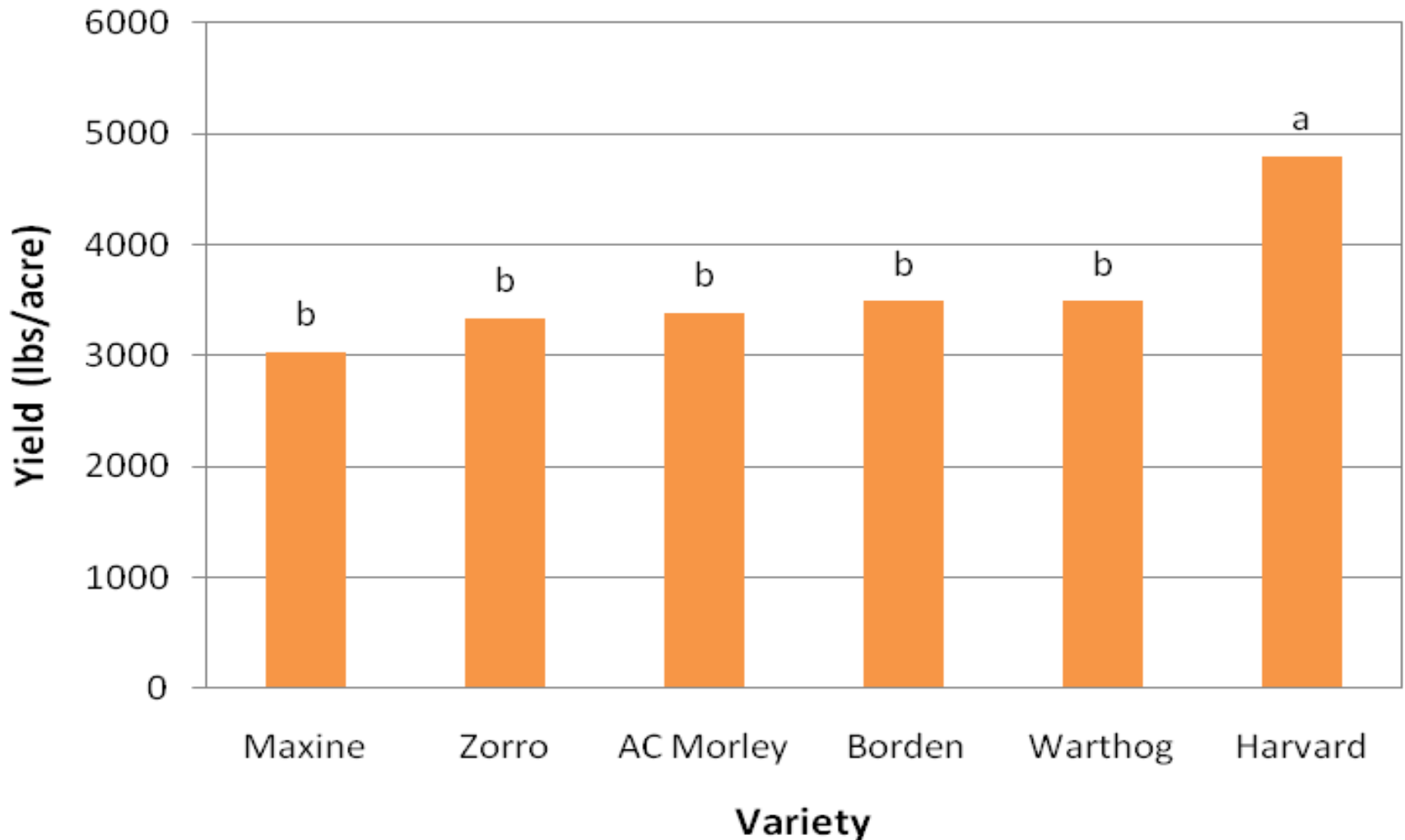
NON-VIABLE, PREGERMINATED



NON-VIABLE, PREGERMINATED



Fall Wheat

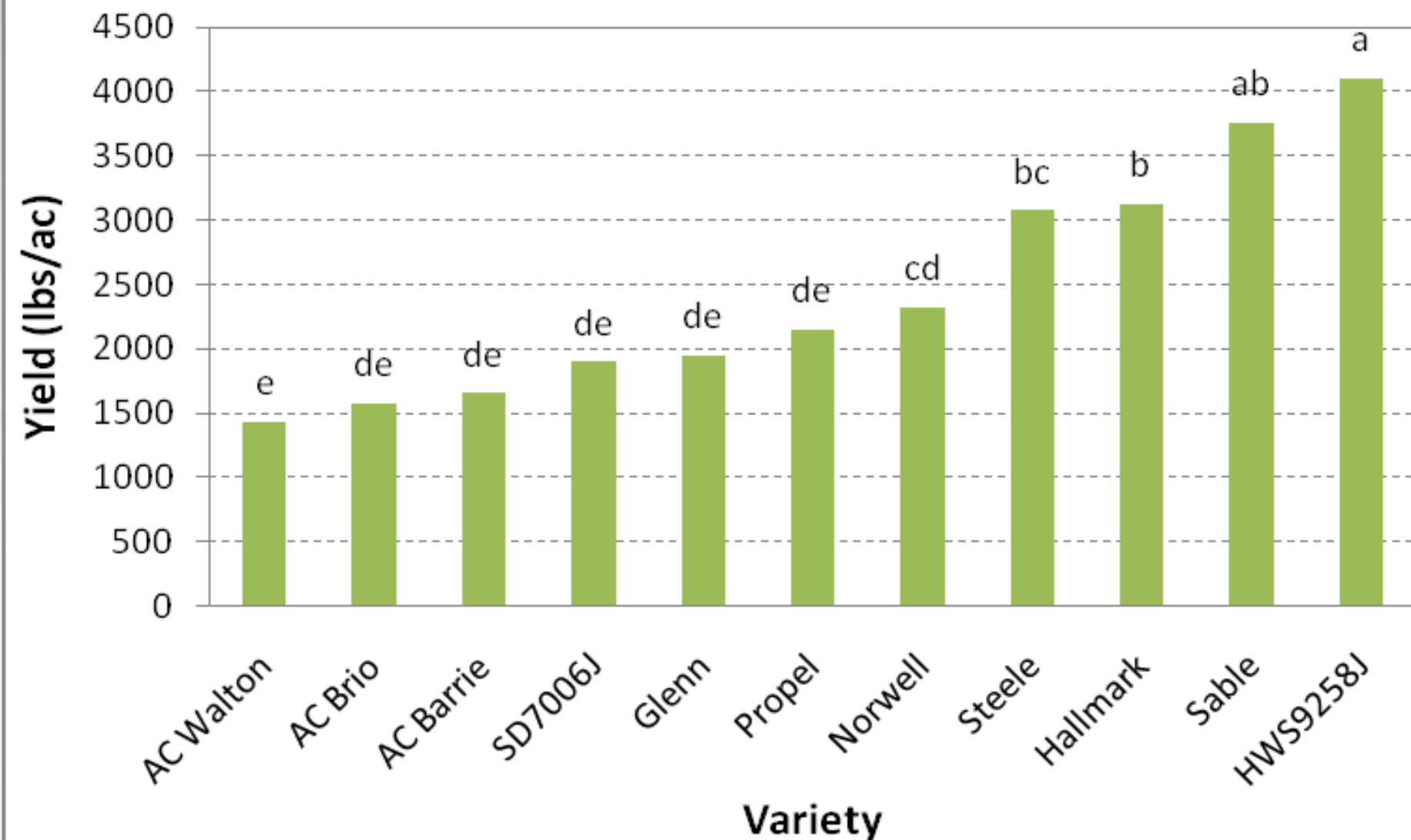


Winter Wheat Trial



Variety	CP
	%
Borden	14.9*
AC Morley	13.9
Harvard	12.7
Maxine	13.6
Warthog	13.7
Zorro	15.2*
<i>Trial Means</i>	14.0
<i>LSD</i>	0.77

Spring Trial



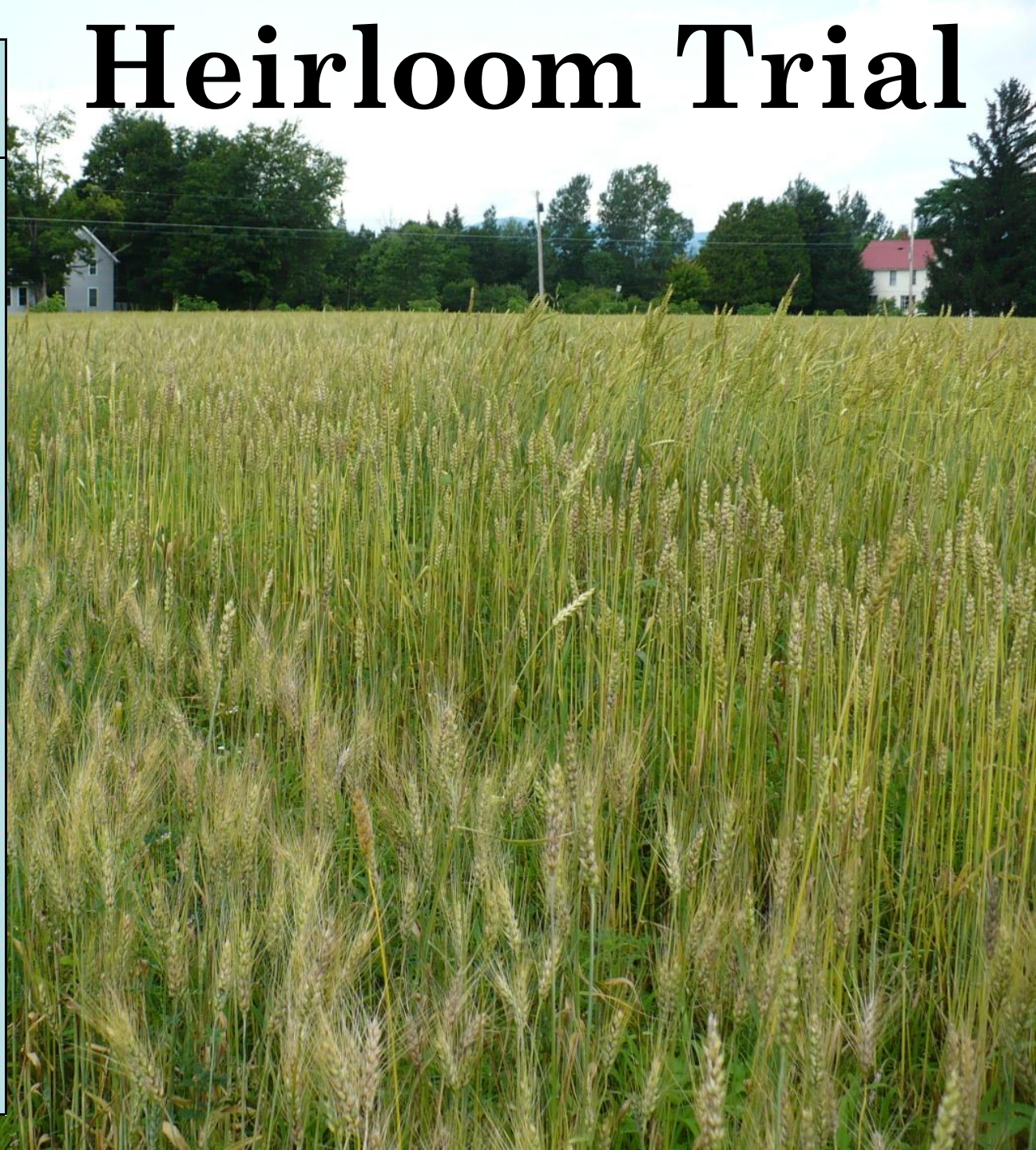
Spring Wheat Trial

Variety	CP
	%
AC Barrie	18.4
AC Brio	17.6
Glenn	17.6
HWS9258J	16.4
Hallmark	17.2
Norwell	17
Propel	17.8
SD7006J	17.8
Sable	18.8
Steele	17.7
Walton	16.9
<i>Trial Mean</i>	17.6
<i>LSD</i>	NS

Variety	Ergot	DON
	g/100g seed	ppm
Propel	0.02	0.1
Steele	0.07	0.27
Walton	0.37	0.47
AC Barrie	<0.01	0.57
Glenn	0.1	0.57
Norwell	0.13	0.6
AC Brio	0.02	0.8
Sable	0.43	1.13
HWS9258J	0.67*	1.53
Hallmark	0.02	2.70*
SD7006J	0.03	2.70*
<i>Trial Mean</i>	0.168	1.04
<i>LSD (0.10)</i>	0.13	0.762

Heirloom Trial

Variety	Yield lbs/acre
Hope	819
Spinkota	834
Mida 06	923
Marquis	927
Komar	961
Defiance	1000
Reliance	1154
Scarlet	1165
Mida 05	1186
Red Bob	1257
Champlain	1261
Ceres 05	1265
Thatcher	1306
Ladoga	1331
AC Barrie	1332
Supreme	1557
Surprise	1612



Projects for 2010

USDA - IOP

- Heather Darby, UVM Extension, Agronomist
- Sid Bosworth, UVM PSS, Agronomist
- Ellen Mallory, UME, Agronomist
- Eric Gallandt, UM, Weed Scientist
- Rick Kersbergen, UME, Livestock Specialist
- Mary Ellen Camire, UM, Food Science
- Stewart Smith, UM, Economics
- Ann Hazelrigg, UVM, Plant Pathologist
- John Halloran, USDA, Economics
- Dave Lambert, UM, Plant Pathologist

Projects for 2010 USDA - IOP

New Weed Control Tools
Cropping Systems
Fertility Trials
Variety Trials
Baking Tests
Increased Collaboration



Projects for 2010

USDA SARE & Hatch

- Harvesting Dates
- Planting Dates
- Topdressing studies



Malting Barley Trials

Location	Variety	Yield
		lbs/acre
Alburgh		
	Lacey	5542*
	Rasmussen	5360*
	Robust	4687
<i>Trial Mean</i>		5196
<i>LSD (0.10)</i>		603
Hardwick		
	Lacey	1539
	Newport	1871
	Rasmussen	1566
	Robust	1902
	SB 9259J	1945
<i>Trial Mean</i>		1764
<i>LSD (0.10)</i>		NS



Projects for 2010

- Barley Variety Trial
- Barley Harvest Date
- Oats Variety Trial
- Hulling efficiency
- Soybean and Corn Trials

Barley Kernel

Embryo - grow into the roots and shoots

Endosperm – insoluble starch for new growth

Embryo produces enzymes travel to starch wall

Break down walls and change starch to sugar

Husk - protect the germ and endosperm



Tineweeding



A Weed Control Strategy for Organic Row Crops



**Kovar Tine Weeder –
less soil disturbance & cheaper**

The image shows two seedlings on a light brown, textured surface. The seedling on the left is labeled 'LESS THAN IDEAL STAGE' and has a thick, dark, and tangled root system. The seedling on the right is labeled 'IDEAL STAGE' and has a thin, light-colored, and relatively straight root system. A US penny is placed between the two seedlings for scale. The background is a light brown, textured surface.

LESS THAN IDEAL STAGE

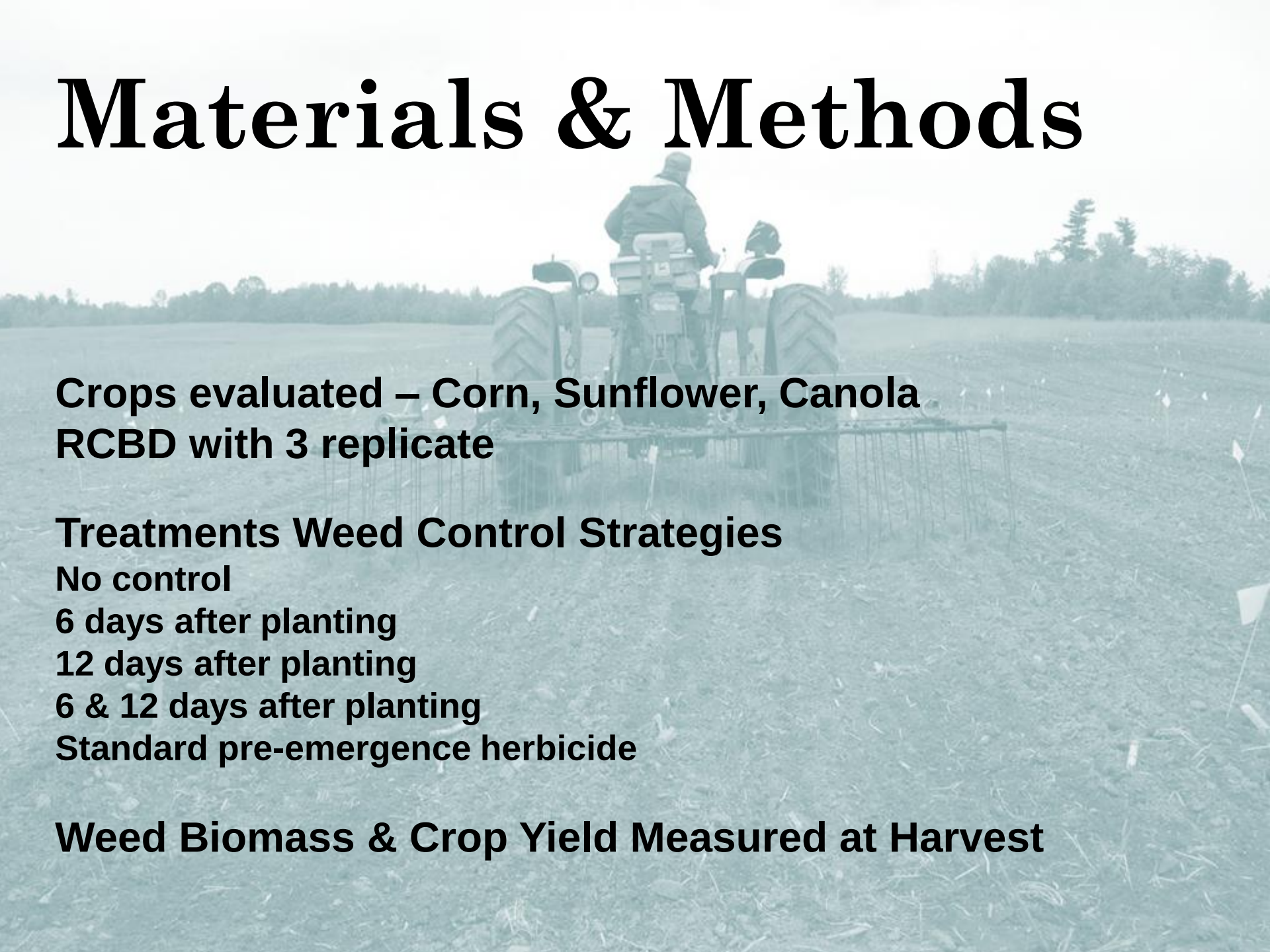
IDEAL STAGE

Photo Courtesy: E. Gallandt, UME



Time to Switch Implements

Materials & Methods

A person is operating a tractor with a tillage implement in a field. The tractor is moving away from the camera, and the implement is creating a furrow in the soil. The background shows a line of trees under a clear sky.

**Crops evaluated – Corn, Sunflower, Canola
RCBD with 3 replicate**

Treatments Weed Control Strategies

No control

6 days after planting

12 days after planting

6 & 12 days after planting

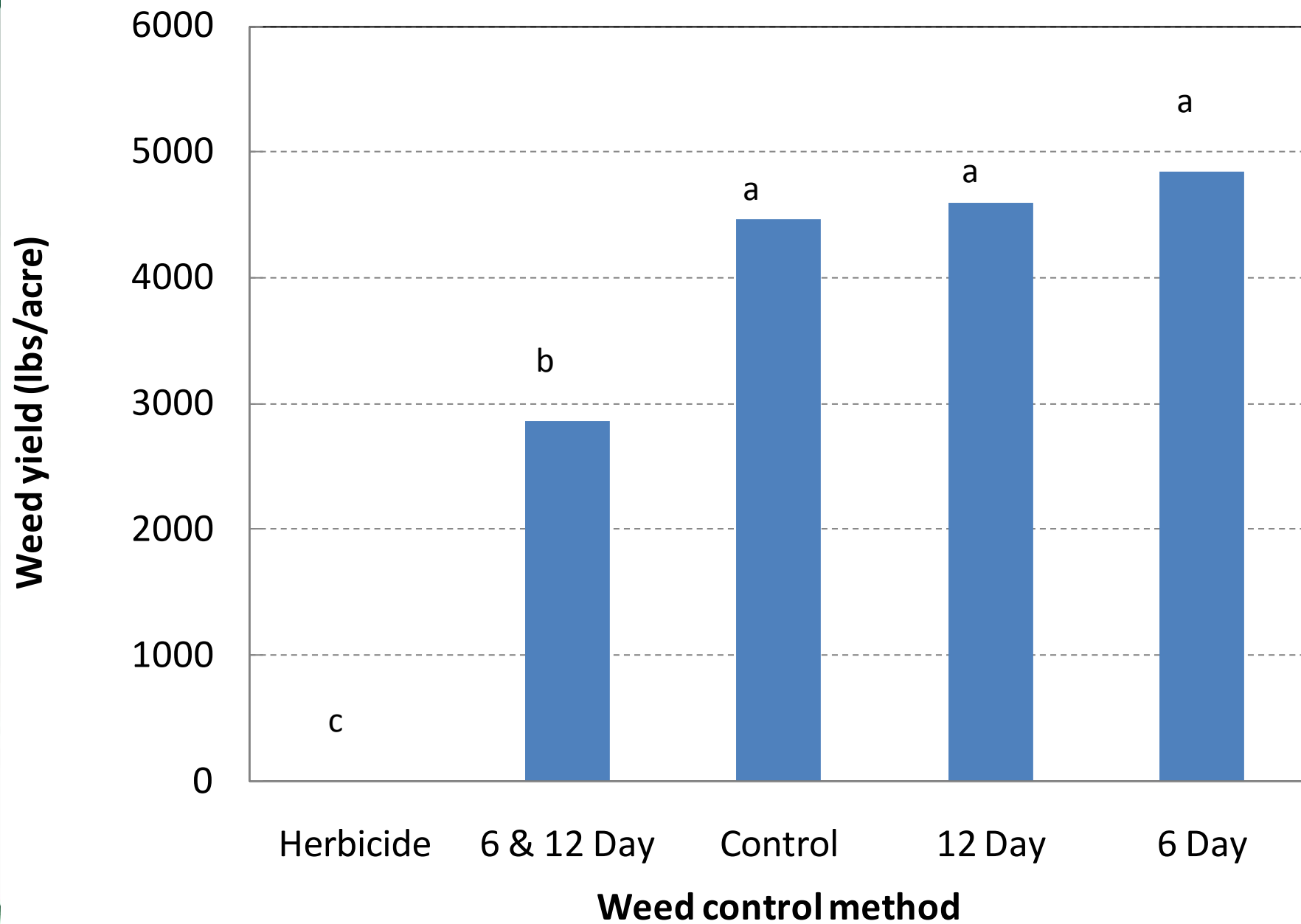
Standard pre-emergence herbicide

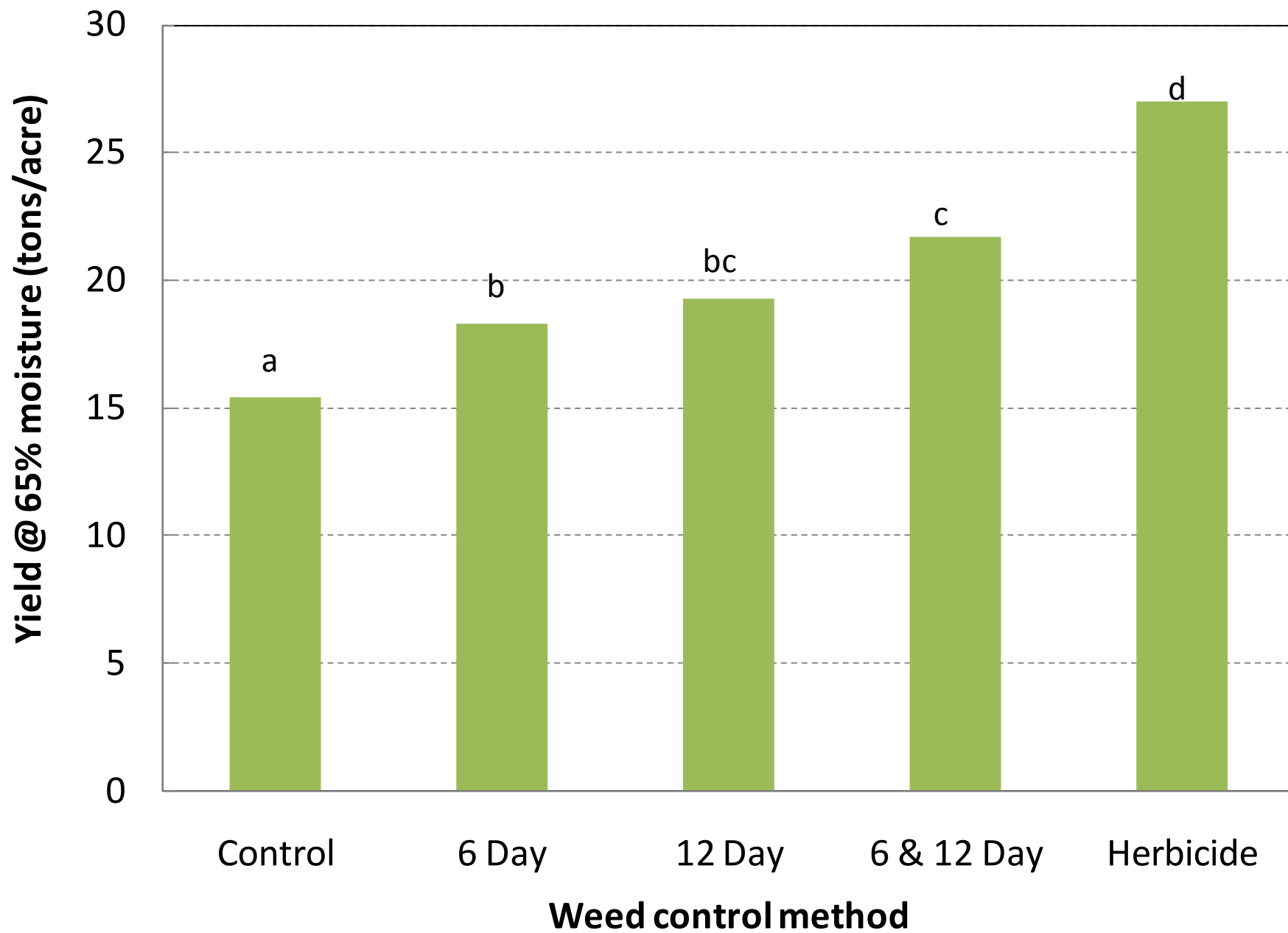
Weed Biomass & Crop Yield Measured at Harvest



WEED CONTROL - CORN







Corn Silage Quality

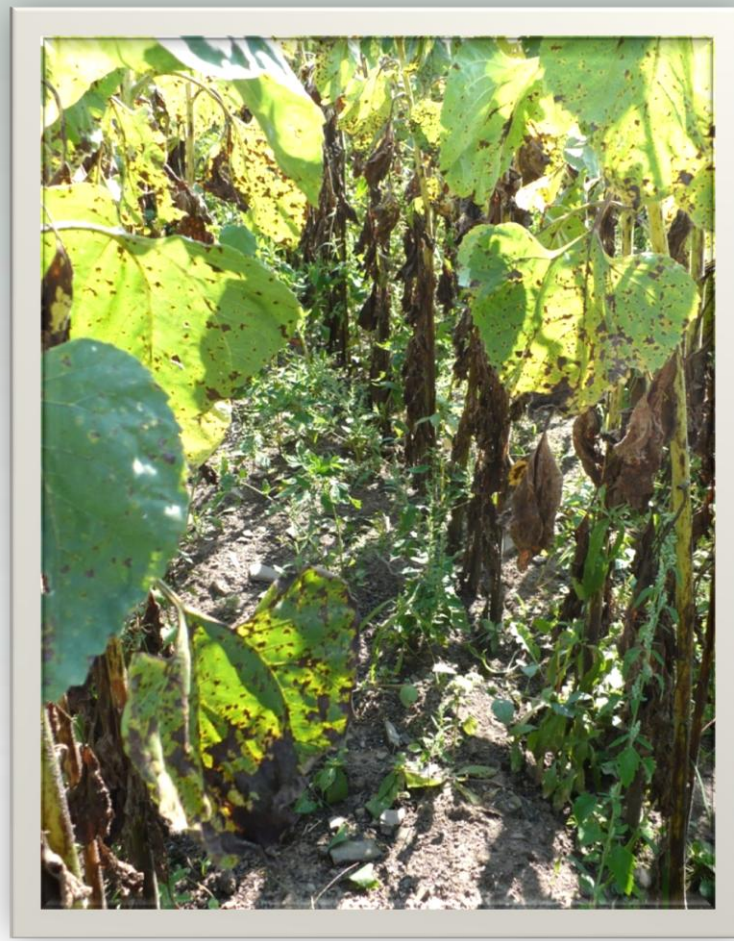
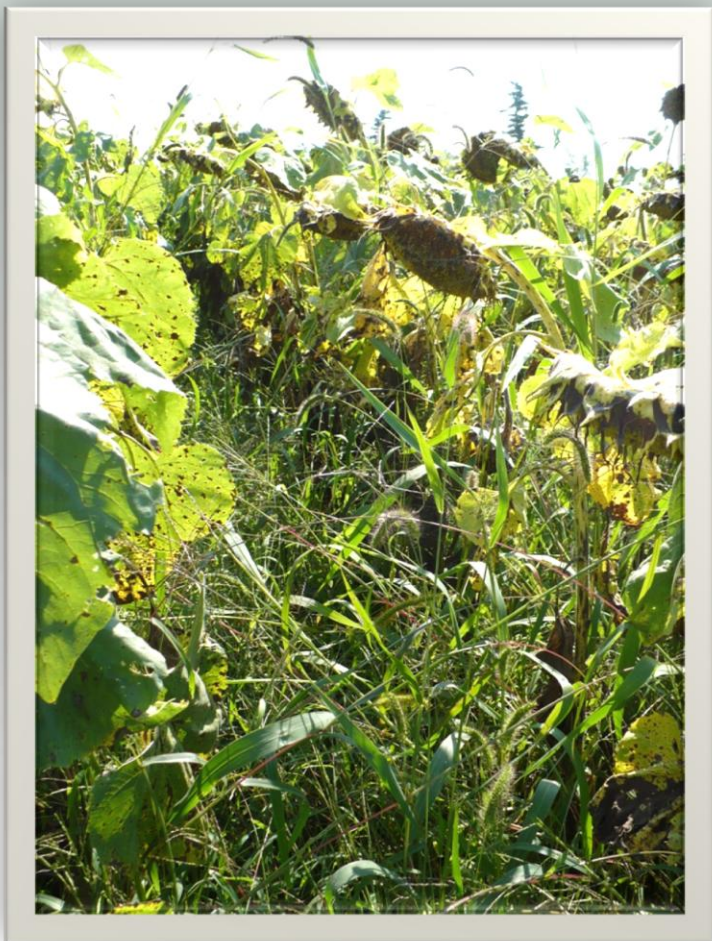
Weed control strategy	CP %	NDF %	dNDF %	Nel %
6 Day	7.13	44.7	25.2	0.743
12 Day	7.10	46.4	26.5	0.737
6 & 12 Day	6.33	46.4	27.0	0.740
Control	6.80	44.0	25.5	0.750
Herbicide	6.97	41.5	24.1	0.757
LSD (0.10)	NS	NS	NS	NS

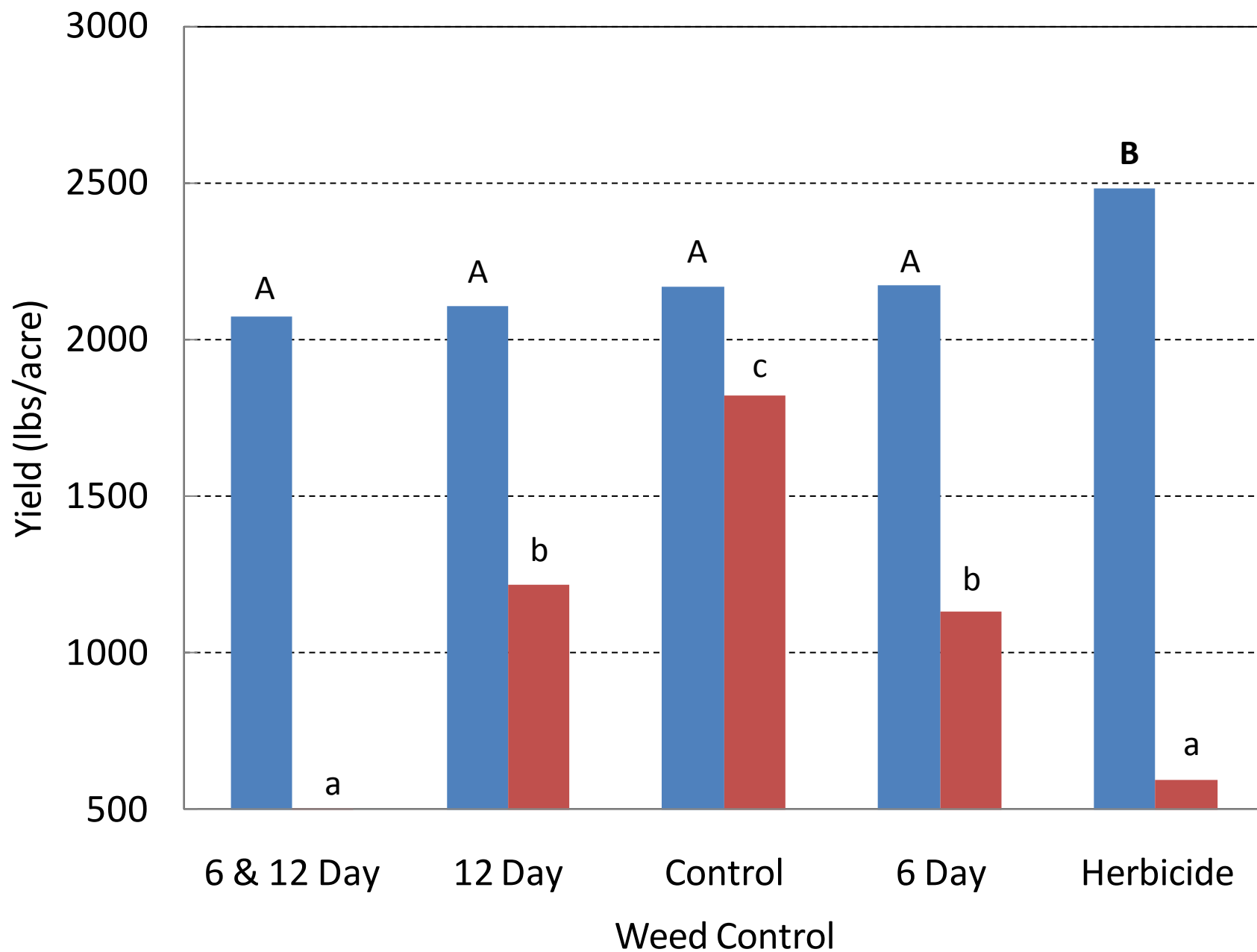
Corn Silage

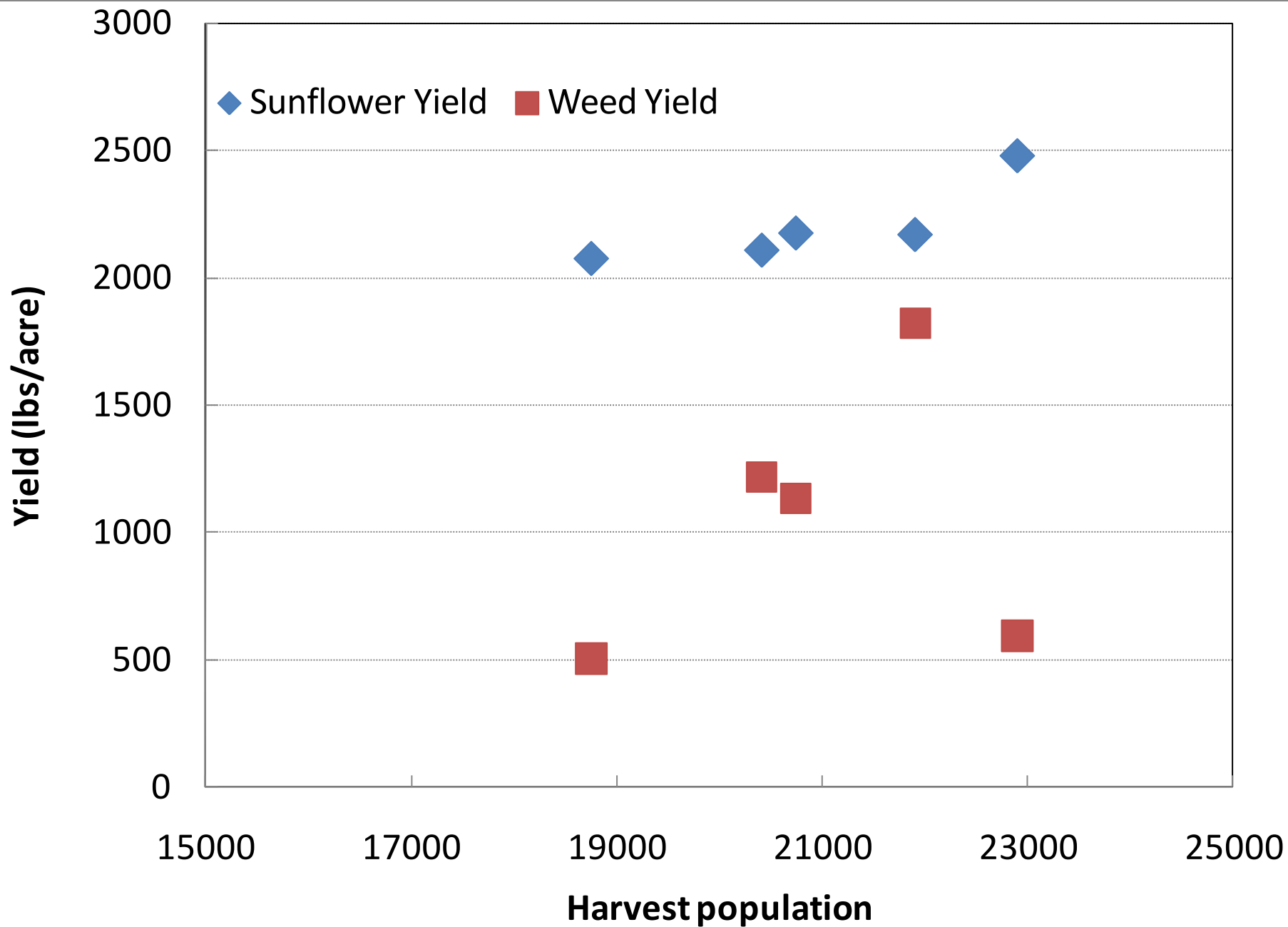
- Herbicide best control and crop yields
- Corn most sensitive to weeds
- Combine tinweeder with inter-row cultivation
- Did not seem to reduce populations



WEED CONTROL - SUNFLOWERS







Sunflowers

- Tolerate weeds for the most part
- Tineweed effective at 2x
- Need to increase seeding rate to minimize yield loss

Sunflower Production

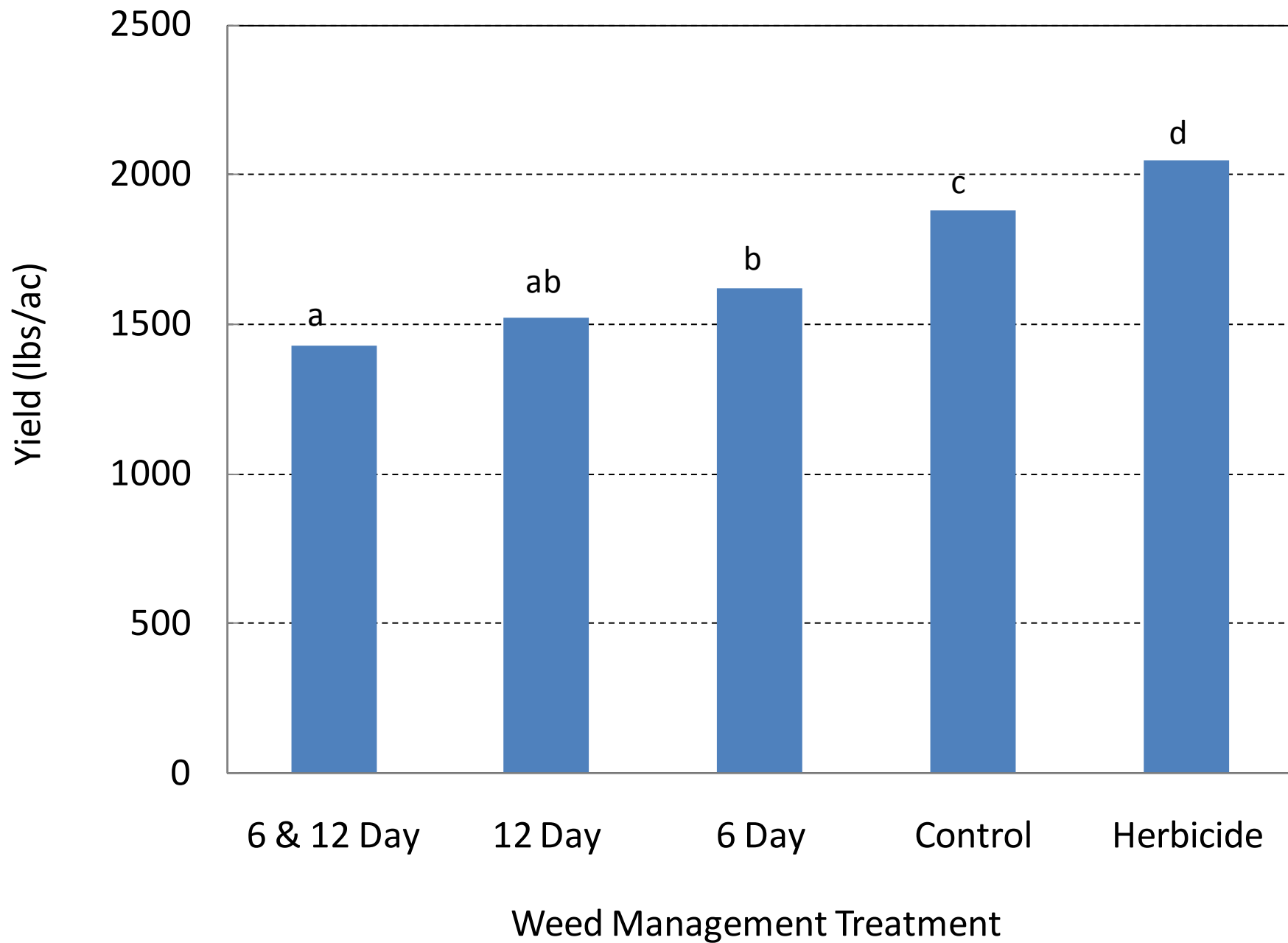
A photograph of a sunflower field under a clear blue sky. The sunflowers are in various stages of growth, with some fully bloomed and others as buds. The image is used as a background for a presentation slide, with a semi-transparent grey box containing text overlaid on the left and center.

Tolerate weeds for the most part

Tineweed effective at 2x

Need to increase seeding rate to minimize yield loss





Canola Production

Canola seeded too shallow for tinweeding
Reduced populations and reduced yields

Tineweeding

A Weed Control Strategy for Row Crops

Effective weed control

Need proper conditions

Seed at higher rates

Use tineweeder more frequently

Use in deep seeded crops

