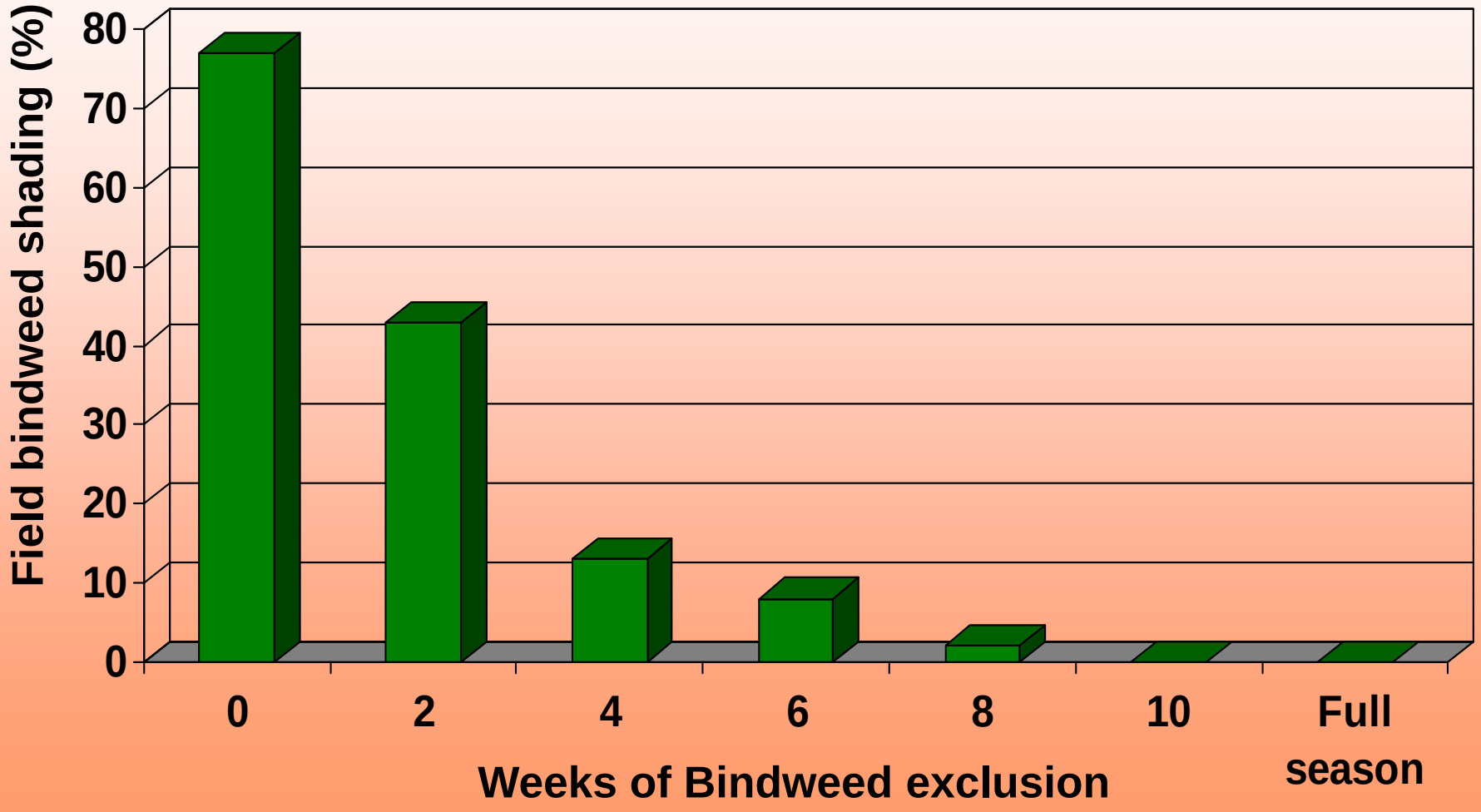
Field Bindweed Management in Processing Tomatoes

Tom Lanini
wtlanini@ucdavis.edu

Early Attempts at Understanding and Managing Field Bindweed

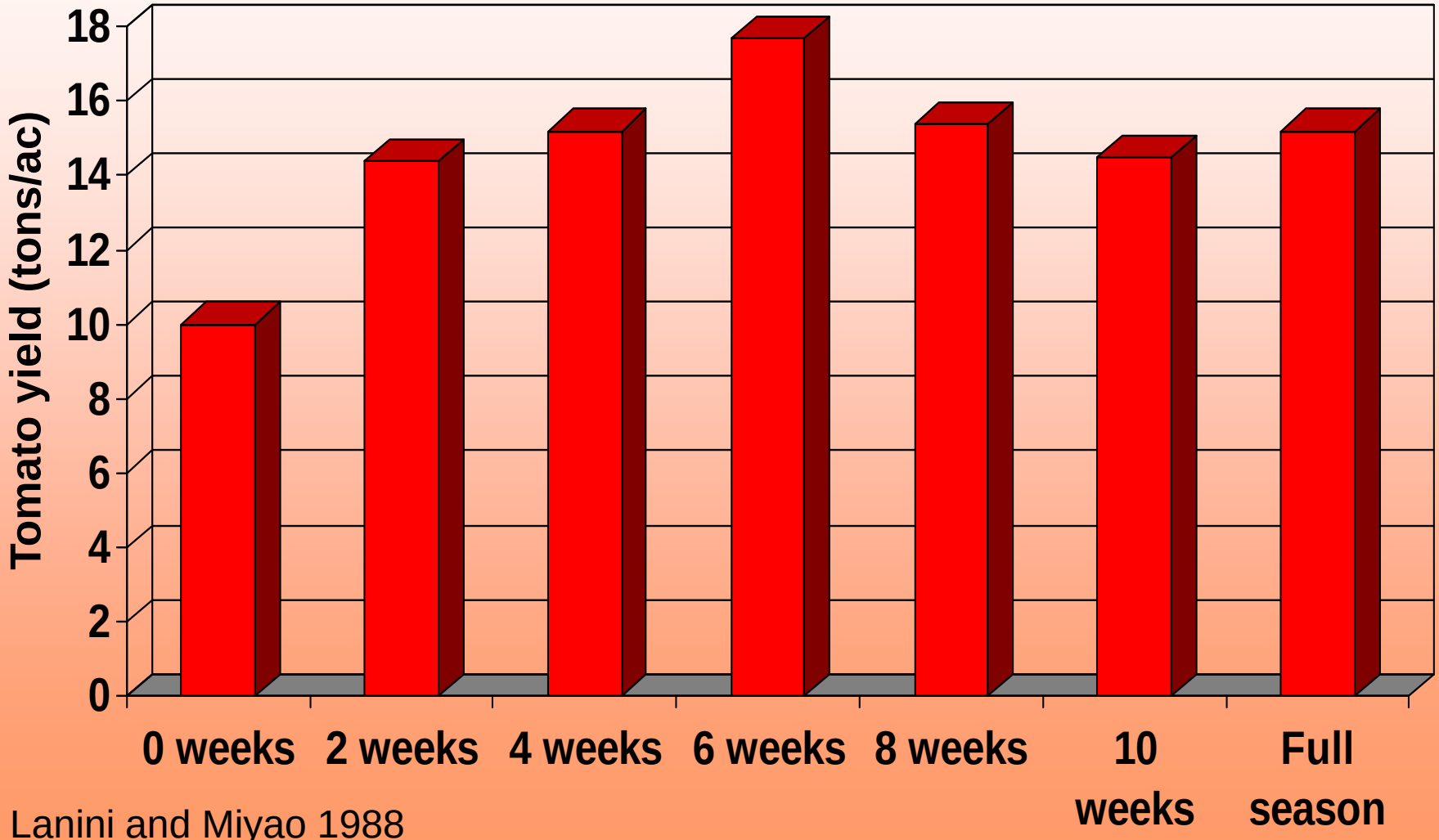
- Timing of Field Bindweed removal
- Evaluation of Carotenoid Biosynthesis inhibitors
- Evaluation of miscellaneous herbicides

Proportion of Tomatoes shaded by Field Bindweed – July 19, 1988



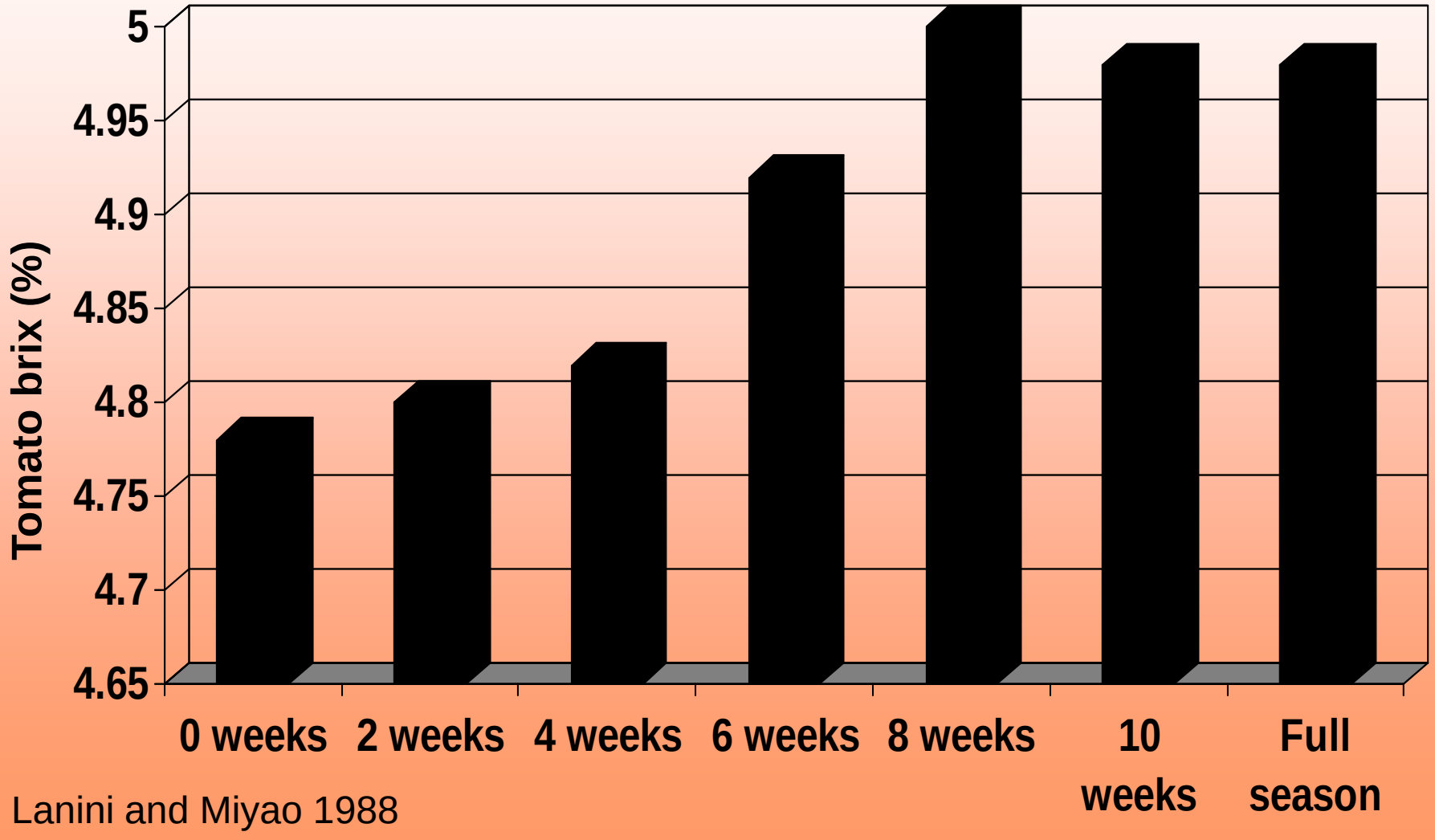
Lanini and Miyao 1988

Tomato yield as influenced by the Field Bindweed exclusion period



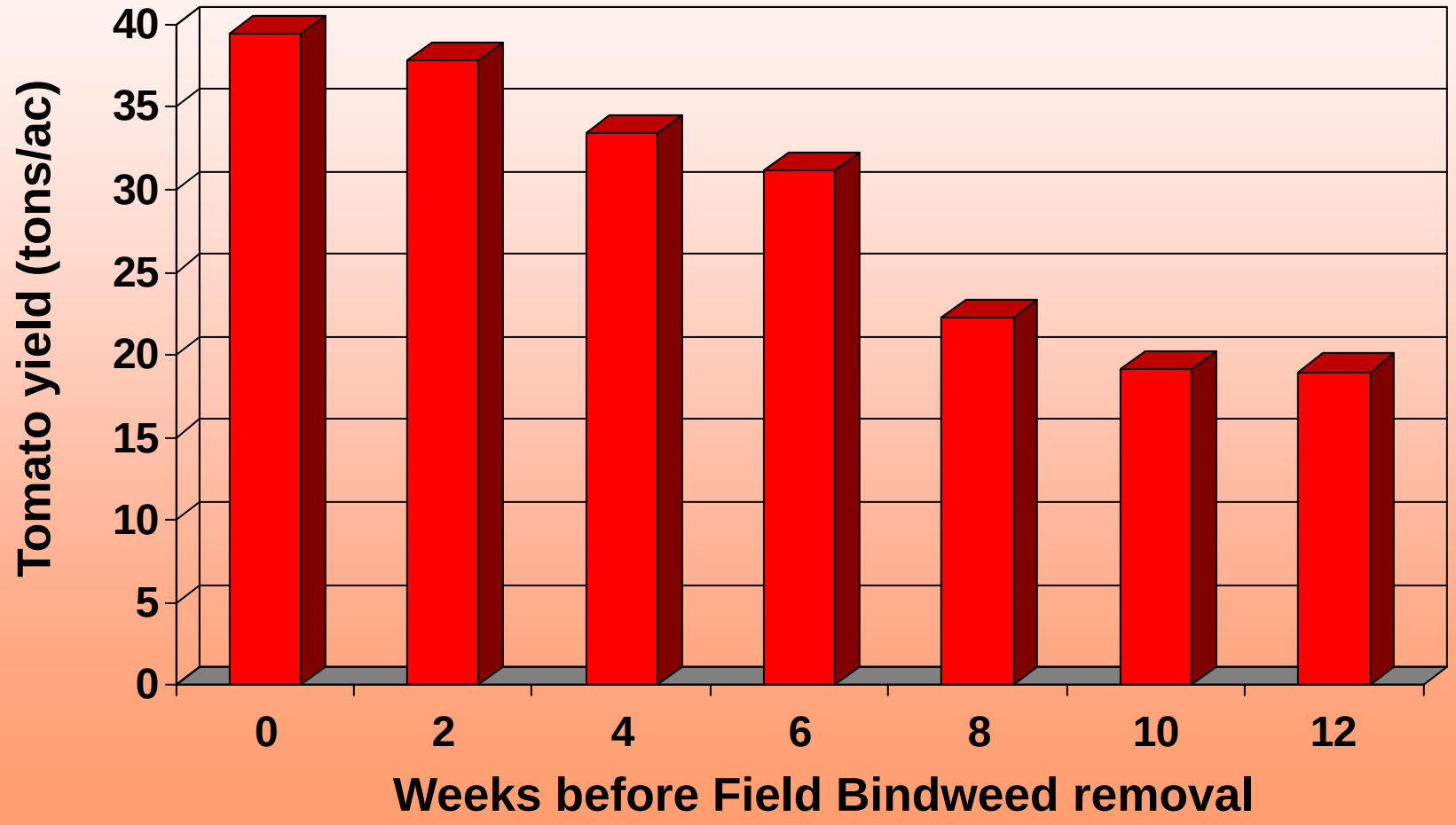
Lanini and Miyao 1988

Tomato brix (%) as influenced by the Field Bindweed exclusion period



Lanini and Miyao 1988

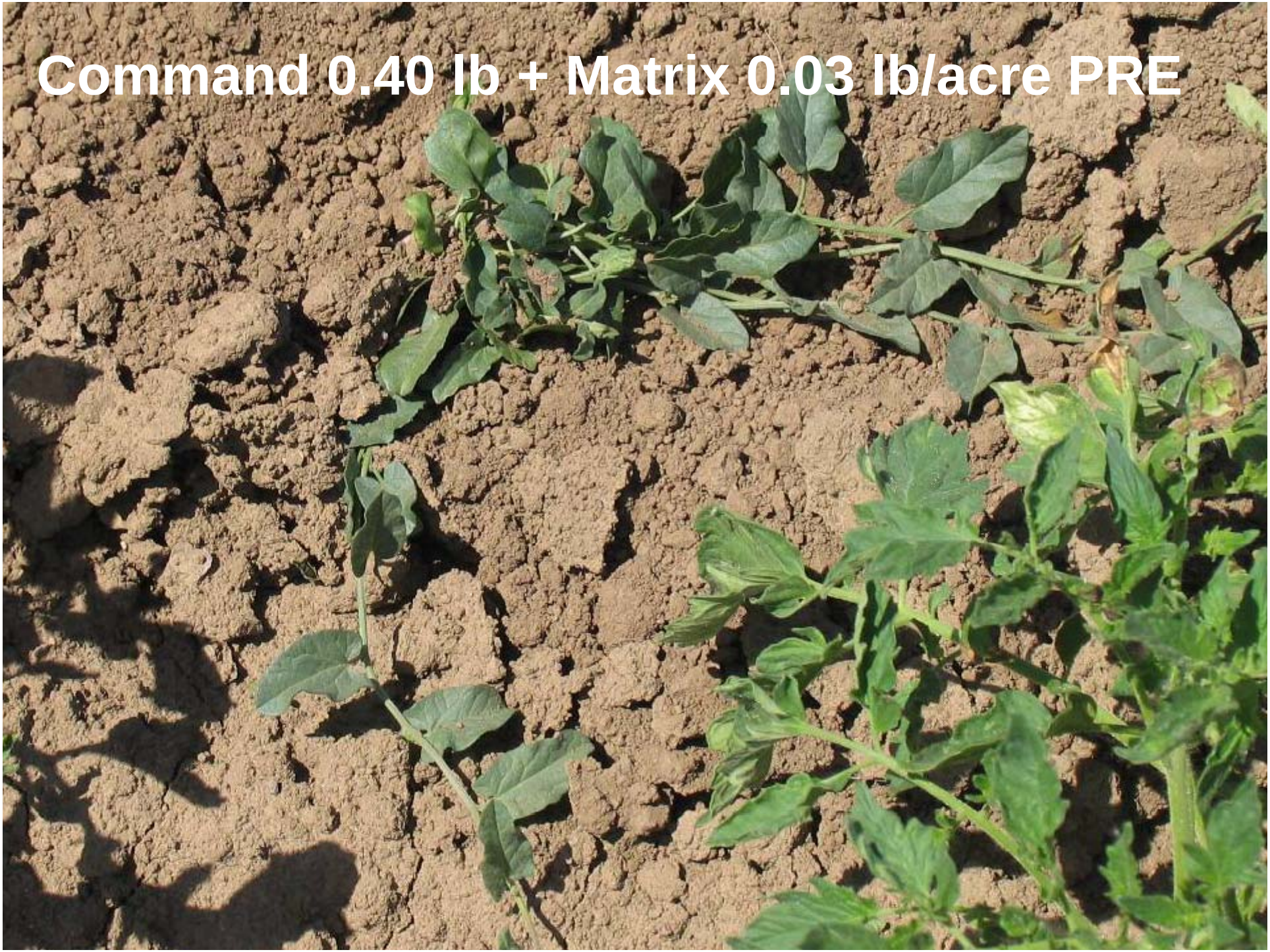
Tomato Yield in relation to weeks with field bindweed competition



Lanini and Miyao 1988

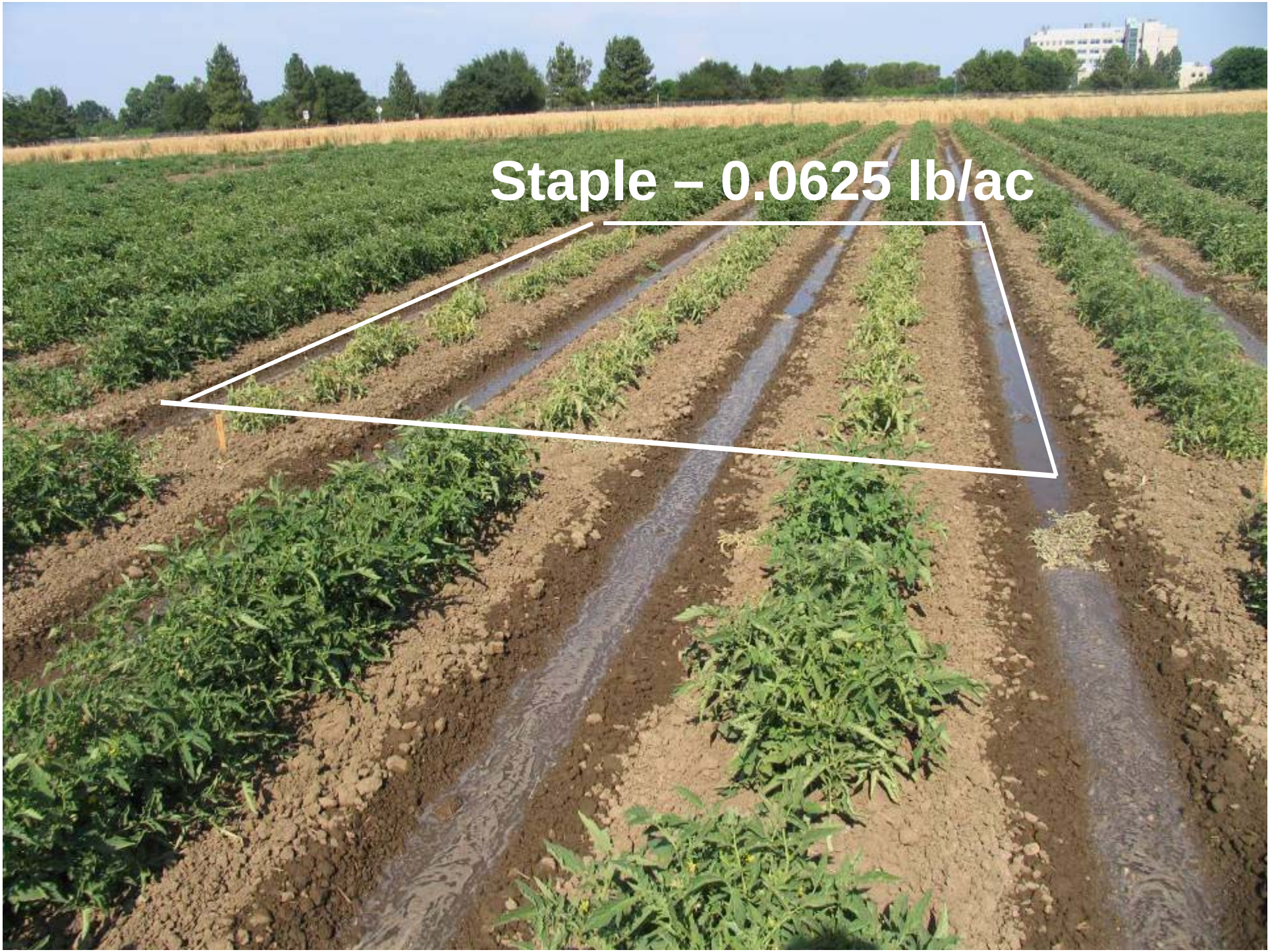
Field bindweed conclusions

- Early removal is need to avoid mechanical injury
- Early competition reduced yield and brix


Command 0.40 lb + Matrix 0.03 lb/acre PRE


Callisto (mesotrione) 0.22 lb/ac PRE


Balance (isoxaflutole) 0.067 lb PRE


Staple – 0.0625 lb/ac


Mustard Meal – 400 lbs per acre PRE

Two Bindweed studies in 2010

- Site 1 – treated 3 X in the spring with glyphosate + Shark using a WeedSeeker
  - subsurface drip irrigated

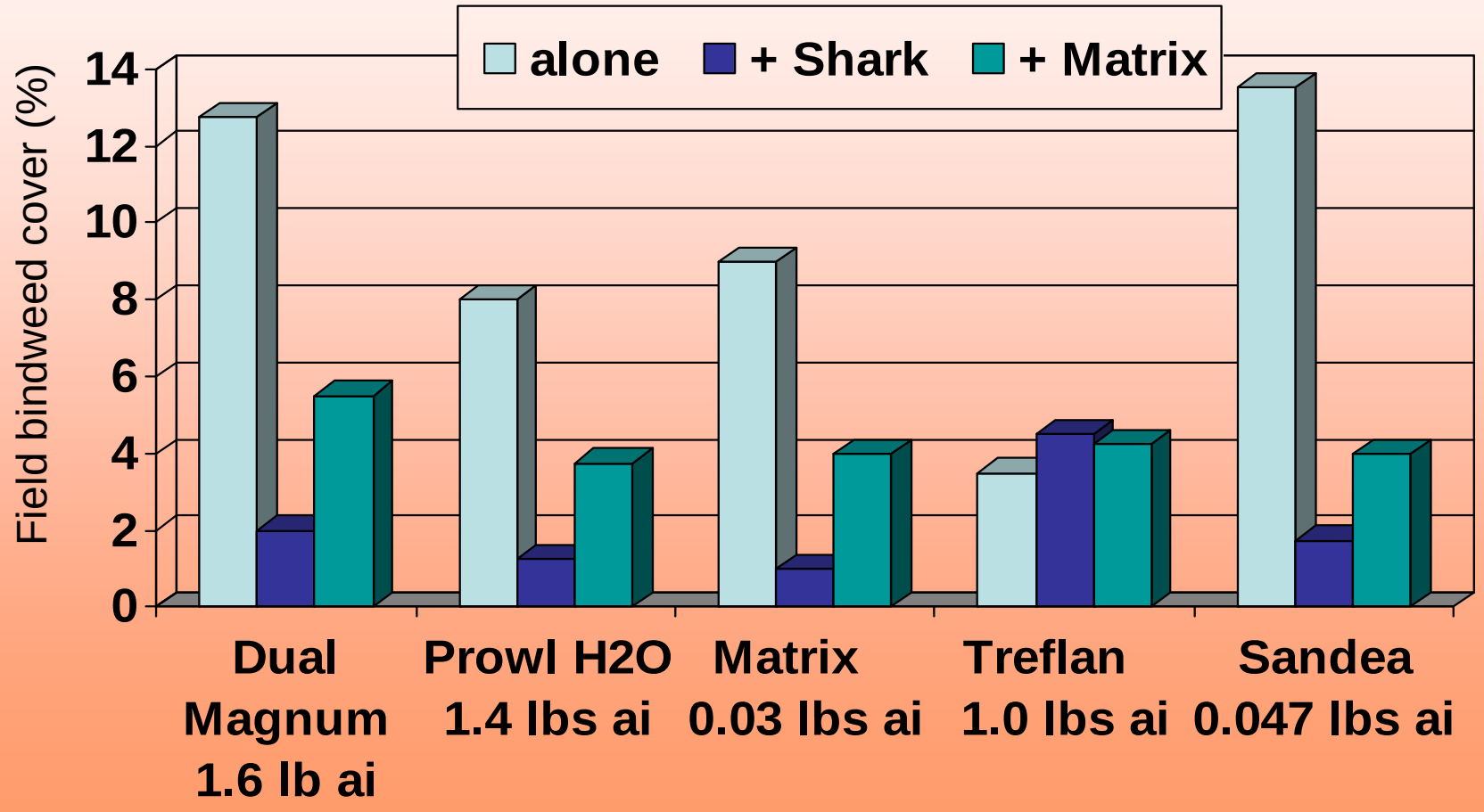
- Site 2 – Oat cover crop - chopped and removed in late spring and beds prepared
  - sprinkler irrigation used after transplanting and furrow irrigation used remainder of season

Treatments at Site 1 in 2010

Treatment	Timing	Rate (lbs/ac)
Dual Magnum	PRE	1.6
Sandea	PRE	0.047
Prowl H2O	PRE	1.4
Matrix	PRE	0.03
Treflan	PRE	1.0
+ or –	Shark or Matrix POST	
Matrix	POST	0.03
Matrix	POST	0.03
+ Matrix	POST (20 day interval)	0.03
Shark	POST shielded	0.031
Shark	POST shielded	0.031
+ Shark	POST shield (20 day)	0.031

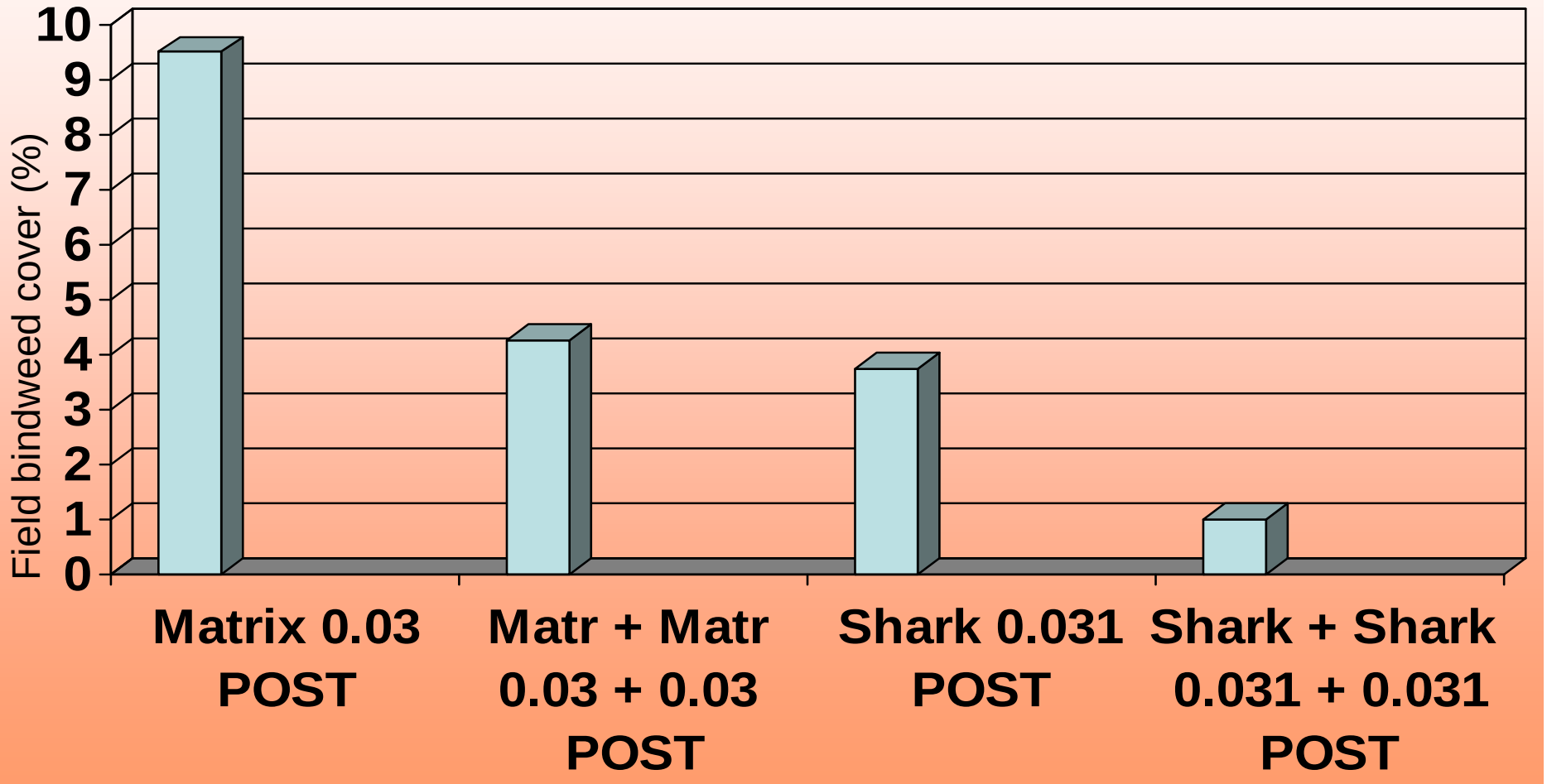

Site on May 11, after mechanical incorporation

Field Bindweed Cover (%) on June 23, 2010



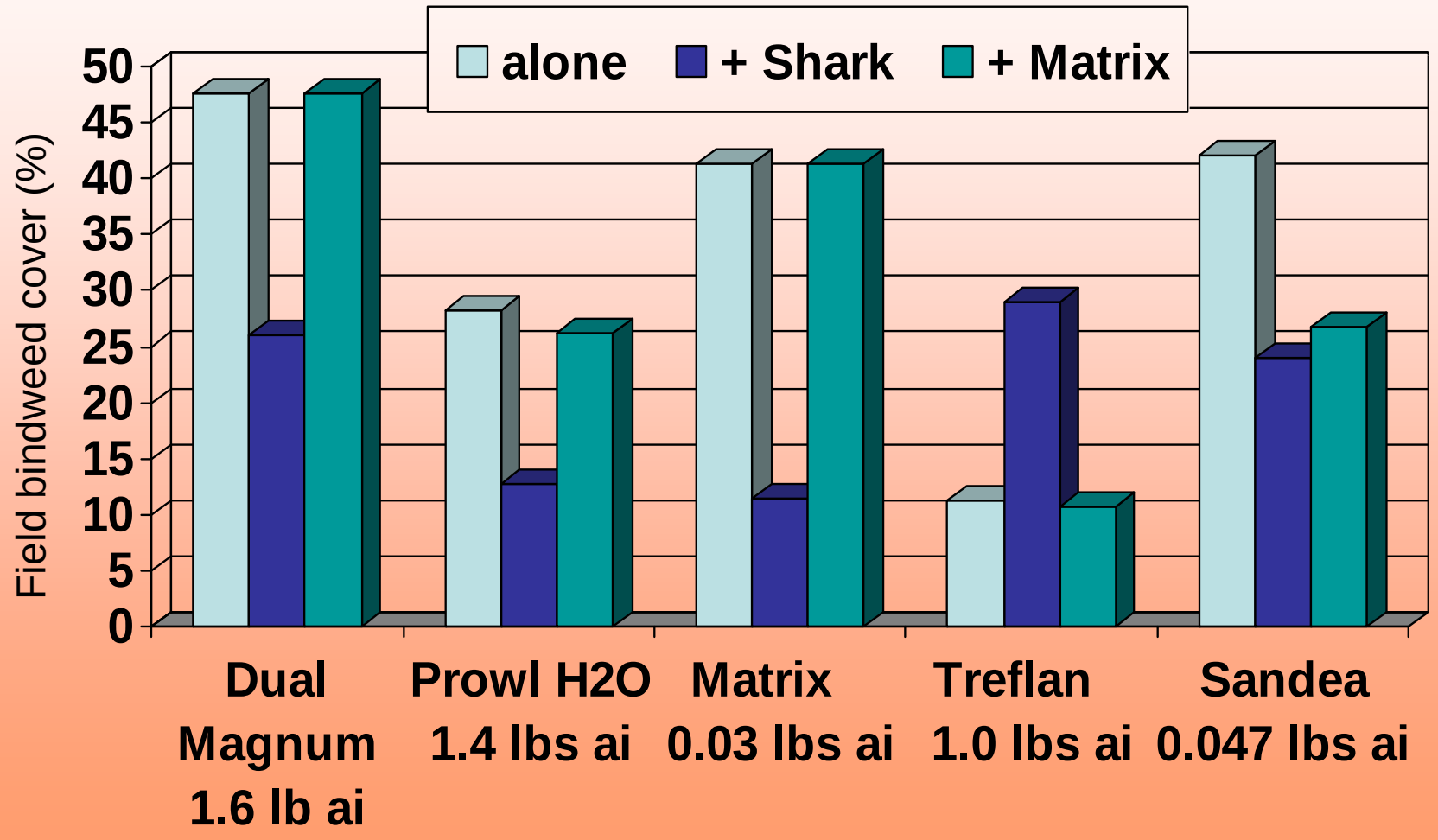
Untreated = 13% cover

Field Bindweed Cover (%) on June 23, 2010



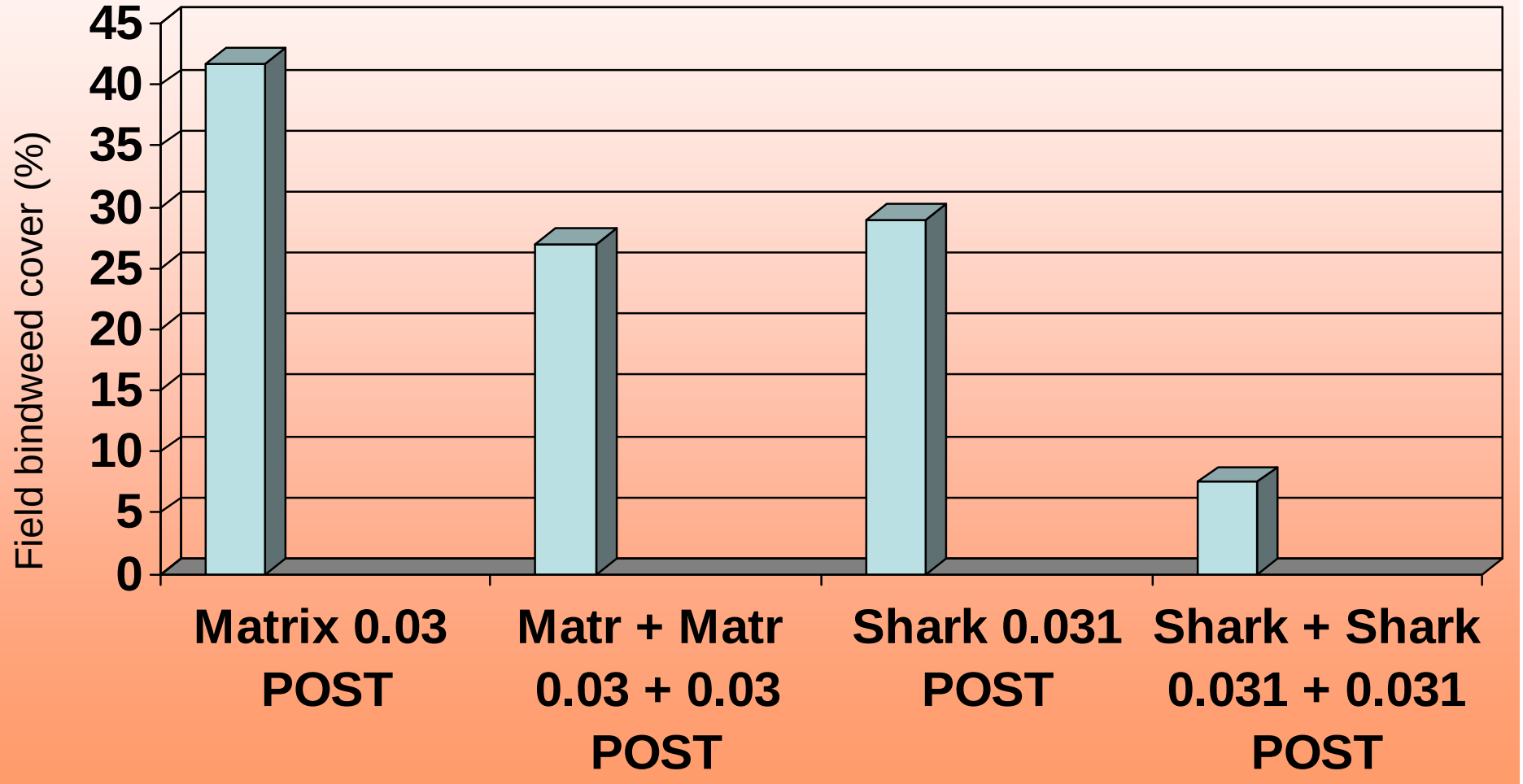
Untreated = 13% cover

Field Bindweed Cover (%) at Harvest



Untreated = 46% cover

Field Bindweed Cover (%) At Harvest



Untreated = 46% cover

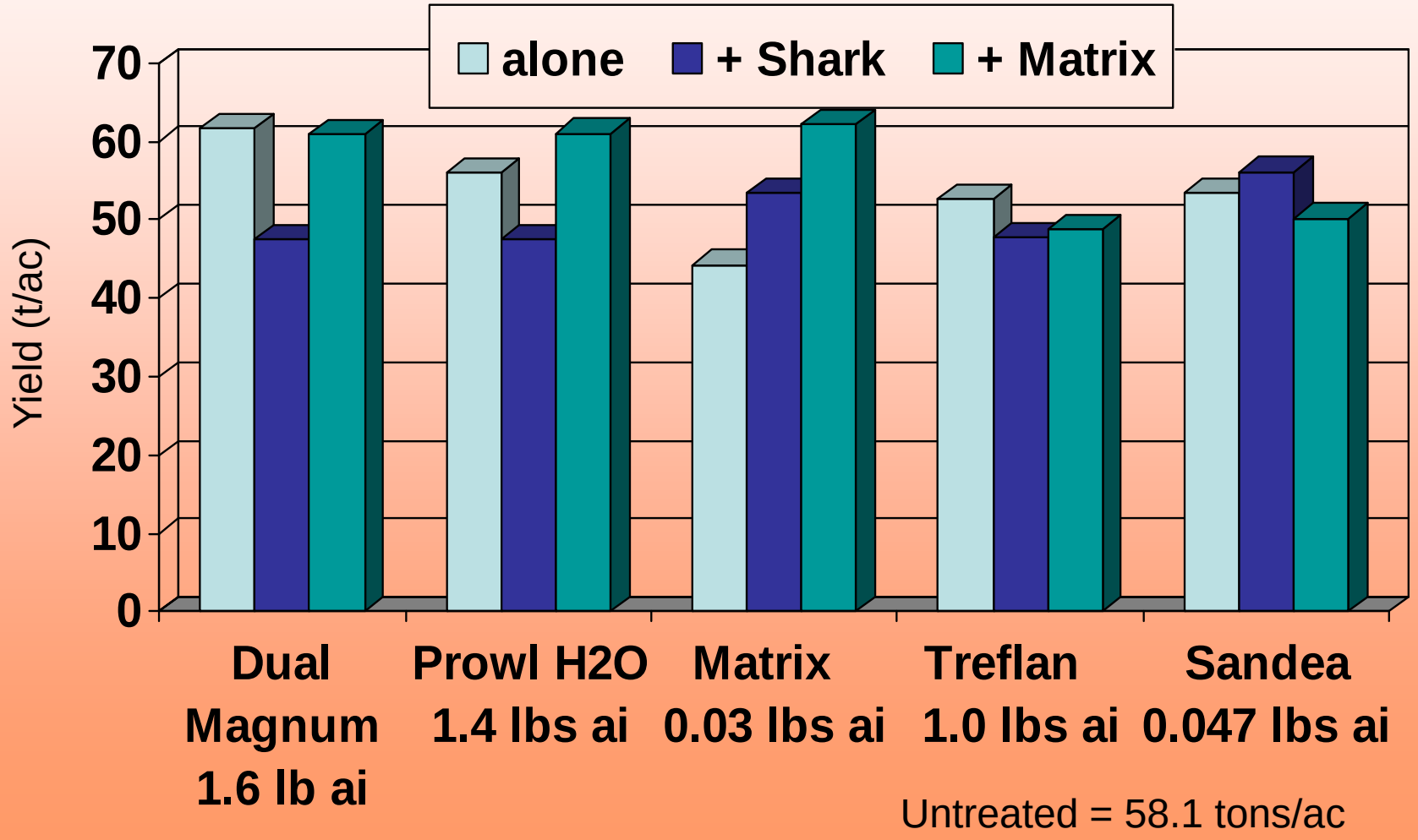

Untreated


Matrix 0.03 lb/a – POST


Prowl H2O PRE @ 1.4 lbs/ac


Treflan PRE @ 1.0 lb/ac

Tomato Yield (tons/acre) relative to treatment

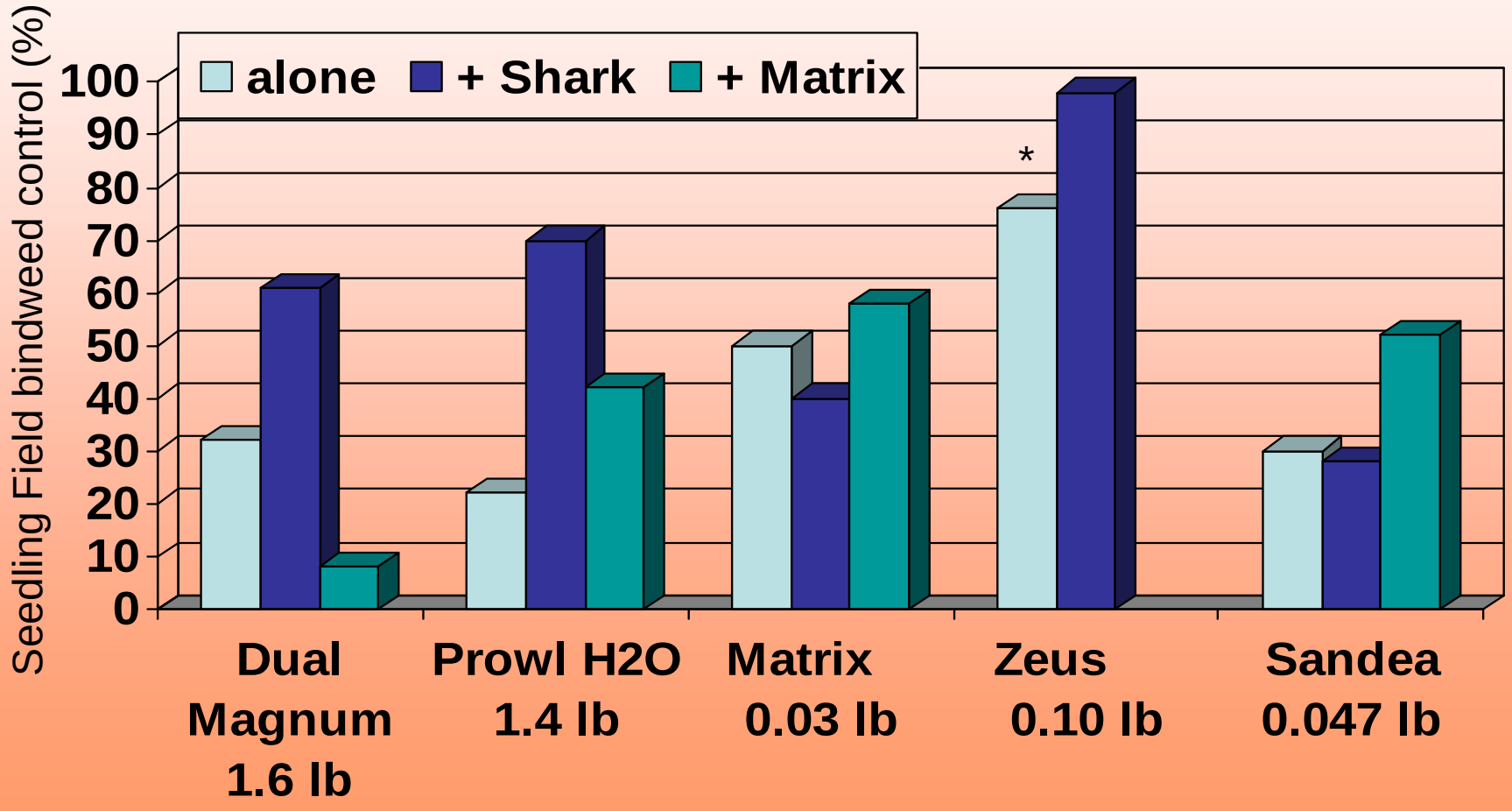


Untreated = 58.1 tons/ac

Treatments at Site 2 in 2010

Treatment	Timing	Rate (lbs/ac)
Dual Magnum	PRE	1.6
Sandea	PRE	0.047
Prowl H2O	PRE	1.4
Matrix	PRE	0.03
Zeus	PRE	0.10
+ or –	Shark or Matrix POST	
Matrix	POST	0.03
Matrix	POST	0.03
+ Matrix	POST (20 day interval)	0.03
Shark	POST shielded	0.031
Shark	POST shielded	0.031
+ Shark	POST shield (20 day)	0.031

Field Bindweed Seedling Control (%) on June 23, 2010



* = Zeus used at 0.20 lb ai


Untreated


Dual Magnum @ 1.6 lbs/ac

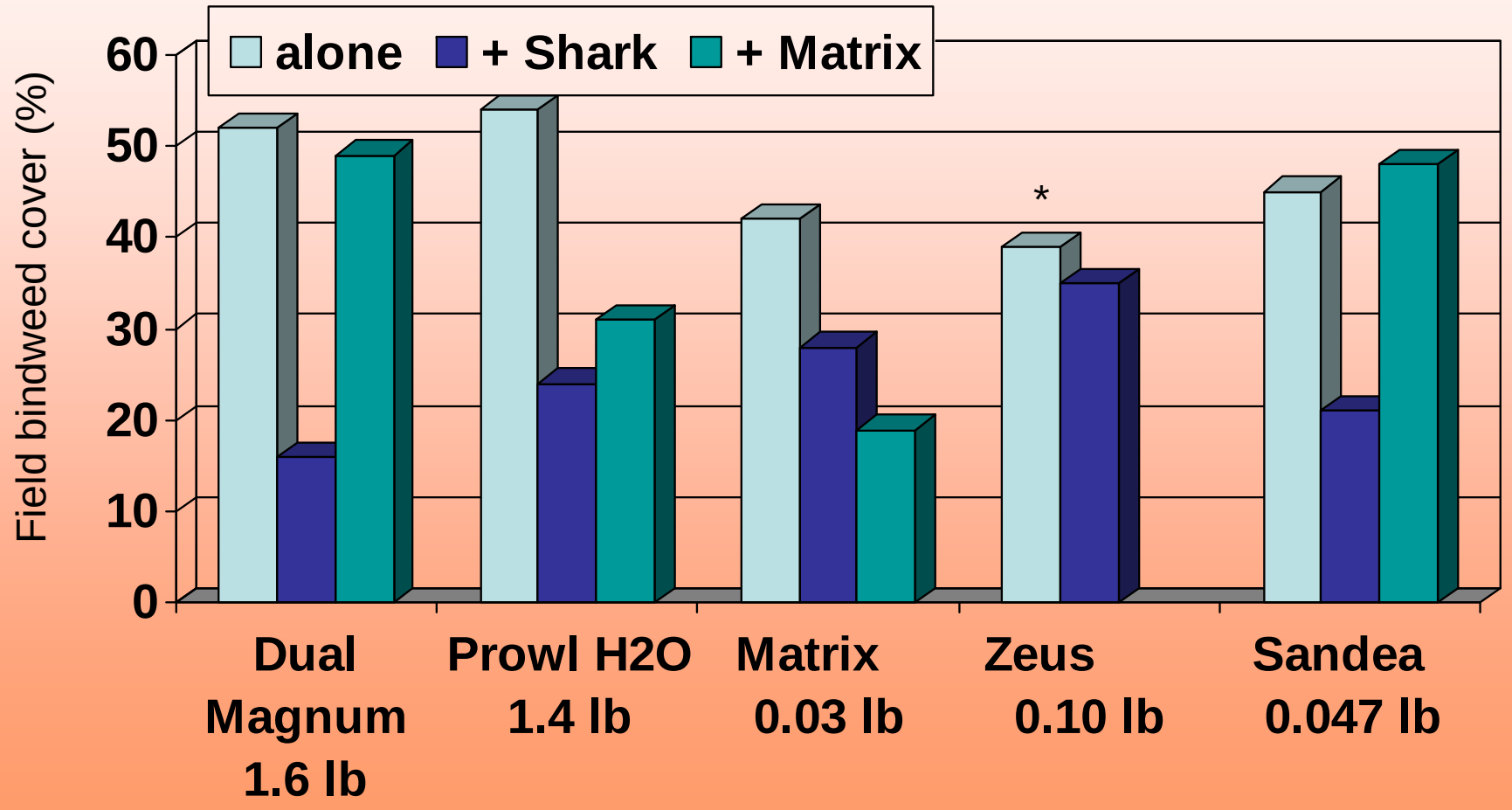

Matrix PRE @ 0.03 lb/ac


Matrix POST @ 0.03 lb/ac


Prowl H2O PRE @ 1.4 lbs/ac


Zeus PRE @ 0.15 lbs/ac

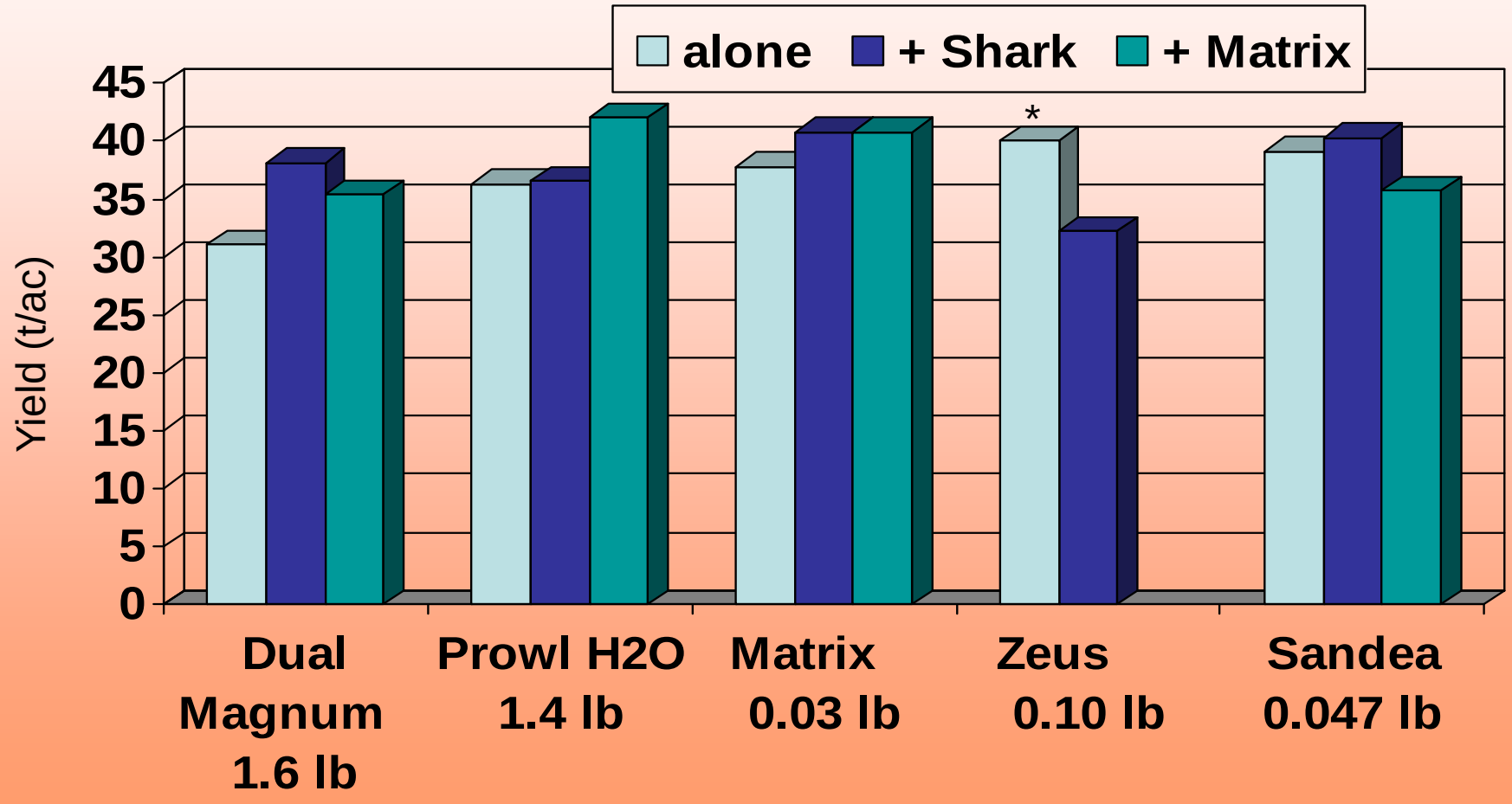
Field Bindweed Cover (%) At Harvest



* = Zeus used at 0.20 lb ai

Untreated = 57.5% cover

Tomato Yield (tons/acre) in relation to treatment



* = Zeus used at 0.20 lb ai

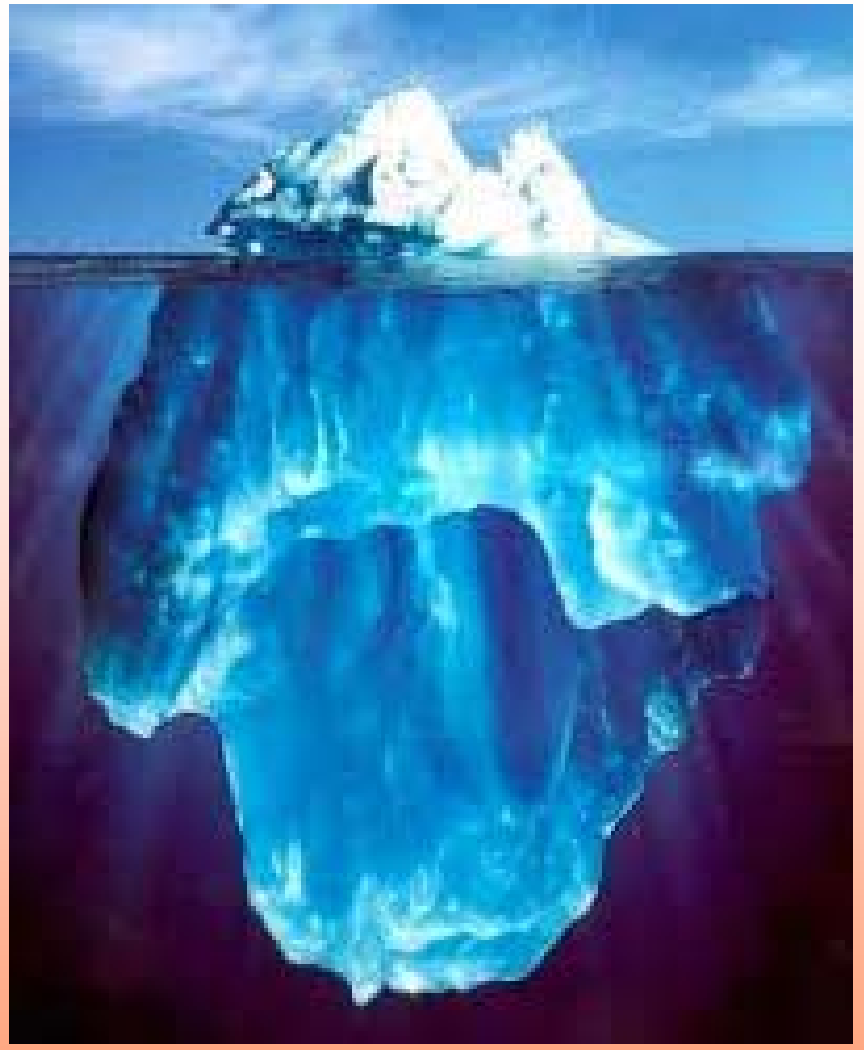
Untreated = 21.3 tons/ac

Field bindweed conclusions from 2010 studies

- Treflan and Prowl H2O were best at suppressing established field bindweed
- POST Shark treatments improved control in most cases (tomato injury???)
- Matrix and Zeus good at suppressing seedling bindweed, but less effective against established bindweed


Prowl H_2O 0.95 lb + Matrix 0.03 lb/acre PRE

- Field bindweed can have a large root biomass, relative to top growth
- Treatments rarely 100% effective
- Repeated treatments are needed for best suppression
- Rotation with corn or wheat will allow selective herbicide use




Drift, Carryover, or ???

Treflan / Prowl H_2O

- Good dodder and field bindweed suppression
- Require some form of incorporation
- Place herbicides in top two inches of soil and make certain roots of the transplant are below the treated soil.

Questions?