Update on Weed Control in Tomatoes

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California Tomato Research Institute

New or Potential Tomato Herbicides

- Sulfentrazone (**Spartan**) – Submitted to EPA
- Carfentrazone (**Shark**) – **registered**
- Pendimethalin (**Prowl H_2O**) - **registered**

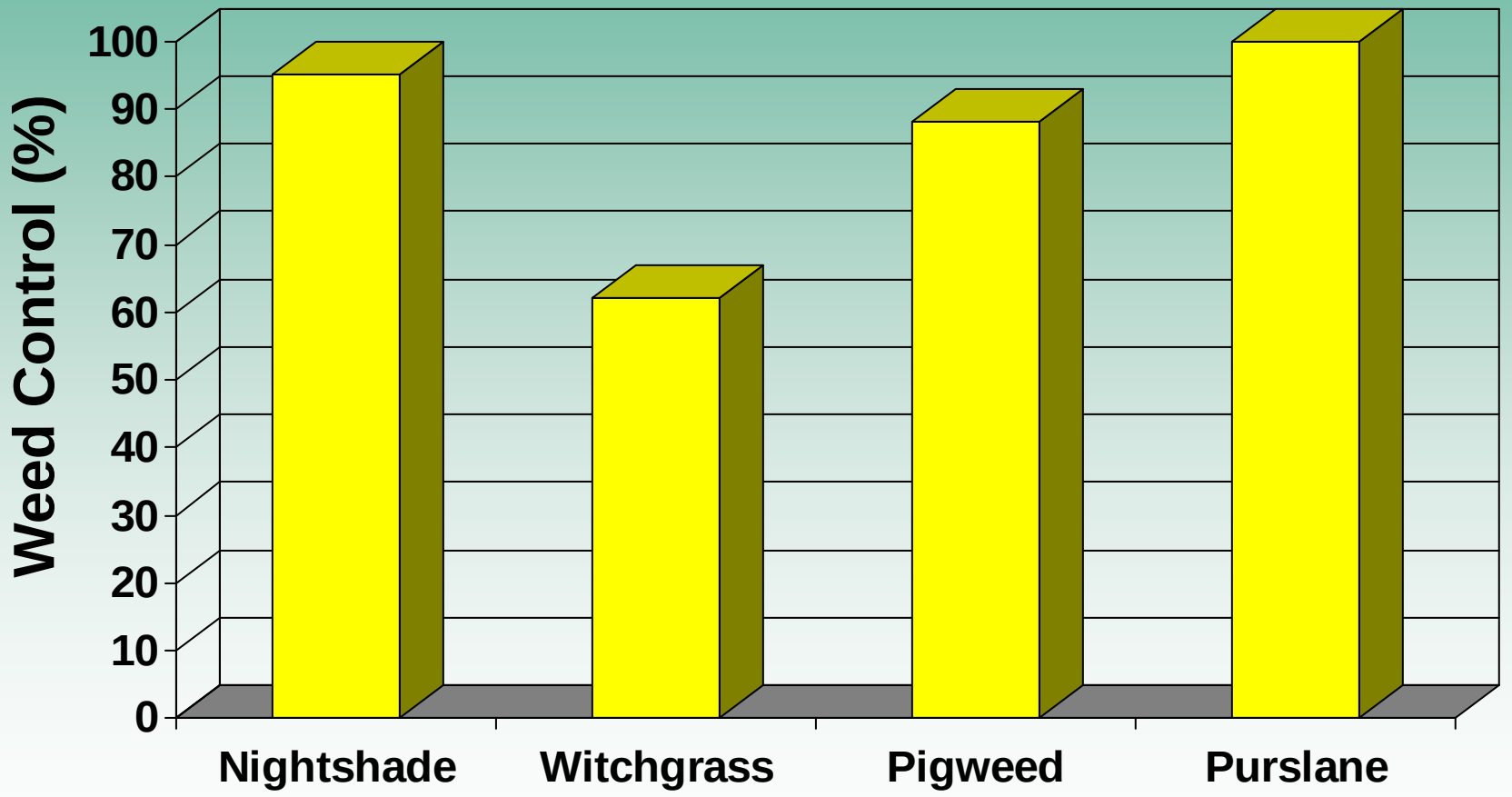
Spartan (Sulfentrazone)

- Submitted to the EPA by IR-4
- Applied PRE-transplant 0.15 to 0.25 lb/a –
  (4.8 to 8 oz/a Spartan 4F)
- Excellent broadleaf weed control and fair grass control – long residual activity
- Slight injury to transplants and moderate to severe injury to direct seeded tomatoes
- Sensitive to soil and water pH –
  high pH = more potential activity


Spartan 0.375 lbs/a

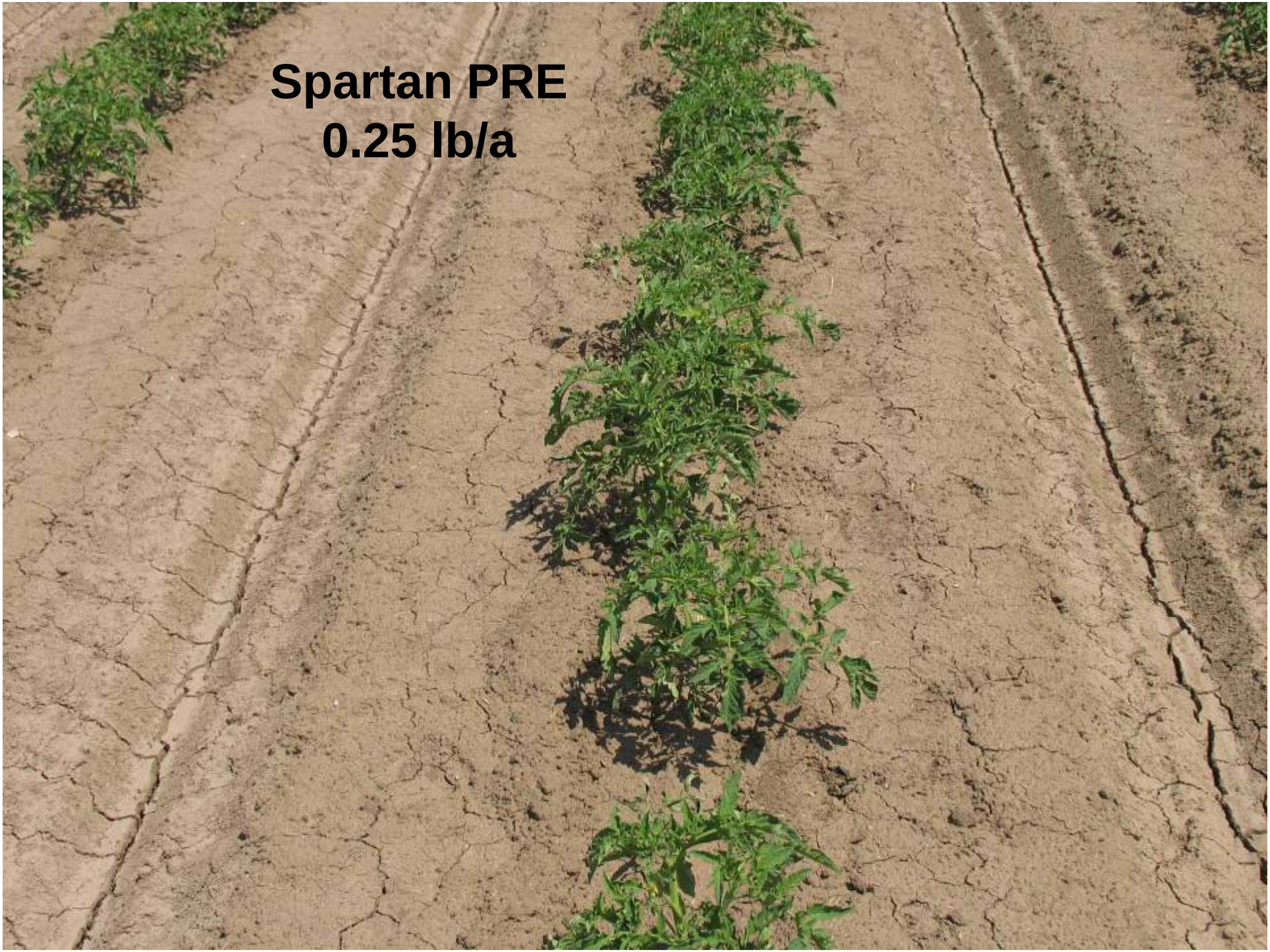

Spartan 0.1875 lbs/a

Weed Control @ 4 Weeks
Spartan 0.15 lbs/a



Weed Control @ 4 Weeks
Spartan 0.25 lbs/a


Spartan PRE
0.15 lb/a


Spartan PRE
0.25 lb/a

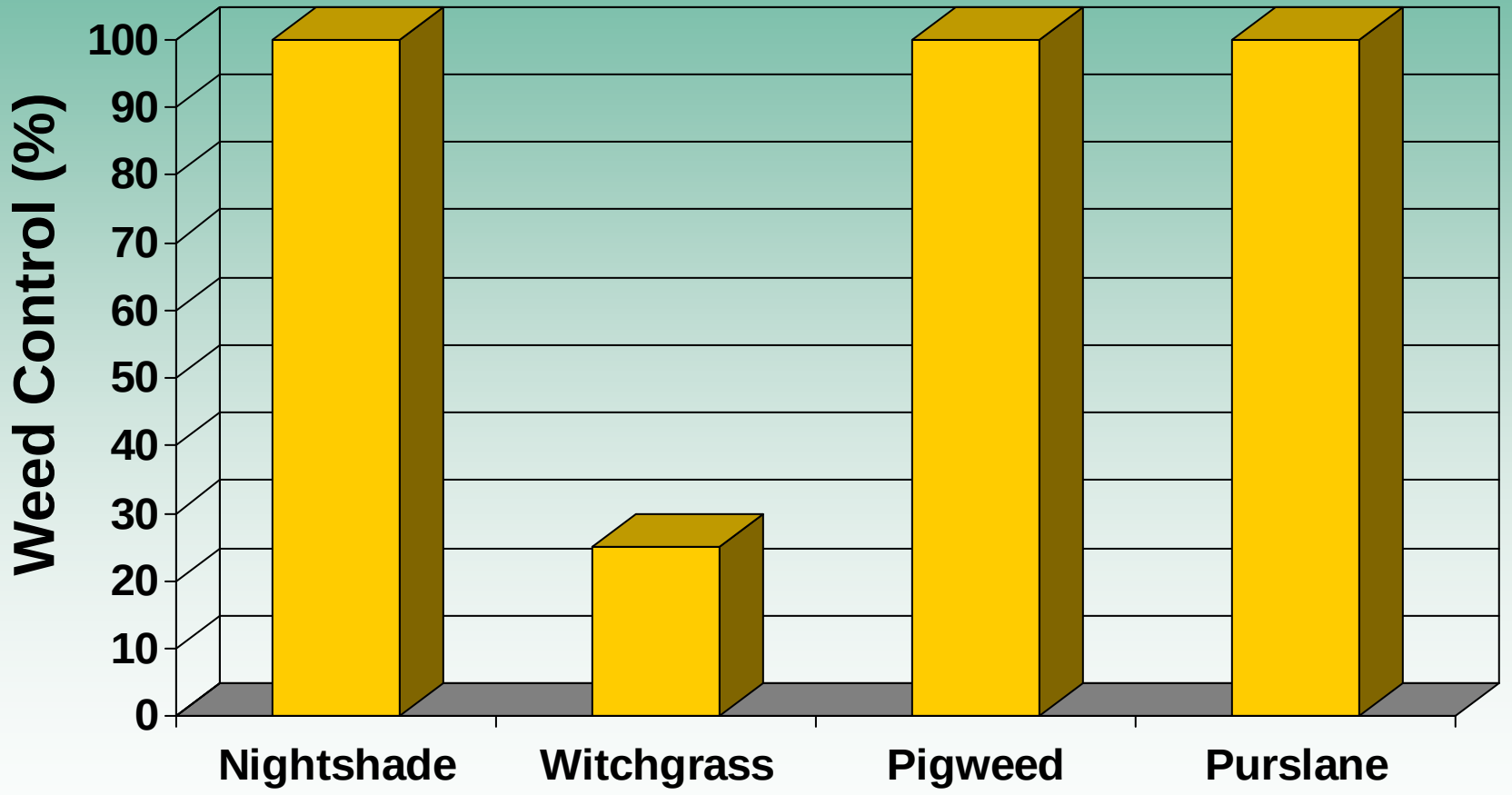
Spartan - Recrop Intervals

- Alfalfa - 12 months
- Corn - 10 months
- Cotton - 18 months
- Limas - Anytime
- Sunflower - Anytime
- Wheat - 4 months
- All others - 12 months

Shark (Carfentrazone)

- Applied PRE or POST @ 0.008 to 0.032 lb/a – (0.33 to 1.33 oz/a of Shark)
- Excellent velvetleaf, nightshade, pigweed, and lambsquarters control
- No residual activity
- No recrop restrictions
- PRE – 1 day before transplanting
- POST – hooded sprayer

Weed Control @ 4 Weeks
Shark 0.016 lbs/a Post-shielded




Shark 0.016 lbs/a
Post-shielded

Prowl H_2O (Pendimethalin)

- Applied PRE @ 0.95 to 1.42 lb/a (tomatoes)
- Less volatile than Treflan
- Moderate residual activity – 70 day PHI
- Good pigweed and grass control – also may be good for dodder (based on alfalfa studies)
- Currently registered PRE in Transplant tomatoes or POST-directed in established tomatoes
- Supplemental label expires Dec. 31, 2010.


Prowl H_2O 1.42 lbs/ac


Prowl H_2O 0.95 lbs/ac

Weeds in Prowl H_2O plots 3 months after treatment

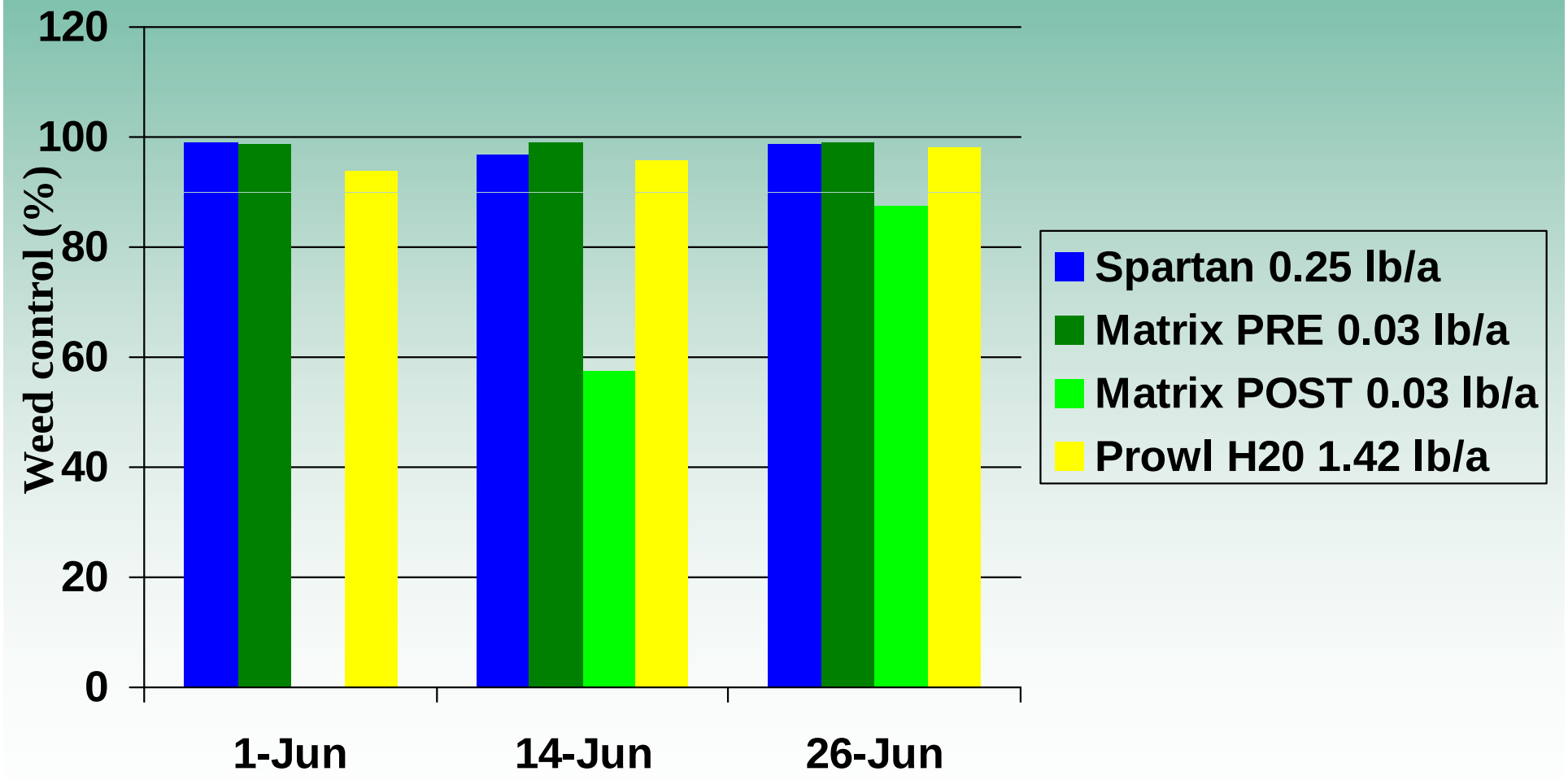
Prowl H_2O plots

- Purslane (0.75)
- Puncture vine (0.50)
- Black nightshade (0.25)
- Tumble pigweed (0.25)
- Lambsquarters (0.50)

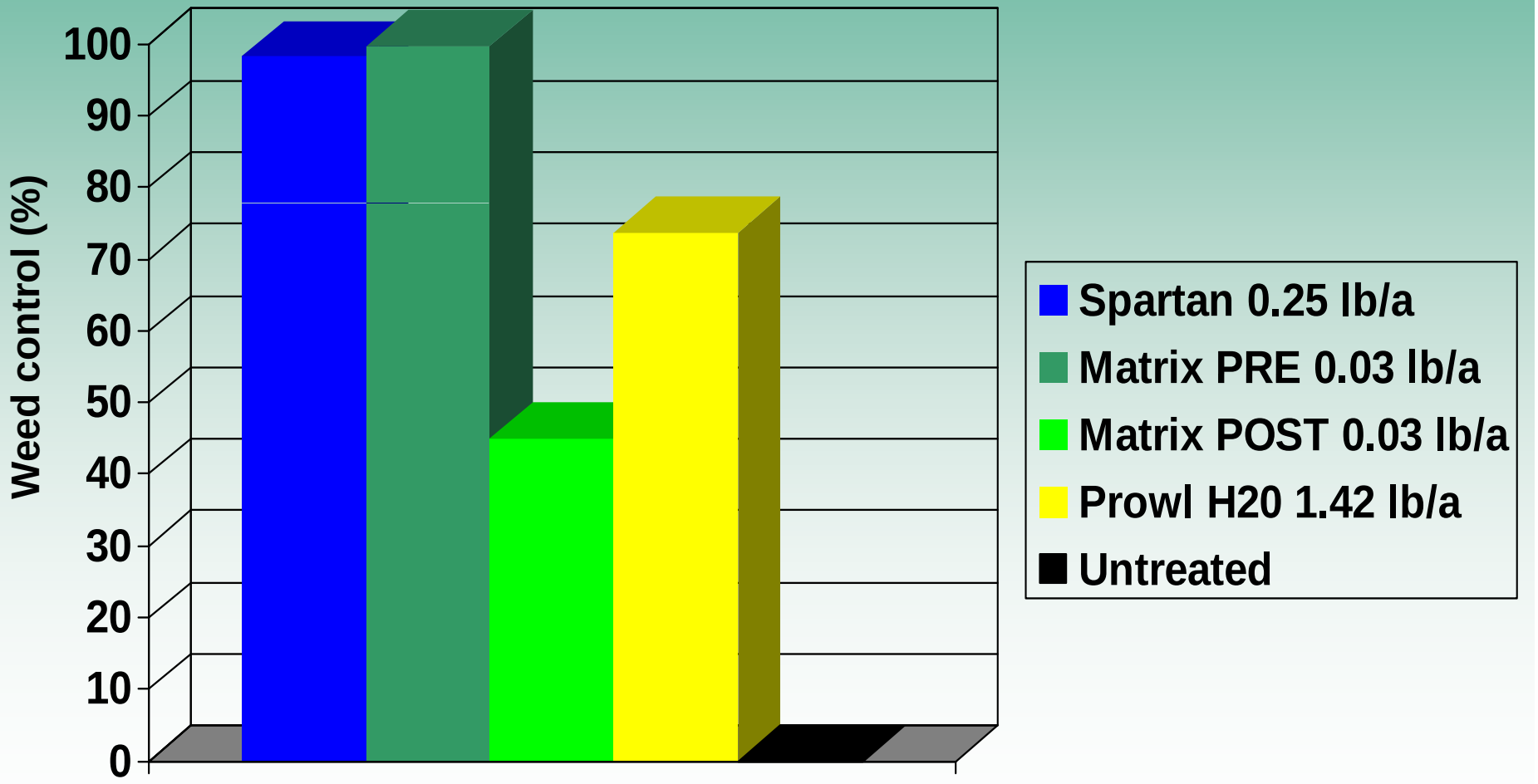
Untreated Plots

- Purslane (0.75)
- Puncture vine (0.75)
- Black nightshade (1.0)
- Redroot pigweed (0.75)
- Tumble pigweed (1.0)
- Prostrate pigweed (0.75)
- Lambsquarters (0.75)

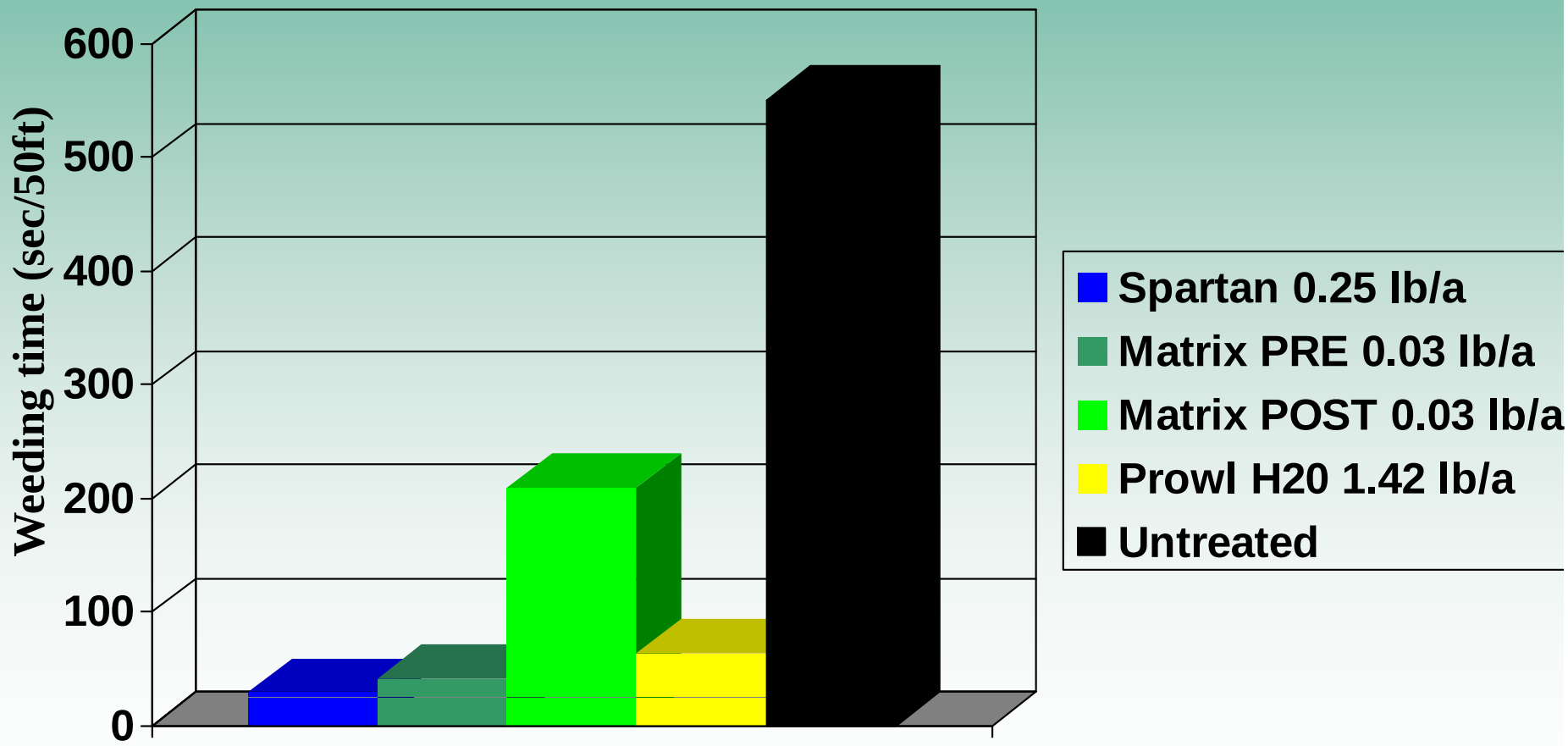
Weed control (%) after treatment in Processing Tomato



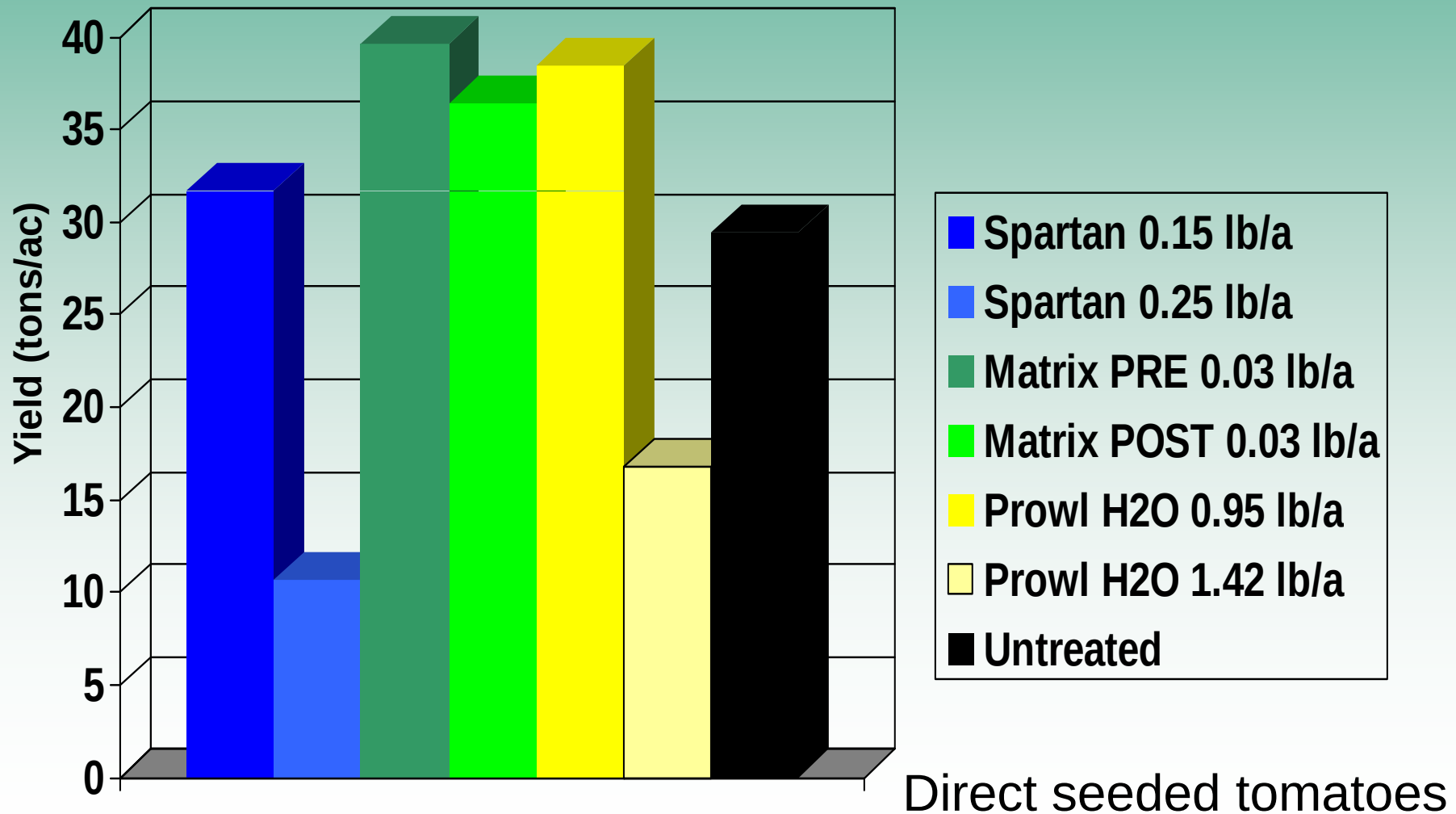
Late Season Weed Control (%) in Processing Tomato - August 9



Hand Weeding Time (sec./50ft) in Processing Tomato



Yield of Processing Tomato (tons/ac) following PRE Herbicides

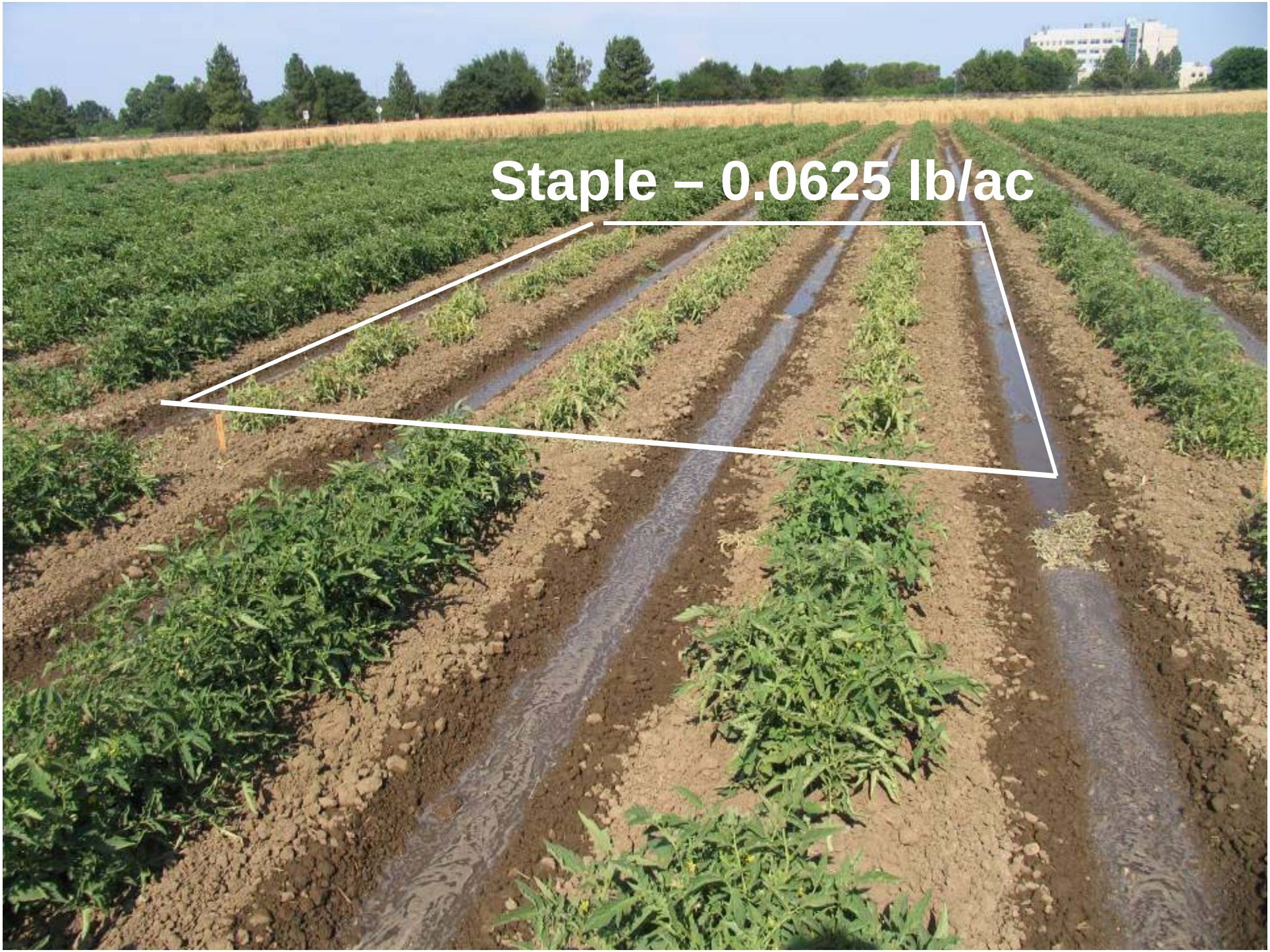


Direct seeded tomatoes

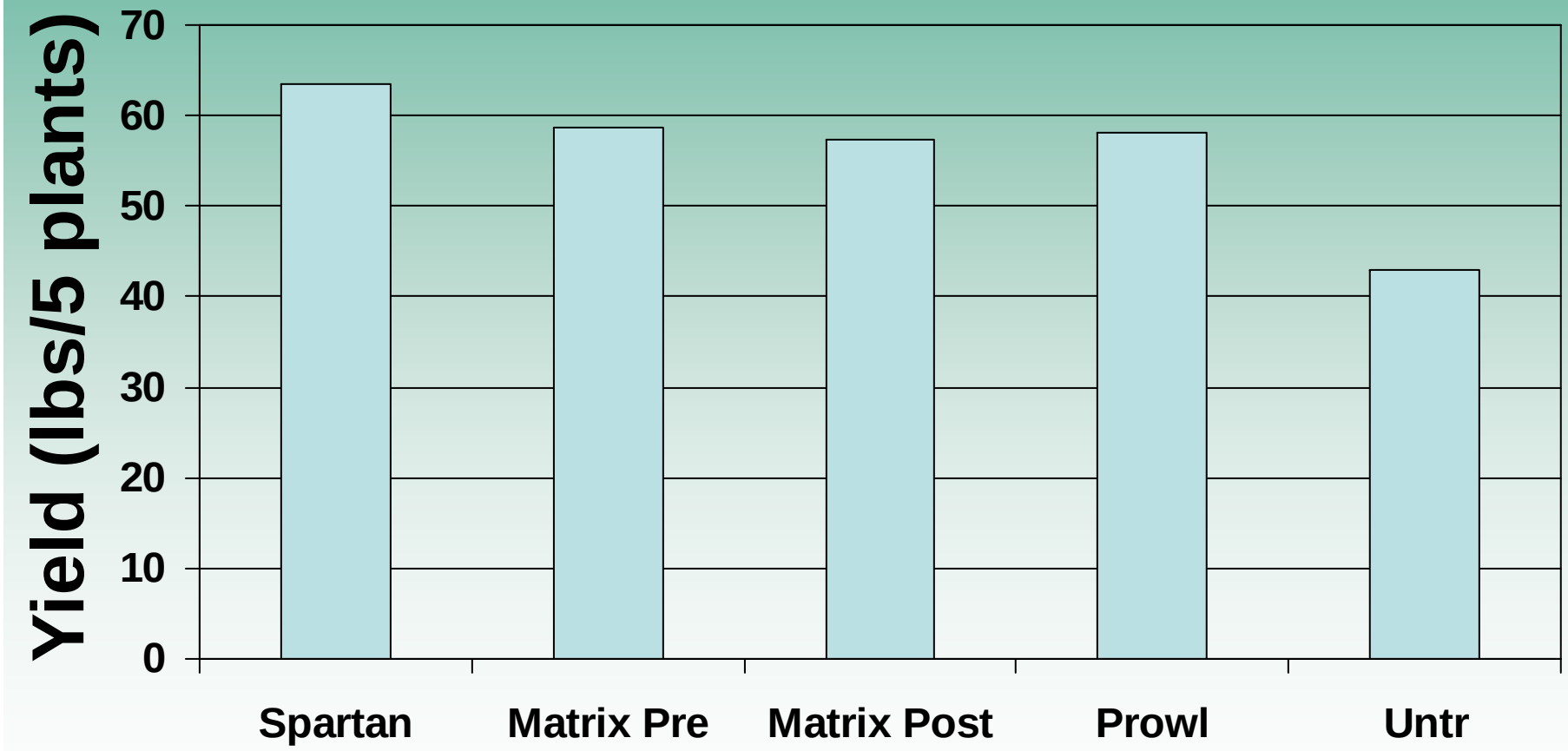

Matrix PRE 0.03 lb/ac


Untreated

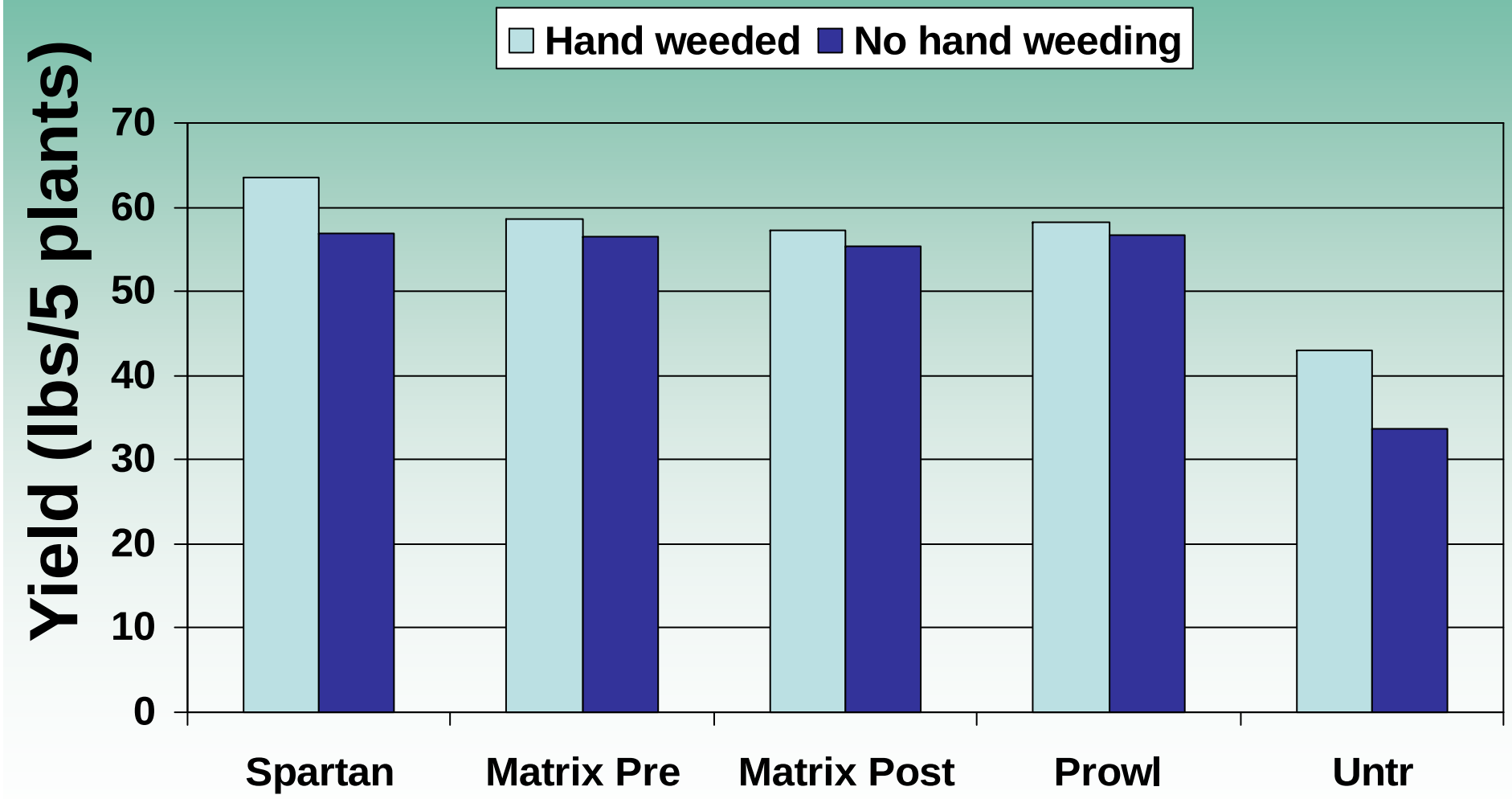
Fresh Tomatoes Transplanted trial


Staple – 0.0625 lb/ac

Tomato Yield (lbs/5 plants)



Tomato Yield (lbs/5 plants)




Matrix PRE – 4 WAT

Tomato Herbicide Summary

- **Spartan** – Excellent transplant tomato tolerance and excellent weed control
- **Prowl H_2O** – Excellent transplant tomato tolerance and fair direct seed tolerance

  Good weed control – controls dodder
- **Matrix** works best as a preemergence treatment when watered in with irrigation

  Excellent weed control Preemergence and Good weed control early Postemergence

Dodder Control with Resistant Varieties

Crop Rotation??

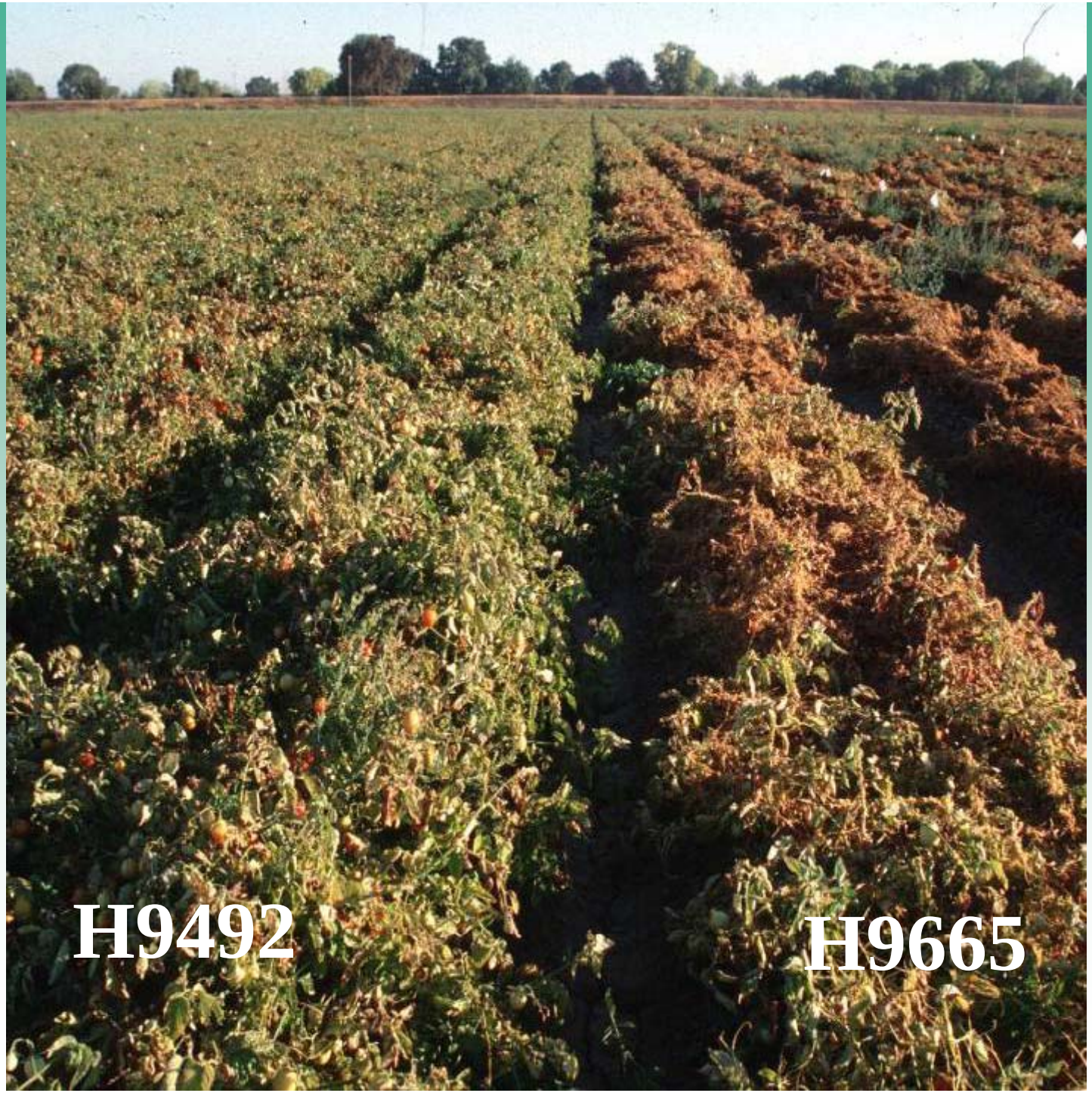
Susceptible crops

- **Alfalfa**
- **Asparagus**
- **Carrot**
- **Onion**
- **Safflower**
- **Sugarbeet**
- **Melon**

Dodder Resistant Tomatoes

- Processing tomato varieties shown to have resistance to dodder:

  C D X 233, **H9492**, **H9553**, **H9888**, **H9992**, **H9997**, **H1100**, and **PX 665**


H9492
H9665


H9997
CXD 233
SVR 024 2 0662
H1100


SVR 024 2 0665


Prowl H_2O PRE 0.95 lb/

Dodder Conclusions

- Use transplants and plant late (after May 15th)
- Tolerant varieties reduce dodder attachments and growth
- Matrix (rimsulfuron) and Sandea (halosulfuron) only marginally effective
- Combination of tolerant varieties and Prowl H_2O applied preemergence is the most effective option