

Weed Control Studies in Peppers

Richard Smith

University of California Cooperative Extension

Monterey County

Issues with Weed Control in Peppers

- Peppers are a long season crop that competes poorly with weeds for the first 40 to 60 days following transplanting
- Given its long life cycle, it may be subject to weed pressure by both winter and summer weeds



Cultural Practices to Control Weeds in Peppers

- **Field selection**
- **Field sanitation**
- **Cultural**
 - **Flaming**
 - **Mulches (plastic)**
- **Cultivation**
- **Hand weeding**

Cultivation

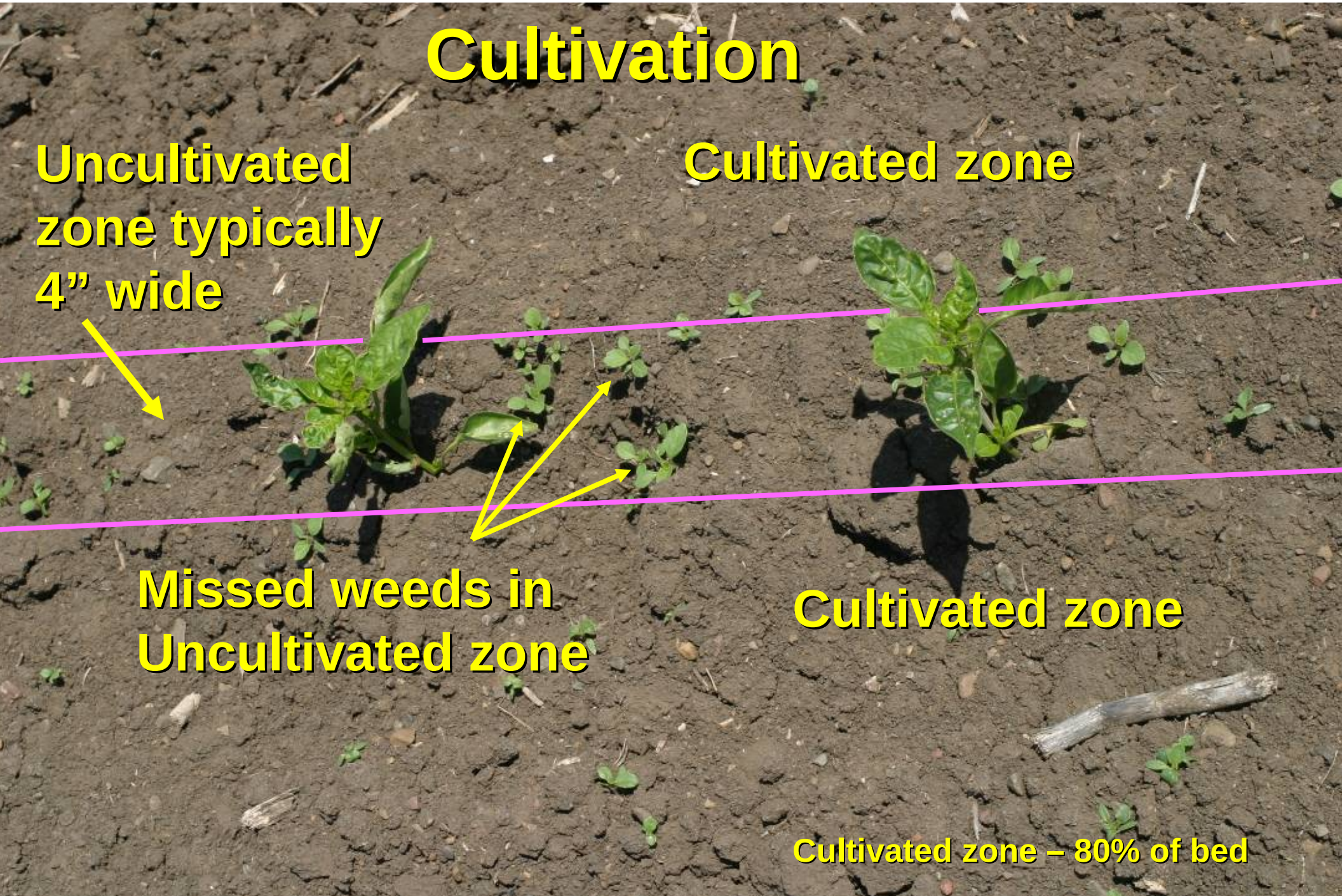
Uncultivated
zone typically
4" wide

Cultivated zone

Missed weeds in
Uncultivated zone

Cultivated zone

Cultivated zone – 80% of bed



Weed Control Materials Registered for Peppers in California

- Preplant
 - Paraquat (9.8)
 - Roundup (6.7)
 - Metam Sodium (6.0)
- Preemergence
 - Goal^{1,2} (2.8)
 - Prefar (2.6)
 - Devrinol (10.9)
 - Treflan (11.3)
 - Dual Magnum (NA)
- Post Transplant
 - Devrinol (NA)
- Layby
 - Dacthal (0.6)
- Postemergence
 - Sandea (NA)
 - Poast (NA)
 - Prism (NA)

1-Preformed beds up to 30 days prior to transplanting, must work beds; 2-applied to shaped beds and tarped (approved in 2004)

Difficult to control weeds



Hairy Nightshade



Little mallow

UC Statewide IPM Project
© Regents, University of California

Comparison of Preemergence Weed Control Materials

	Devrinol	Prefar	Treflan	Dual
Goosefoot	C	P	C	P
Groundsel	P	N	N	N
Lambsquarter	C	C	C	P
Malva	P	N	N	P
Nettle	P	P	P	P
Nightshade	N	N	N	C
Purslane	C	C	C	C
Shepherds Purse	P	N	N	P

Comparison of Post Plant Weed Control Materials

	Dacthal	Sandea
Goosefoot	C	---
Groundsel	N	C
Lambsquarter	C	N
Malva	P	P
Nettle	P	C
Nightshade	P	N
Purslane	C	P
Shepherds Purse	N	C



Trial Objectives

- **To examine a “weed control system” for peppers with a preemergence followed by post emergence applications that could provide weed control deep into the crop growth cycle**

2006 Pepper Trial

Pretransplant - Layby Evaluations

Transplant Application	Lbs a.i./A	Layby Application	Lbs a.i./A
Dual Magnum 7.62	1.43	Dacthal 75W (standard)	7.00
Dual Magnum 7.62	1.43	Dual Magnum 7.62	1.43
Dual Magnum 7.62	1.43	Outlook 6.0	0.60
Goal Tender 4F ¹	0.50	Dual Magnum 7.62	1.43
Goal Tender 4F ¹	0.50	Outlook 6.0	0.60
Outlook 6.0	0.60	Dual Magnum 7.62	1.43
Outlook 6.0	0.60	Outlook 6.0	0.60
Spartan 75DF	0.10	----	0.10
Spartan 75DF	0.10	Spartan 75DF	0.10
Untreated	----	----	----

Postemergence Evaluation - Layby

Layby Application	Lbs a.i./A
Sandea	0.047
V-10142	0.10
V-10142	0.20
V-10142	0.30
Untreated	----

Pretransplant - Layby Evaluations

Transplant Application	Layby Application	Total Weeds	Phyto	Weed Time
Dual Magnum 7.62	Dacthal 75W (standard)	8.4	0.0	8.9
Dual Magnum 7.62	Dual Magnum 7.62	3.1	0.0	6.3
Dual Magnum 7.62	Outlook 6.0	6.4	0.0	8.0
Goal Tender 4F ¹	Dual Magnum 7.62	3.4	2.9	6.4
Goal Tender 4F ¹	Outlook 6.0	1.4	3.2	5.4
Outlook 6.0	Dual Magnum 7.62	1.4	0.2	4.9
Outlook 6.0	Outlook 6.0	5.1	0.9	8.5
Spartan 75DF	----	12.3	2.5	9.8
Spartan 75DF	Spartan 75DF	9.3	2.3	8.8
Untreated	----	85.4	0.0	53.5

Pretransplant - Layby Evaluations

Transplant Application	Layby Application	Late Weeds	Red Percent	Tons/A
Dual Magnum 7.62	Dacthal 75W (standard)	3.0	32.7	25.5
Dual Magnum 7.62	Dual Magnum 7.62	0.0	38.6	27.0
Dual Magnum 7.62	Outlook 6.0	1.3	39.3	22.1
Goal Tender 4F ¹	Dual Magnum 7.62	0.7	30.8	25.9
Goal Tender 4F ¹	Outlook 6.0	0.0	32.4	26.0
Outlook 6.0	Dual Magnum 7.62	0.0	41.3	26.8
Outlook 6.0	Outlook 6.0	0.0	45.3	23.3
Spartan 75DF	----	2.0	35.4	26.8
Spartan 75DF	Spartan 75DF	1.3	9.4	25.6
Untreated	----	6.0	43.5	20.4

Pretransplant - Layby Evaluations

Transplant Application	Layby Application	Late Weeds	Red Percent	Tons/A
Dual Magnum 7.62	Dacthal 75W (standard)	3.0	32.7	25.5
Dual Magnum 7.62	Dual Magnum 7.62	0.0	38.6	27.0
Dual Magnum 7.62	Outlook 6.0	1.3	39.3	22.1
Goal Tender 4F ¹	Dual Magnum 7.62	0.7	30.8	25.9
Goal Tender 4F ¹	Outlook 6.0	0.0	32.4	26.0
Outlook 6.0	Dual Magnum 7.62	0.0	41.3	26.8
Outlook 6.0	Outlook 6.0	0.0	45.3	23.3
Spartan 75DF	----	2.0	35.4	26.8
Spartan 75DF	Spartan 75DF	1.3	9.4	25.6
Untreated	----	6.0	43.5	20.4

Postemergence Evaluation - Layby

Layby Application	Lbs a.i./A	Malva	Phyto	Weed Time
Sandea	0.047	4.7	1.7	13.5
V-10142	0.10	2.7	0.3	23.5
V-10142	0.20	3.3	0.3	14.2
V-10142	0.30	3.7	0.7	17.1
Untreated	----	0.0	0.0	53.5

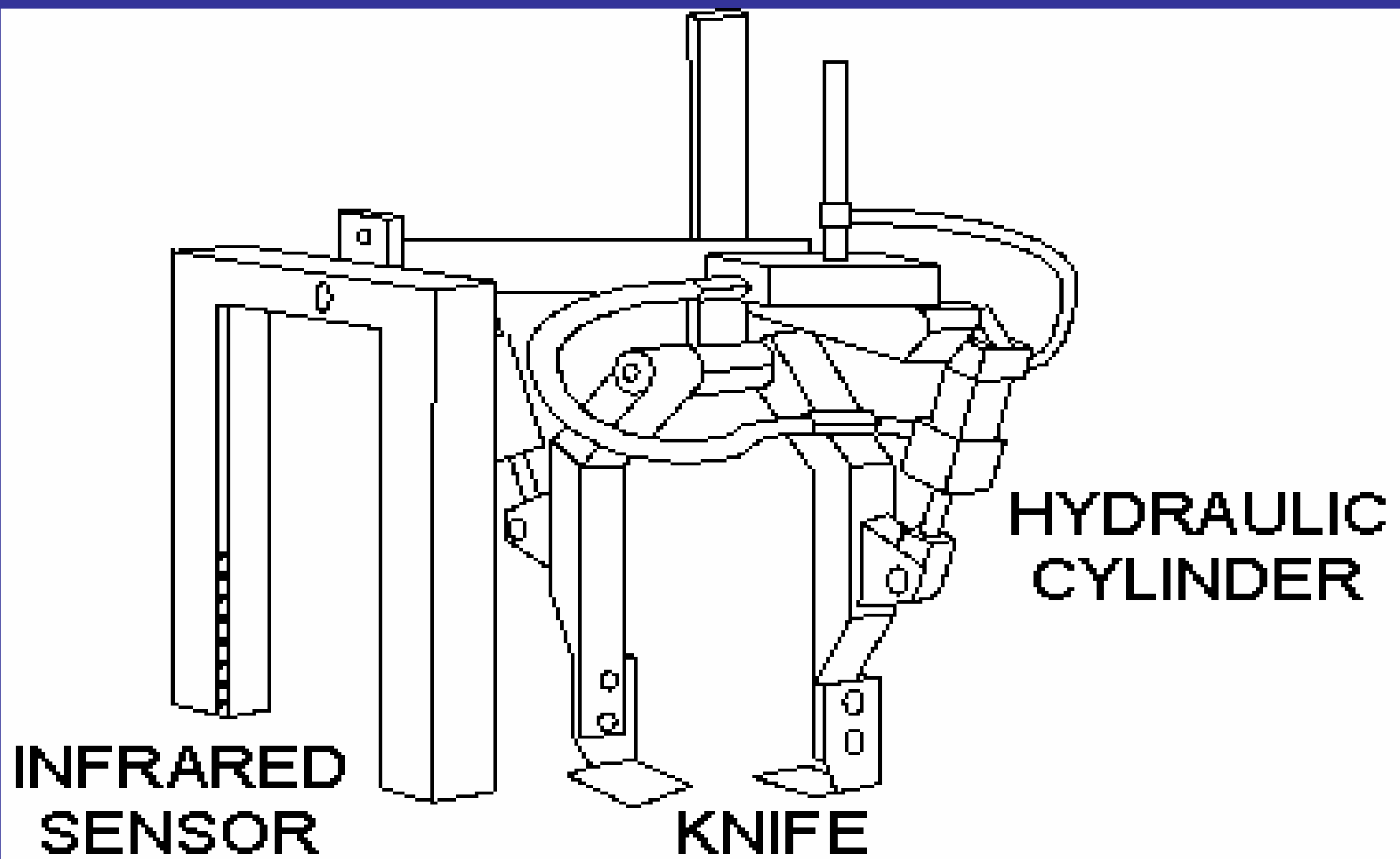
2006 Physical Weed Control Evaluations

Automatic weed control system: an example from transplanted processing tomatoes using X-ray stem sensing

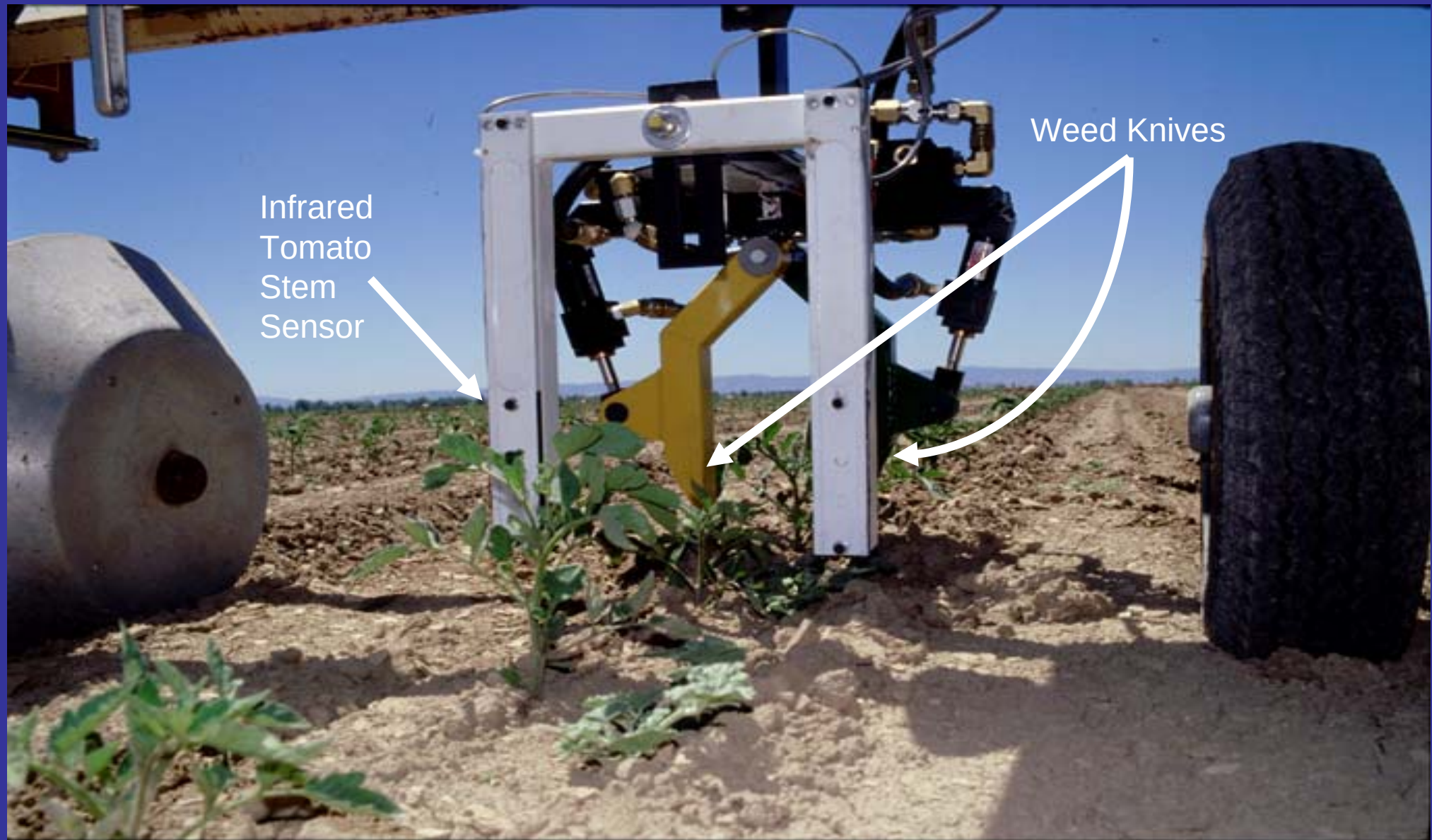


David Slaughter, Ron Haff, & Ken Giles

UC Davis & USDA



Automated Weed Control in Transplanted Tomatoes



1 week after transplanting



2 weeks after transplanting



3 weeks after transplanting



2006 Trial Summary

- All pretransplant followed by layby weed control treatments were safe on peppers and provided long-term weed control at 85 days after transplanting
- The postemergence weed control applications were also safe on the peppers and provided suppression of key weeds including malva

2006 Trial Summary

- **The achitecture of peppers is promising for mechanical weed control devises that are currently being developed**

Acknowledgements

- **California Pepper Commission**
- **Scott Anthony Farms, Soledad**
 - **Peter Iverson**