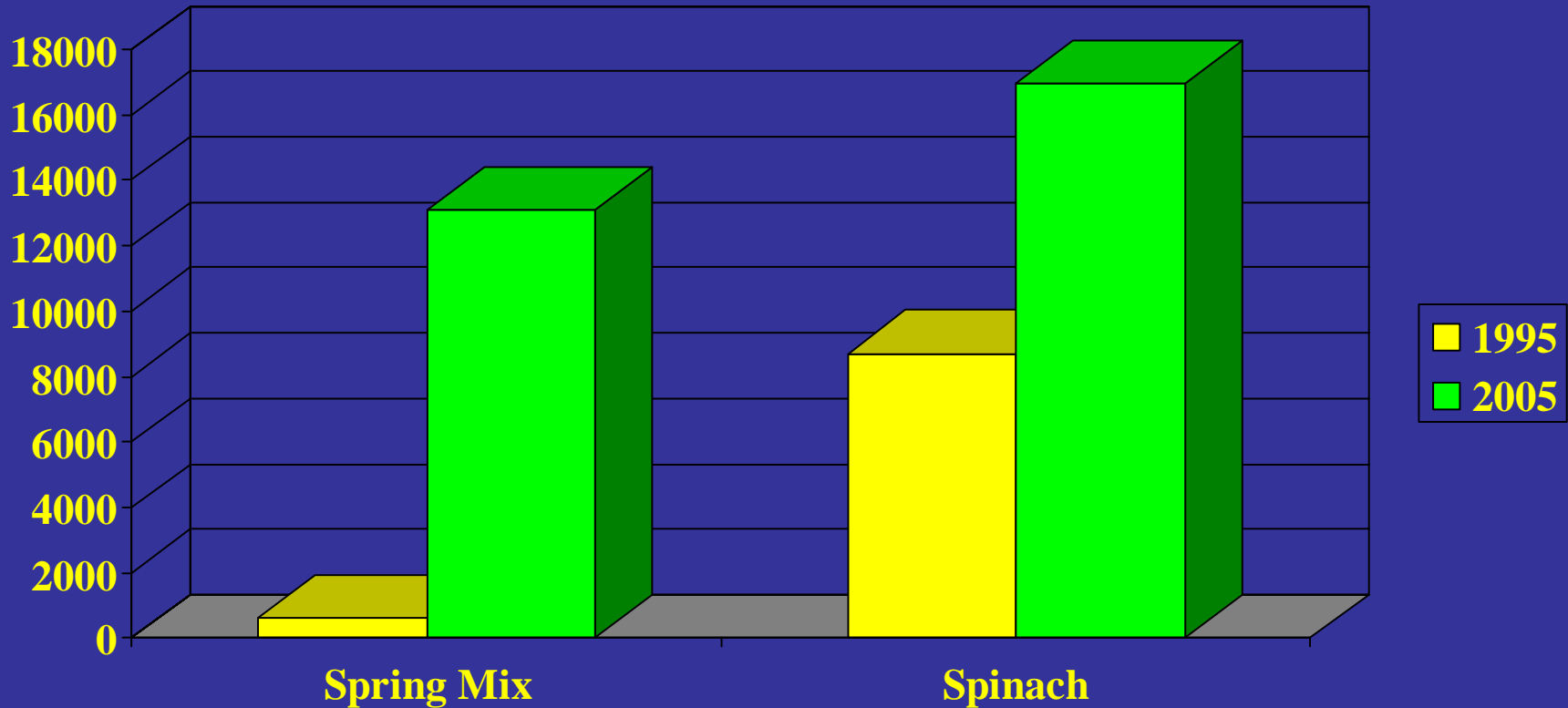


# **Weed Control Strategies for High Density 80-inch Bed Culture**

- **Richard Smith, Vegetable Crop and Weed Science Farm Advisor, Monterey County**

# Trends in Crops that Use High Density 80-inch Beds



**80-inch beds provide greater production area  
Than two 40-inch beds and facilitate mechanical  
harvest**



# Typical Crops Grown on High Density 80-inch Beds

## Spring Mix

- Lettuces
- Arrugula
- Mizuna
- Tatsoi
- Mustards
- Swiss chard
- Beet greens

## Others

- Corn Salad
- Cilantro
- Green Onions
- Parsley
- Rapini
- Spinach

# Cultural Practices to Reduce Weed Pressure

- Field selection
- Avoiding weedy fields
- Avoiding weediest time of the growing season (i.e. purslane during June to Sept.)
- Pre-germination of weeds
- Use of stale seedbeds
- Planting vigorous varieties on weediest area (i.e. Mizuna)

# Cultural Practices to Reduce Weed Pressure

- Control weeds that aerial disperse from surrounding areas
- Not letting weeds go to seed
- Carefully planning crop rotations
- Deep plowing
- Cultivation\*
- Hand weeding
- Fumigation
- Herbicides
- Other techniques

# **Weed Control on High Density 80-Inch Beds**

## **Challenges**

- High density (24 – 32 seedlines) stands are difficult to impossible to effectively cultivate (on 40-inch beds we can cultivate 80 to 85% of the bed)**
- Difficult and expensive to hand weed**
- Key weeds that are difficult to control**
- Low tolerance for weeds in mechanically harvested product**

# Mechanical Harvest





**Only area that can be cultivated**

**28 seedlines on this bed  
does not lend itself to  
cultivation**



# Key Summer Annuals



**Purslane**



**Nightshades**

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**Nettleleaf Goosefoot**

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# Key winter annuals





# Difficult, Tedious and Expensive to Hand Weed







# Weed Control on High Density 80-Inch Beds

## Organic

- Techniques were laid out in the recent issue of *Crop Notes*

## Conventional

- We will update weed control research and activities on specific crops today

Fumigation with Metam Sodium is a technique that is used across the spectrum of crops grown on high density 80-inch beds







**Beds rolled and immediately  
sprinkler irrigated**

# Green Onions



## Preplant

- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant/preemerg\*

- **Dacthal**
- **Prowl**

## Post emergence

- **Fertilizers**

\*Goal Tender is in the IR4 Program

# Rapini



## Preplant

- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant Pre emerg

- **Prefar**
- **Dacthal**
- **Treflan**

# Mustard Group

Mizuna, Tatsoi, Mustard, Arrugula



## Preplant

- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant Pre emerg

- **Prefar**
- **Dacthal<sup>1</sup>**
- **Treflan<sup>2</sup>**

1 – mizuna and mustard; 2 - mustard

# Beet Tops/Swiss Chard



## Preplant

- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant Pre emerg

- **RoNeet<sup>1</sup>**
- **Dual Magnum<sup>2</sup>**
- **Treflan<sup>3</sup>**

1 – beet tops; 2 – Swiss chard; 3 – beet tops

# Lettuces



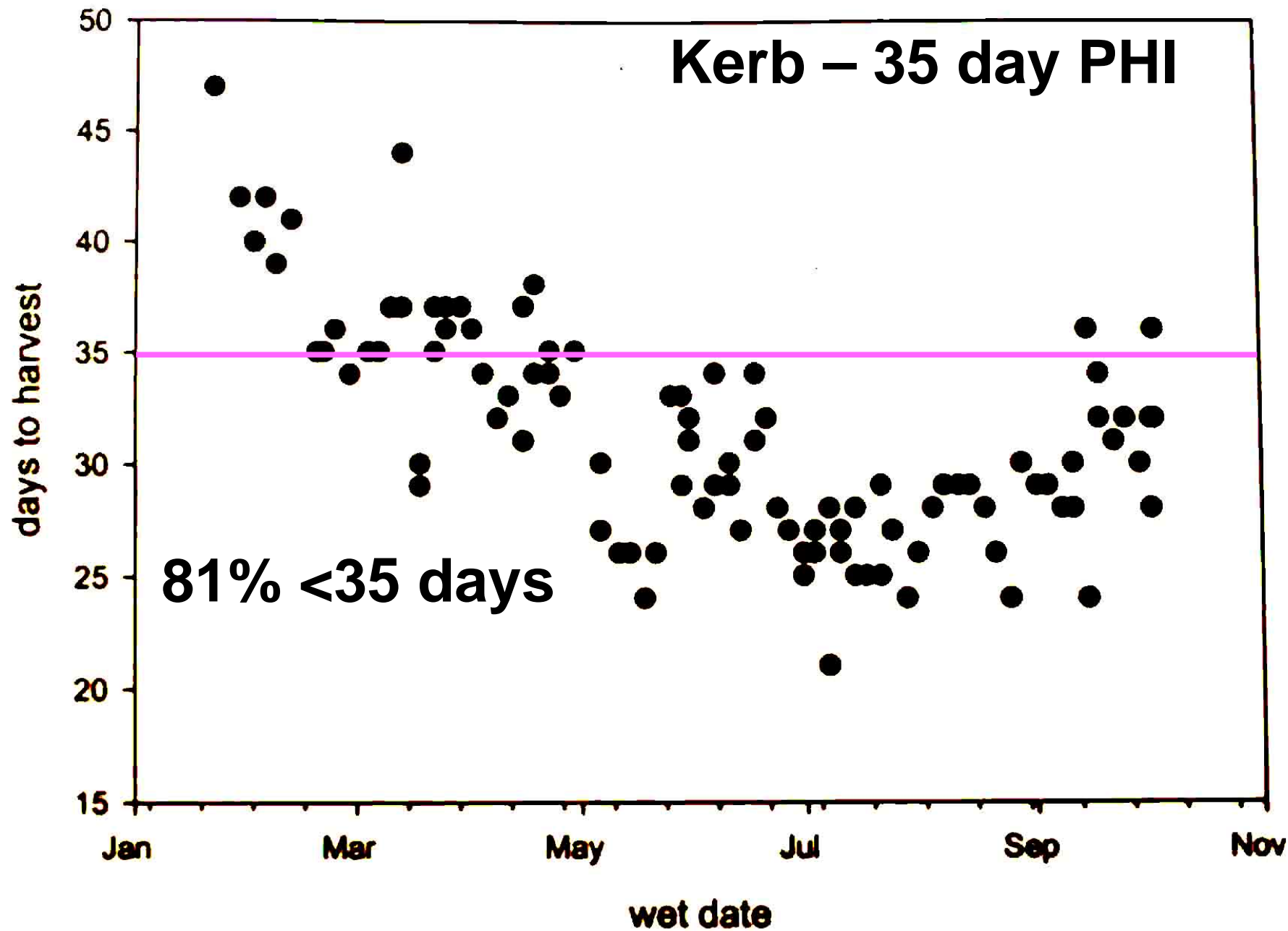
## Preplant

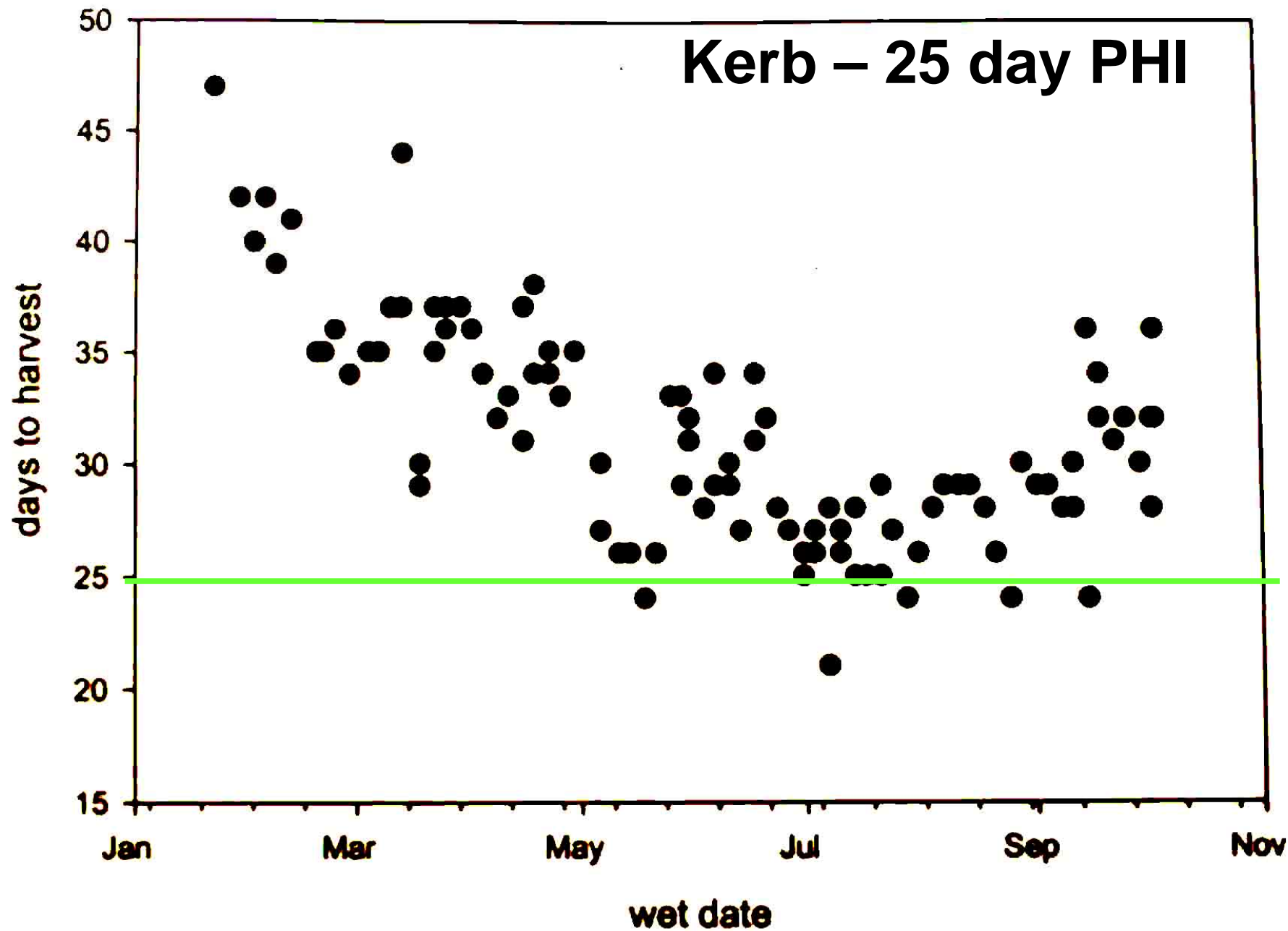
- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant Pre emerg

- **Prefar**
- **Kerb<sup>1</sup>**

1 – 35 day PHI





# Kerb Chemigation



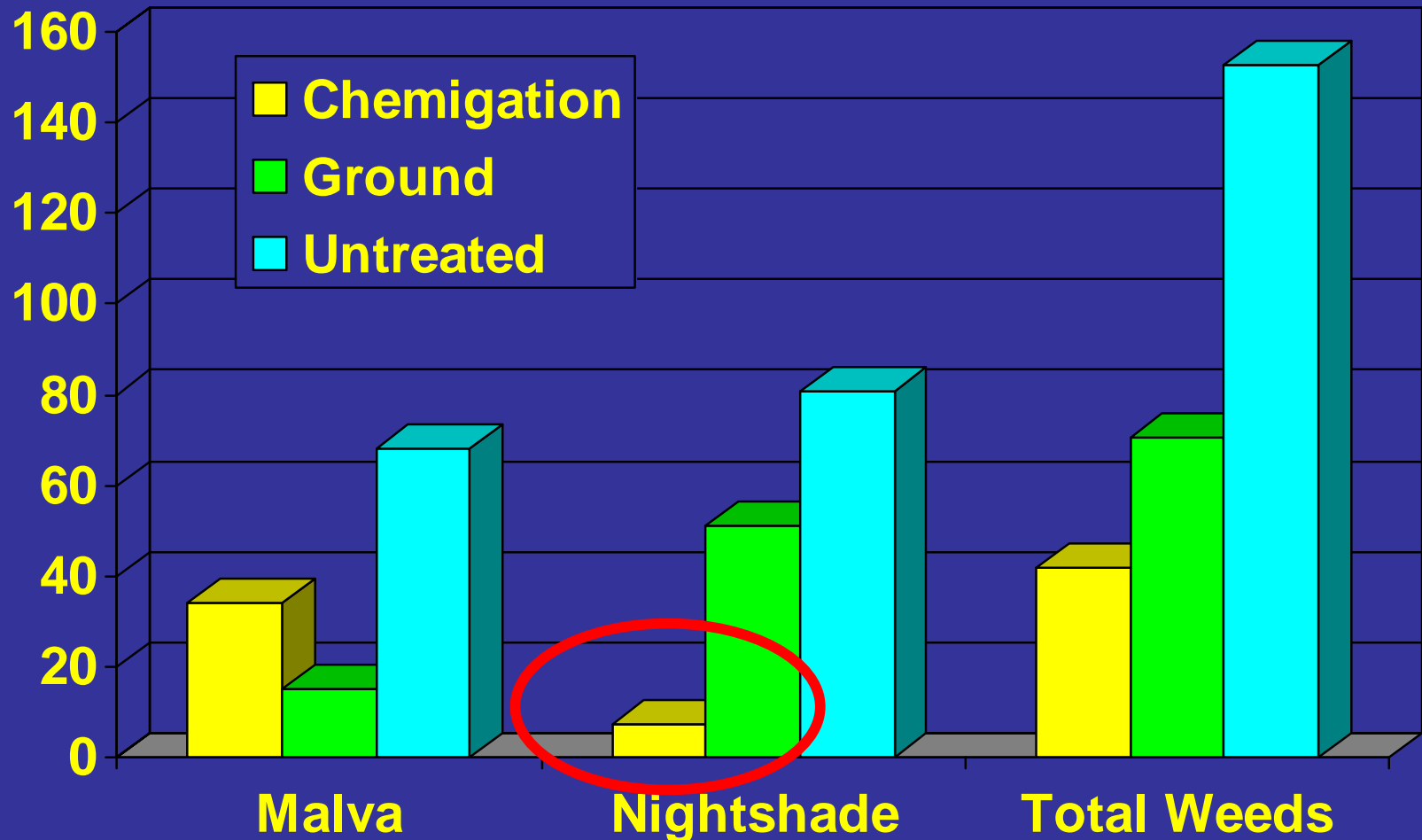
**Ground Applied**

**Chemigated**



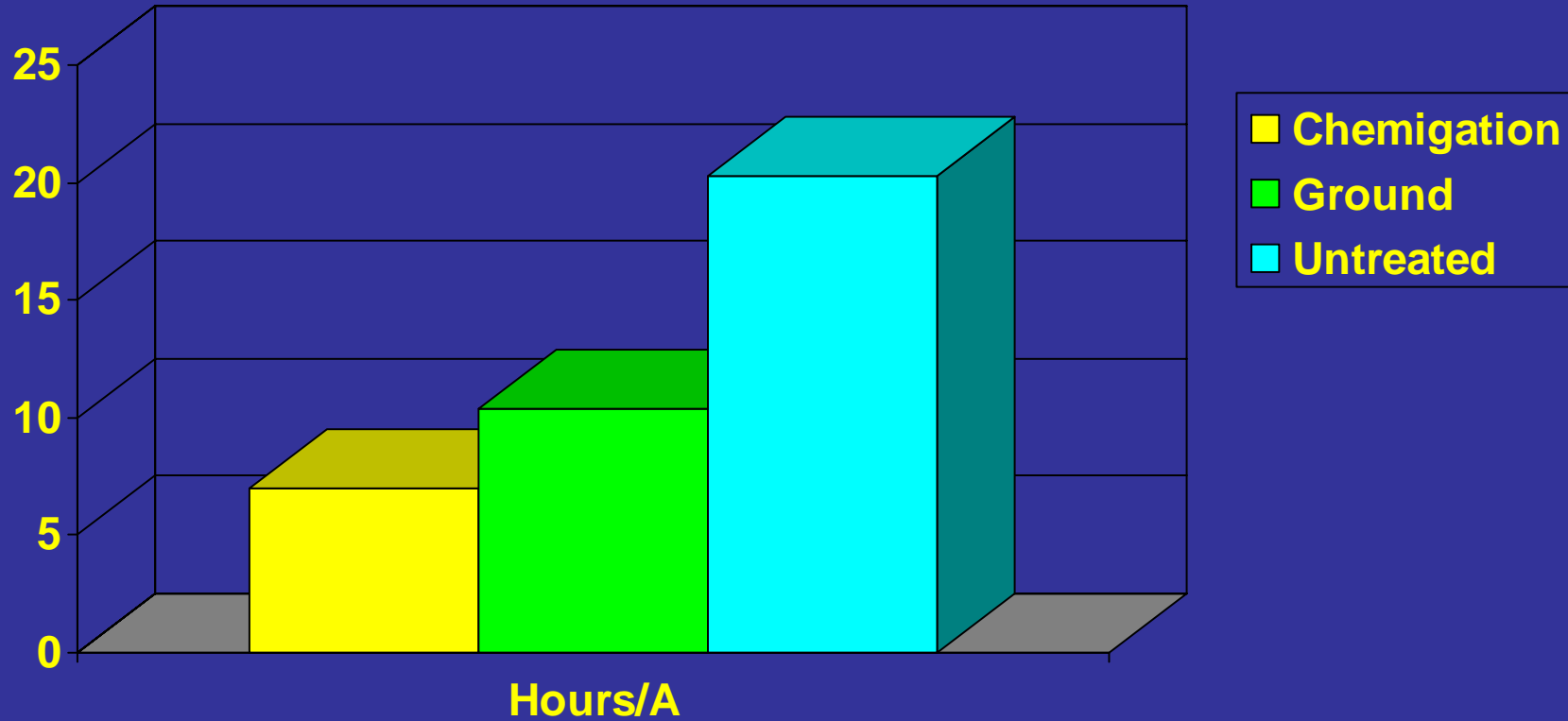
# Weed Counts

Baby Lettuce Chemigation Trial No. 1 – Aug 30



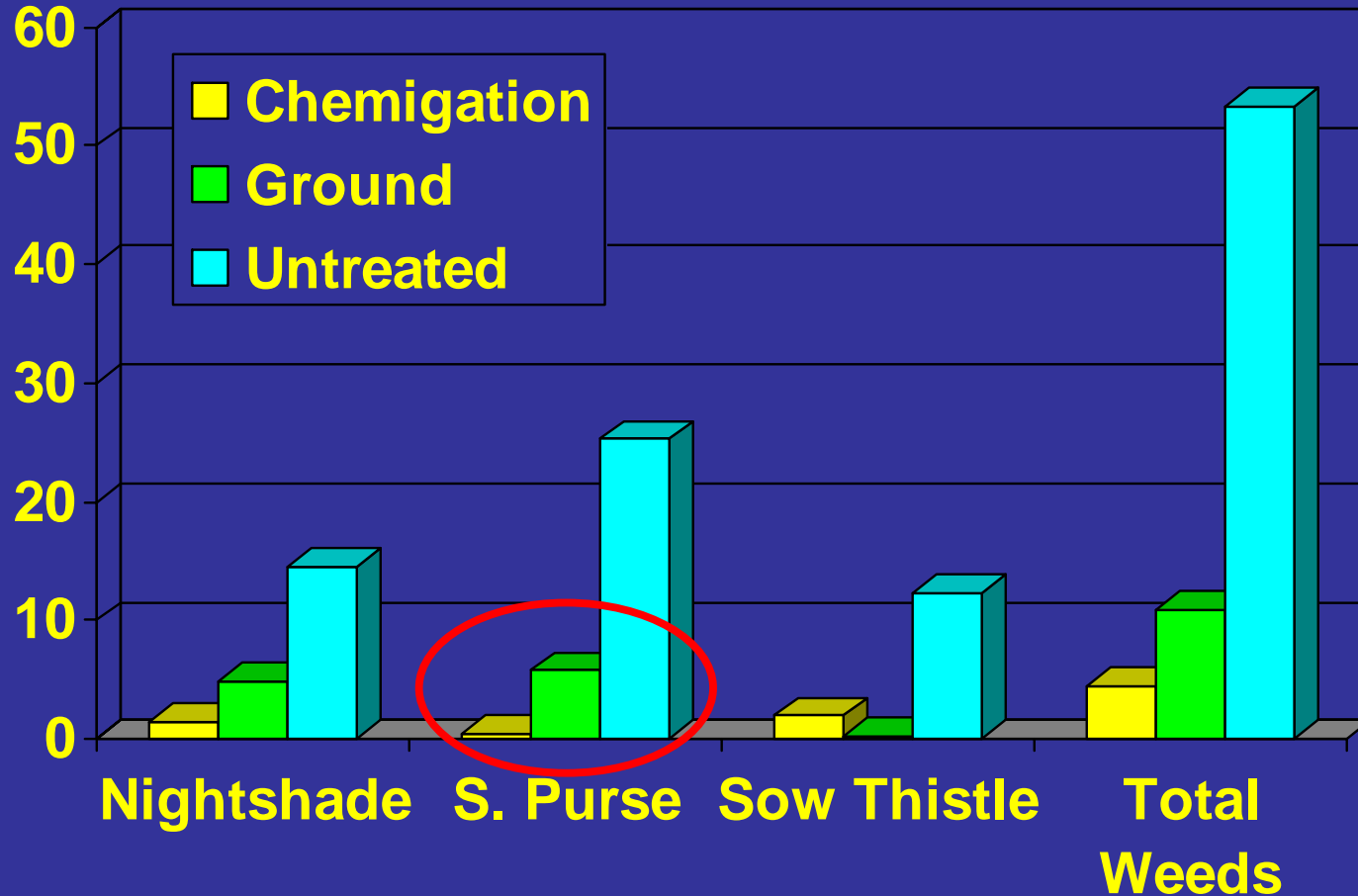
# Weeding Time

Baby Lettuce Chemigation Trial No. 1 – Aug 30



# Weed Counts

Baby Lettuce Chemigation Trial No. 2 – October 4



# Cilantro & Parsley



## Preplant

- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant Pre emerg

- **Prefar**
- **Prometryn<sup>1</sup>**

1 – currently only parsley

# Registration Situation of Prometryn on Cilantro



- There is an effort to establish a tolerance for a 30 day PHI for prometryn on cilantro
- Residue trials have been conducted but results have not yet been submitted to the EPA
- This process has been dragging on for a very long time

# Weed Control on Cilantro

## Weed Counts

Treatment	Application	Malva	Chenopods	Nightshade	Purslane	Total
Caparol	Post plant Preemergence	0.5	0.0	0.0	0.0	0.5
Caparol	Postemergence (1 <sup>st</sup> true leaf)	0.3	0.0	0.0	0.0	0.3
Prefar	Post plant Preemergence	22.0	10.8	2.8	0.3	35.8
Untreated	----	21.3	40.3	9.3	3.3	75.8

# Weed Control on Cilantro

Treatment	Application	Phyto rating	Hours per acre to weed
Caparol	Post plant Preemergence	0.8	2.65
Caparol	Postemergence (1 <sup>st</sup> true leaf)	4.8	1.88
Prefar	Post plant Preemergence	0.0	29.59
Untreated	----	0.0	51.17

# Spinach



## Preplant

- **Metam**
- **Glyphosate**
- **Scythe**

## Post Plant Pre emerg

- **RoNeet**
- **Dual Magnum???**

# 2006 Spinach Trial No. 1

Treatment	Material/A	Malva	Shepherds Purse	Sow Thistle	Total
Untreated	---	10.7	8.0	8.0	28.0
Far-Go	4.5 quarts	9.7	4.7	2.0	16.7
RoNeet	1.25 pints	2.0	1.3	7.3	13.3
RoNeet + Dual Magnum	1.25 pints 0.50 pint	2.7	2.7	9.3	15.0
Dual Magnum	0.50 pint	8.0	3.0	4.7	18.0
Dual Magnum	1.00 pint	7.7	3.0	3.3	15.7
Lorox	0.2 lbs	12.3	2.0	1.7	16.3

# Spinach Trial No. 1

Treatment	Material/A	Phyto	Hrs/A to weed	Yield
Untreated	---	0.0	32.9	17.0
Far-Go	4.5 quarts	0.0	26.0	15.3
RoNeet	1.25 pints	0.3	15.1	17.3
RoNeet + Dual Magnum	1.25 pints 0.50 pint	2.3	13.7	13.8
Dual Magnum	0.50 pint	0.7	23.8	15.2
Dual Magnum	1.00 pint	1.7	20.0	13.1
Lorox	0.2 lbs	0.0	17.3	16.9

# Spinach Trial No. 2

Treatment	Material/A	Chenopods	Night shade	Pig weed	Purslane	Total Weeds
Untreated	---	3.51	0.36	0.52	1.71	6.59
Basamid	200 lbs	0.45	0.03	0.00	0.31	1.20
Basamid	400 lbs	0.14	0.03	0.00	0.10	0.38
Vapam	300 lbs	0.24	0.10	0.12	0.15	0.72

# Summary

- **Despite our best efforts, weed control on high density 80-inch beds is challenging**
- **Ideally a long-term approach would reduce the risk of high weed infestations**
- **Diligent and successful employment of the mentioned techniques can over time reduce weed pressure to tolerable and affordable levels**