

An Update on Strawberry Herbicides

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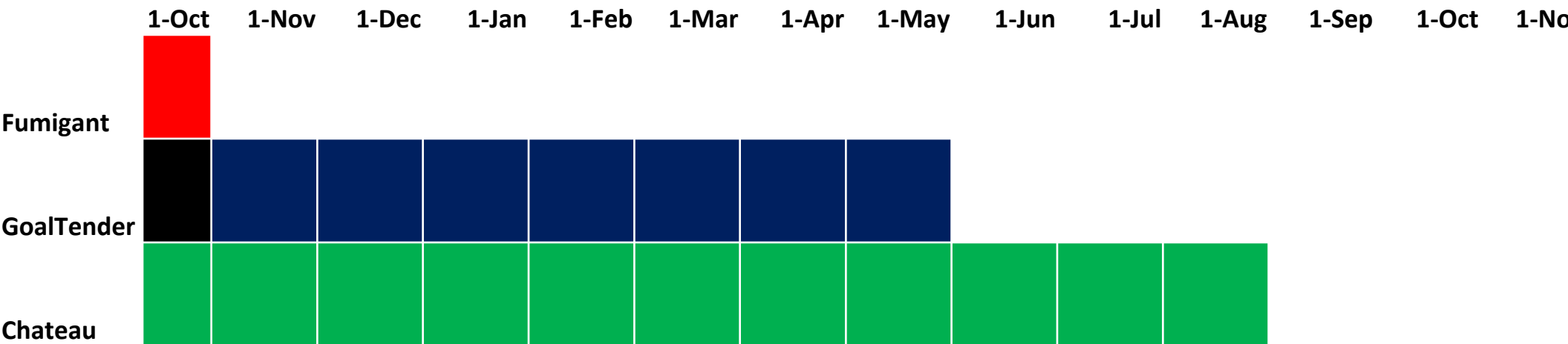
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Herbicides vs. Fumigants

- ❖ **Fumigants do not control weeds in-season, therefore if you only use fumigants you must kill all weed seed and propagules at fumigation.**
- ❖ **Herbicides provide backup to a less than perfect weed kill at fumigation.**

Relative persistence of fumigants and herbicides





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Hairy fleabane young plant



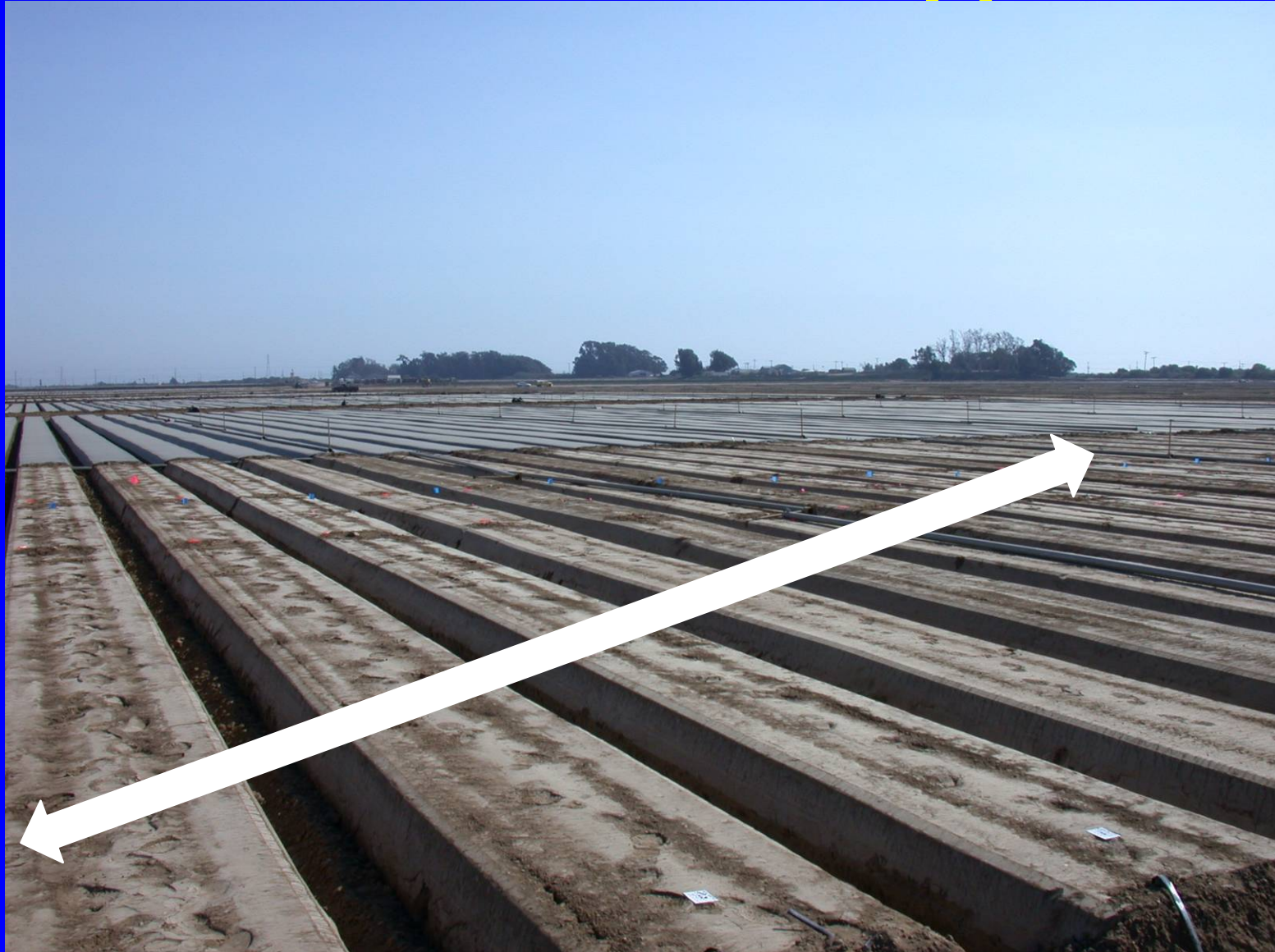
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Hairy fleabane mature

Fallow beds – the only opportunity for herbicide application under the plastic



Fallow beds – the only opportunity for broadcast herbicide application



Directed herbicide applications in the furrow



Difficult to control common strawberry weeds



Little mallow



Sweetclover



Annual bluegrass (*Poa annua*) plant. J. M. DiTomaso



C206-01

Yellow nutsedge - perennial



California strawberry herbicides

❖ Pretransplant

- GoalTender 4L & Goal 2XL
- Gramoxone Inteon
- Prowl
- Shark
- Basamid
- Metam sodium (Vapam, Sectagon)

❖ Post-transplant – directed spray

- Chateau
- Gramoxone Inteon
- Prowl
- Scythe
- Shark

❖ Post-transplant – over the top

- Devrinol
- Dacthal
- Poast
- Select Max

Goal and GoalTender critical points

- ❖ **Apply at least 30 days before transplanting.**
- ❖ **Use 1-2 pints/A Goal or 0.5-1 pints/A GoalTender**
- ❖ **Install tarp prior to transplanting**
- ❖ **Good control of cheeseweed and filaree**

Chateau

- ❖ **Bedtop apply 30 days pretransplant**
- ❖ **Use in in furrows (row middles)**
- ❖ **Must use shielded sprayers**
- ❖ **Apply at 2-3 oz product per acre**
- ❖ **Do not apply after fruit set**
- ❖ **Good activity on little mallow, can control clovers pre emergence**
- ❖ **Be careful of drift!**

Now registered on strawberry

PROWL[®] H₂O
h e r b i c i d e

FOR USE IN SELECTED CROPS
(See Table 1. Crop Uses)

Active Ingredient*:
pendimethalin: N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine 38.7%

Other Ingredients: 61.3%

Total: 100.0%

*1 gallon contains 3.8 pounds of pendimethalin formulated as an aqueous capsule suspension.

EPA Reg. No. 241-418 **EPA Est. No.**

Prowl H₂O

- ❖ Can be applied pre-transplant
- ❖ Can be applied post-transplant but not if new leaves are present
- ❖ Can apply to furrows if applied at least 35 days before harvest
- ❖ Can apply no more than 3 pints/A per application and no more than 6 pints/A per season.

Prowl H₂O: rates by soil texture

Use Rates

Soil Texture	Broadcast Rate (pts/A)
Coarse	1.5
Medium	2.0 to 2.5
Fine	2.5 to 3.0

Watsonville 2001-02

Treat.	Rate	Timing	Bluegrass	Malva	Fruit
		/Transpt.		No/40ft²	Trays/A
Prowl	2.1 pts	PRE	7.3 bc	1.8 bc	4840 a
Prowl	2.1 pts	POST	5.3 c	1.8 bc	3604 de
Control	0	NA	15.0 a	5.3 abc	4708 ab

Oxnard 2001-02

Treat.	Rate	Timing	Bluegrass	Malva	Fruit
		/Transpt.		No/40ft²	Trays/A
Prowl	2.1 pts	PRE	5.3 b	18.8 abc	2017
Devrinol	4 lbs	PRE	6.5 b	17.8 abc	1947
Control	0	NA	32.3 a	29.5 a	1986

Prowl H₂O 2.1 pints/A at Salinas



Prowl H₂O

- ❖ **A new tool for strawberry weed management**
- ❖ **Has a very flexible label**
- ❖ **Very effective on annual grasses**
- ❖ **Very safe to strawberry applied pre-transplant**
- ❖ **Reentry interval is 24 hours**

Weed spectrum

Weed	Chateau	Goal	Gramoxone	Prowl
Bluegrass	C	P	P	C
Chickweed	C	N	C	C
Clover	C	P	P	N
Filaree	C	C	P	N
Fleabane	C	P	P	N
Malva	C	C	P	P
Yellow nutsq	N	N	N	N
Shepherd's	C	C	P	P
Sowthistle	C	C	P	N



- **Active Ingredient = sulfentrazone**
- **Mode of Action = PPO Inhibitor**
- **WSSA Group 14**
- **HRAC Group E**
- **Primarily a soil applied herbicide**
- **Entry through root and shoot uptake**



Registrations Anticipated 1st Quarter 2012

- Tomatoes (transplants)
- Strawberries
- EPA registration December 2011
- Submitted to DPR December 2011



Rates



CROP	FL OZ PER ACRE ¹
Alfalfa ²	4.0 - 6.0
Asparagus	6.0 - 8.0
Cabbage (transplanted)	3.0 - 4.5
Horseradish	3.0 - 4.5
Mint	6.0 - 8.0
Sod Production (warm season grasses)	8.0 - 12.0
Strawberries³	4.0 - 4.5
Sunflowers	3.0 - 4.5
Tomato (transplanted) ³	3.0 - 4.5
Trees and Vines ²	4.0 - 12.0

1. Product rates based on Medium Soil and less than 1.5% O.M.
2. Not registered
3. Not registered in CA



Weed Control



ZEUS

HERBICIDE



Specimen Label



Scythe®

Herbicide

®Trademark of Dow AgroSciences LLC

**For control or burndown of a broad spectrum of weeds
on contact**

Active Ingredients:

Pelargonic Acid †	57.0%
Related Fatty Acids (C ₆ -C ₁₂)	3.0%
Other Ingredients ††	<u>40.0%</u>
Total.....	100.0%

Scythe

- ❖ Registered pretransplant and as a directed spray for strawberry
- ❖ Use rates are 3-5% v/v in 75-200 GPA

Postemergence grass herbicides

- ❖ Poast
- ❖ Select Max (formerly Prism)

Select Max (clethodim)

CROP-SPECIFIC RESTRICTIONS AND LIMITATIONS FOR SELECT MAX (Continued)

Crop⁽¹⁾	Minimum Time From Application to Harvest (PHI)	Use Rate Per Acre	Crop Oil Concentrate Rate Per Acre ⁽²⁾	Special Use Instructions
Strawberry	4 days	12-16 fl. oz.	1% v/v in the finished spray volume.	Do not apply more than 16 fl. oz./A in a single application. For repeat applications make on a minimum of a 14 day interval.

12-16 fl oz. /A

Postemergence grass herbicides

Weed	Poast	Select
Barnyardgrass	C	C
Bluegrass	N	C
Ryegrass	C	C
V. cereals	C	C
Bermudagrass	P	C
Nusedge, Yellow	N	N

Summary

- ❖ **There are some good weed control tools**
- ❖ **Not all weed problems are solved**
- ❖ **Selectivity can be a problem with some products, not with others**

Acknowledgements

- ❖ **California Strawberry Commission**
- ❖ **Thanks to John Rachuy and Ben Weber**