

# Physical Weed Control in Vegetables

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Seed Central 12.10.20

# Weed control technology relevant to tomato

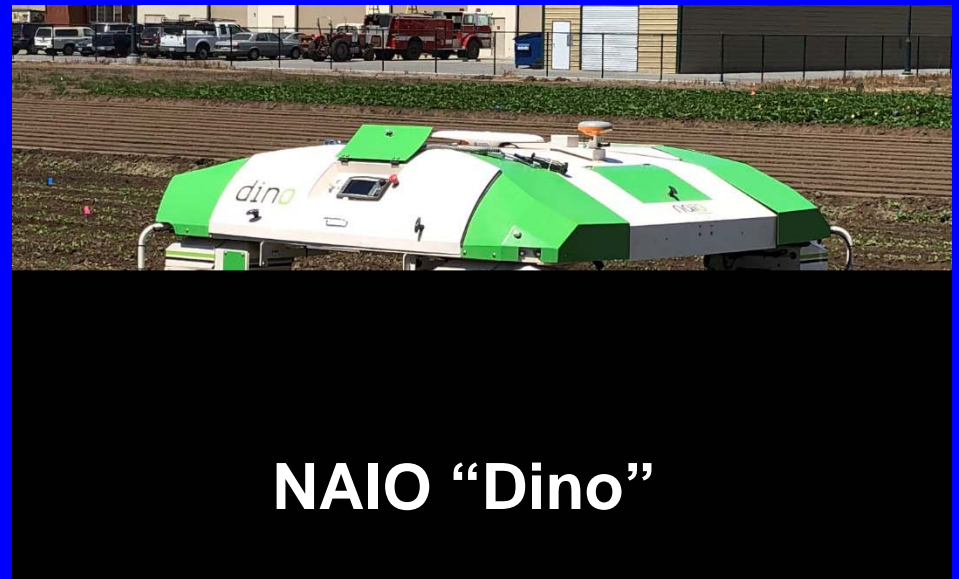
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- ❖ Autonomous weeders
- ❖ Band steam applications

# Autonomous weeders

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- ❖ Designed to be a labor efficient weeding machine
- ❖ Guided by machine vision (Farmwise) and GPS NAIO



# Hand weeding times hours/A

Ranch	Farmwise	Standard
Hageman 27	9.4	11.1
Alsop 3	3.8	3.9
Garlinger 11	9.9	16.9
DA 34	6.7	14.7

# Weed control at Hageman 2



# Farmwise

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- ❖ Titan removed twice as many weeds as the standard cultivator
- ❖ Hand weeding times were 35% less
- ❖ No differences in yield

# Weed control

Treatment	Kerb 2.4 pts/A	No Kerb
	%	
Dino	81 a	60 ab
Standard	39 b	32 b

# Hand Weeding Times

Treatment	Kerb 2.4 pts/A	No Kerb
	Hours /A	
Dino	13 c	24 b
Standard	15 c	33 a

# Dino trial

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- ❖ The Dino removed twice as many weeds as the standard cultivator
- ❖ Hand weeding times were less
- ❖ No differences in yield

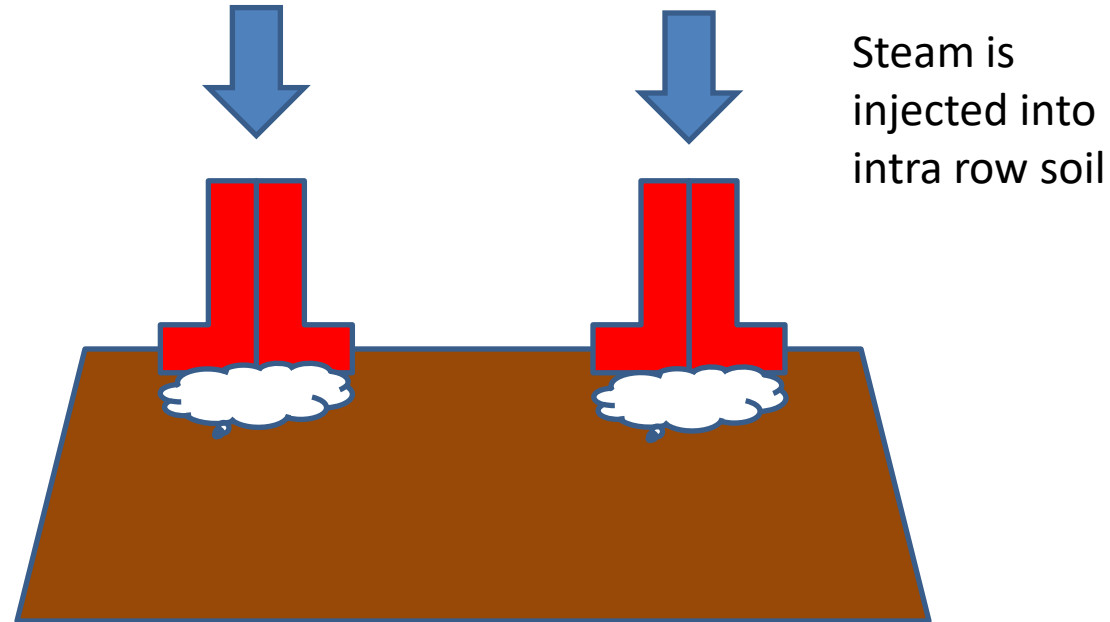


# Band steam

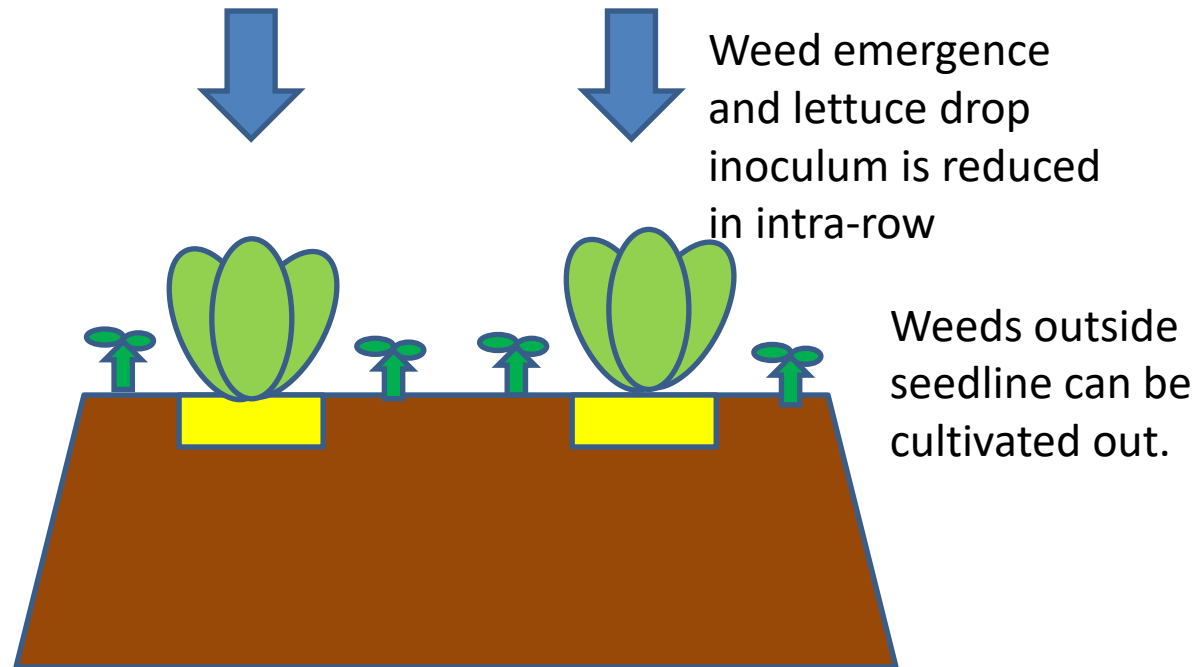
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- ❖ Heating soil to 150-160°F for a few minutes kills soil pathogens and weed seed
- ❖ Band Steaming has been evaluated in Denmark, Italy & Sweden with good results for weed control

# Seed lines disinfested with steam



# Seed lettuce into the disinfested band







# Methods continued

❖ Three trials: 1) July 1, 2) July 21 3) October 26, 2020



# Soil temperatures: time >140°F

treatments	July 1	July 21	October 26
	Time (minutes)		
Steam	88	67	176
Control	0	0	0

# Percent weed control with banded steam: Trial 2

Treatment	Hairy nightshade	Shepherd's purse	Little mallow	Burning nettle
	% control			
Steam	74	89 b	28	84 b
Control	0	0 a	0	0 a

## Hand weeding times

Treatment	Trial 1	Trial 2
	Time Hr /A	
Steam	67	51 b
Control	86	78 a

# Lettuce drop control

Treatment	Trial 1	Trial 2
	% control	
Steam	60	67 b
Control	0	0 a





Steam  
203



Control  
201

# Steam – summary

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- ❖ Weed control is very good
- ❖ Lettuce drop control looks promising
- ❖ Steam seems to be increasing plant vigor
- ❖ We need a commercial scale applicator – U of Arizona model is close