

Drip Irrigated Double-row Tomatoes on 80-inch Beds

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Acknowledgments

— [**CTRI**

— [**UCCE WSREC**

— [**Devon**

— [**Aric Barcellos, A-Bar Ranch**



Background

— [Drip irrigation has increased substantially in the last 10 years

— > 50% state acreage

— [Benefits (yield) vs issues (cost, maintenance, and rotation limitations)





Rotations (central SJV)

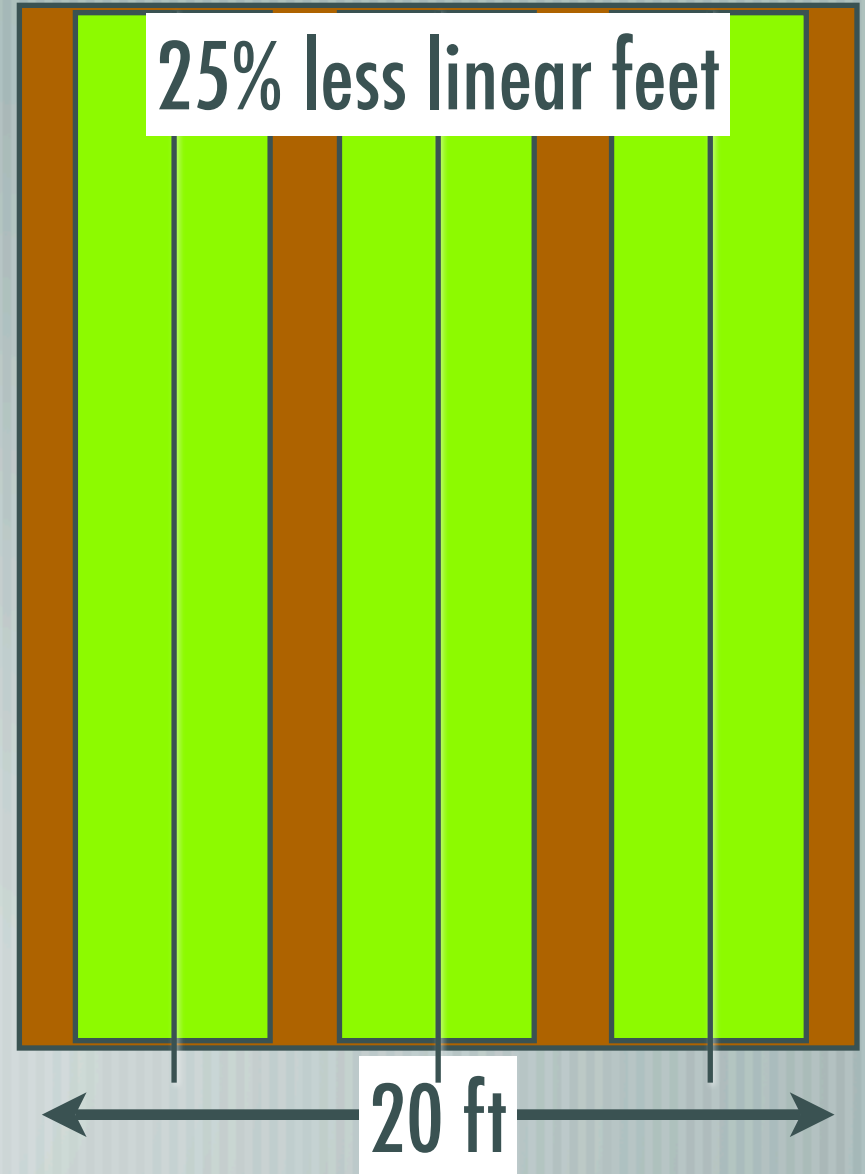
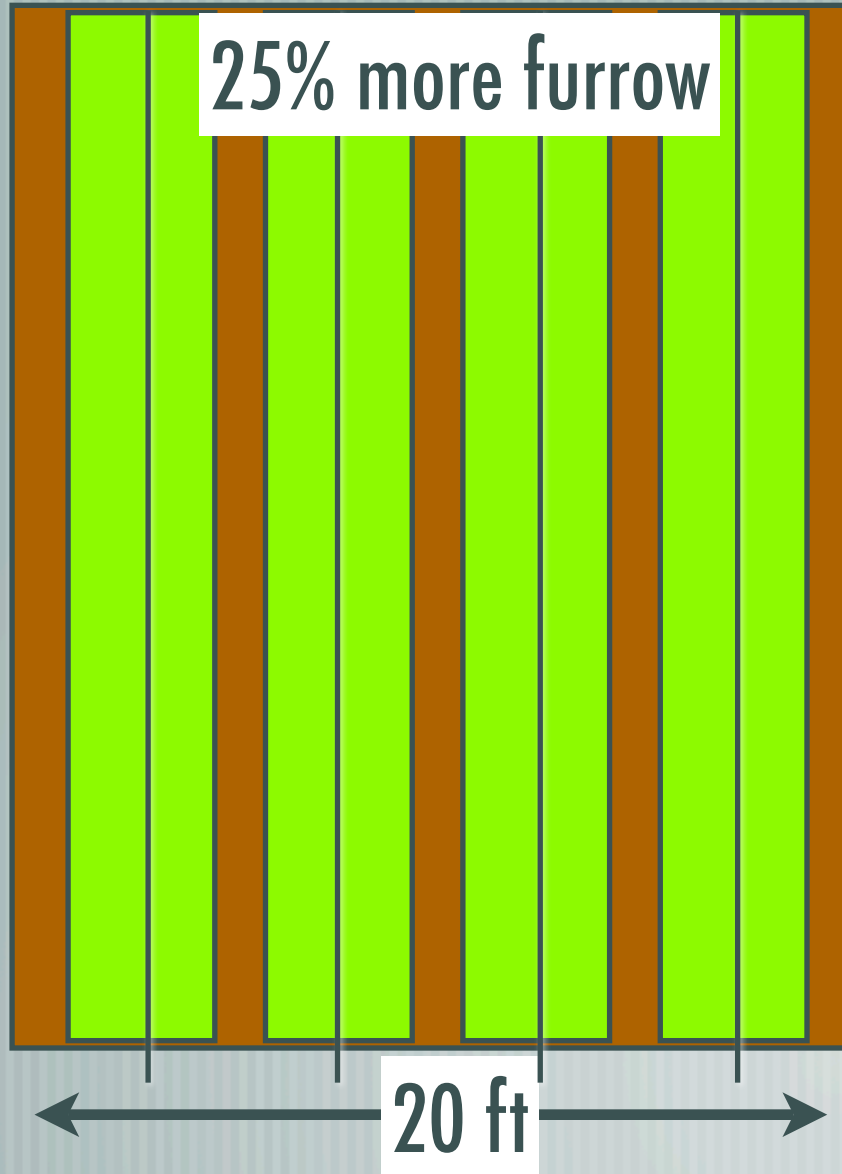
— [tomato/cotton/corn on
60" (Merced) or
66" (Fresno) beds

— [melons on 80"

— [lettuce, cole crops, onions,
garlic on 40"



bed and drip lines

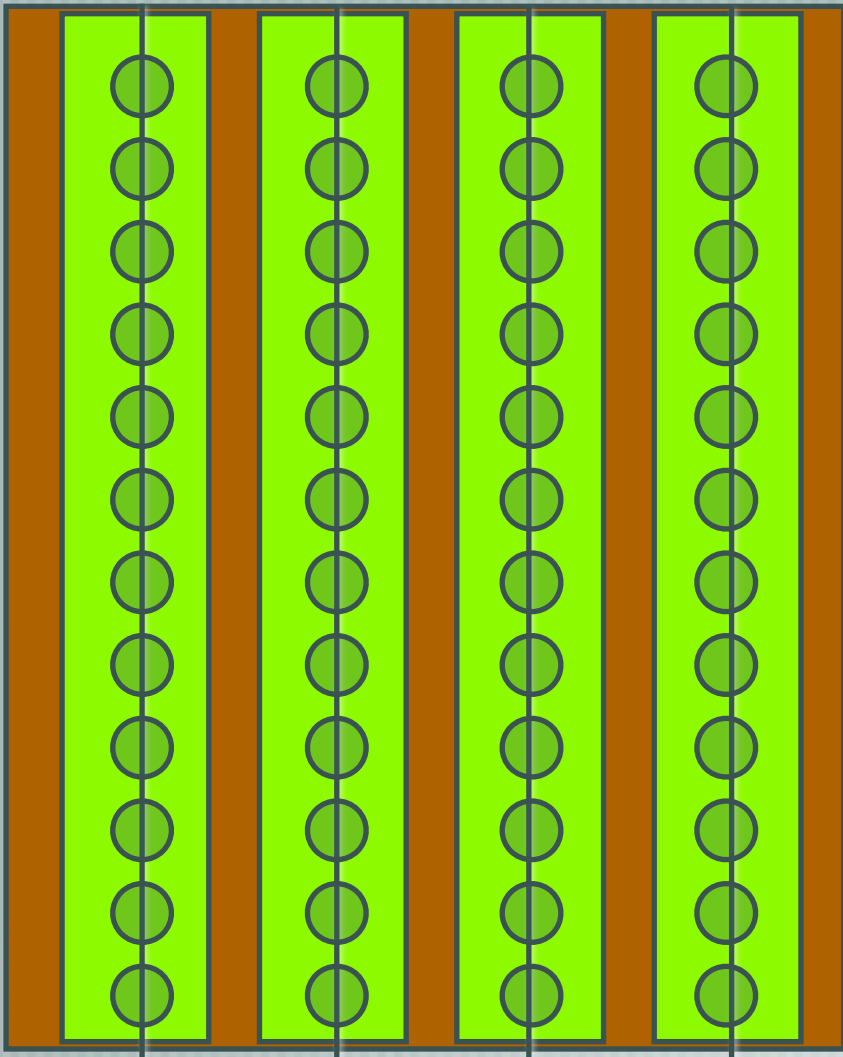


plant spacing

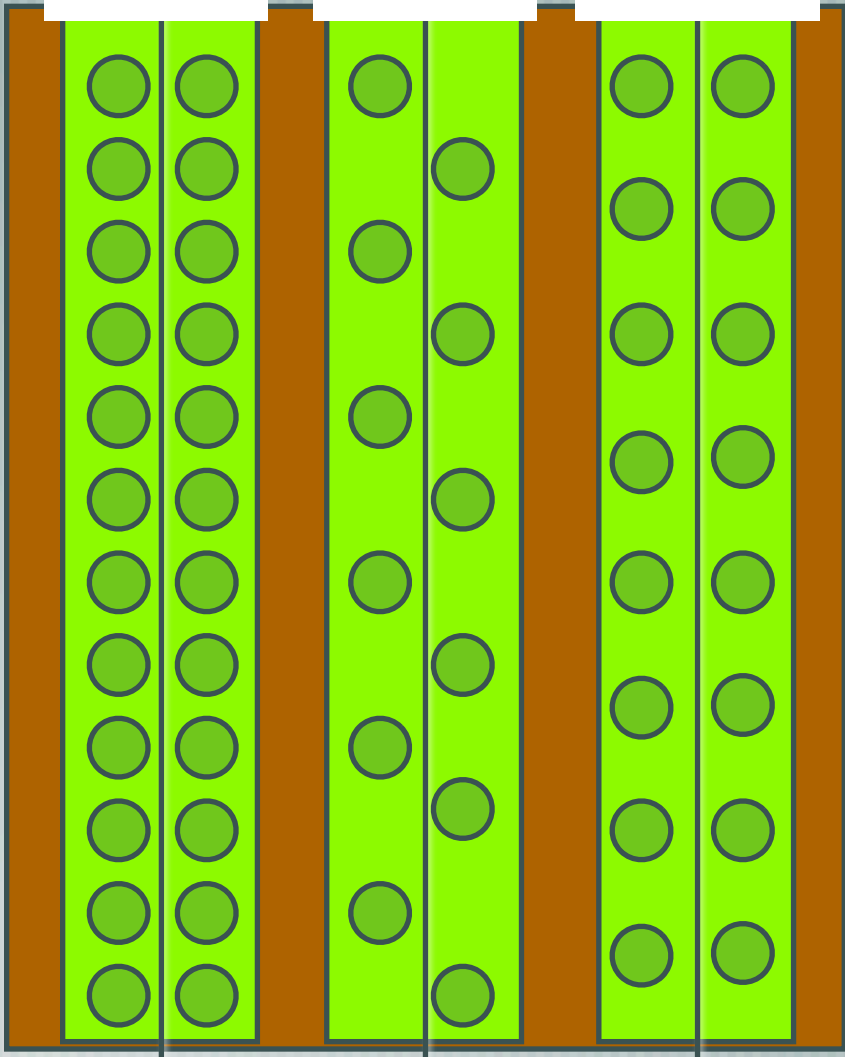
50% ↑

25% ↓

0% ↑ ↓



20 ft



20 ft



Double-row 80" beds

- [1 drip line per bed

- reduced installation cost

- limit rotation possibilities?

- [2 drip lines per bed

- increased \$\$

- increased rotation options

- [↑ plants, ↑ yields?

- [Equipment & harvest configuration



Objective:

Compare yield, economics, and flexibility of processing tomatoes on standard 66" beds to 80" beds with different plant populations and drip systems.

Methods

1. Std 66" bed w/buried drip, single row plants
 2. 80" bed w/single buried drip, double row plants
 3. 80" bed w/two buried drip lines, double row plants
 - ~~4. 80" bed w/single drip, additional water (125% Et)~~
- A. Same amount of water for trts 1 - 3 (107% Et).
 - a. lower flow rate for double row tape
 - b. similar cut-off date
 - B. Plant spacing split plots of 6, 8, 10, 12 thousand plants per acre
 - C. Measure yield, PTAB fruit quality, economic analysis

Methods

— [Location WSREC.

— [RCB split plot, 3 beds x 300 ft. ~ 1.5 acres

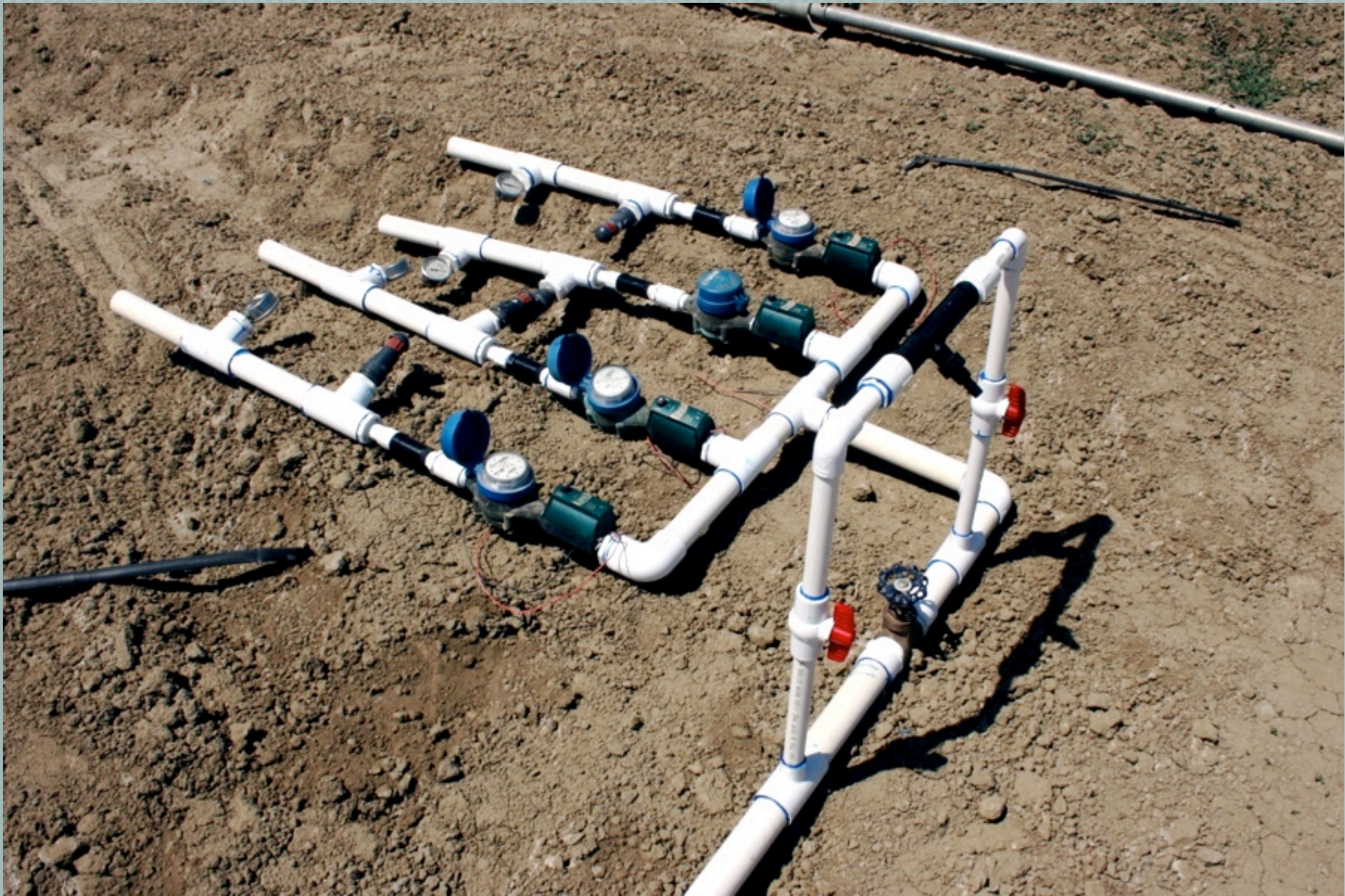
— [Dropped treatment 4 because of lack of water

— [Difficulty in getting good stand.

— [Powdery mildew severe (SUN 6366)

— [Hand harvest.







Challenges

water

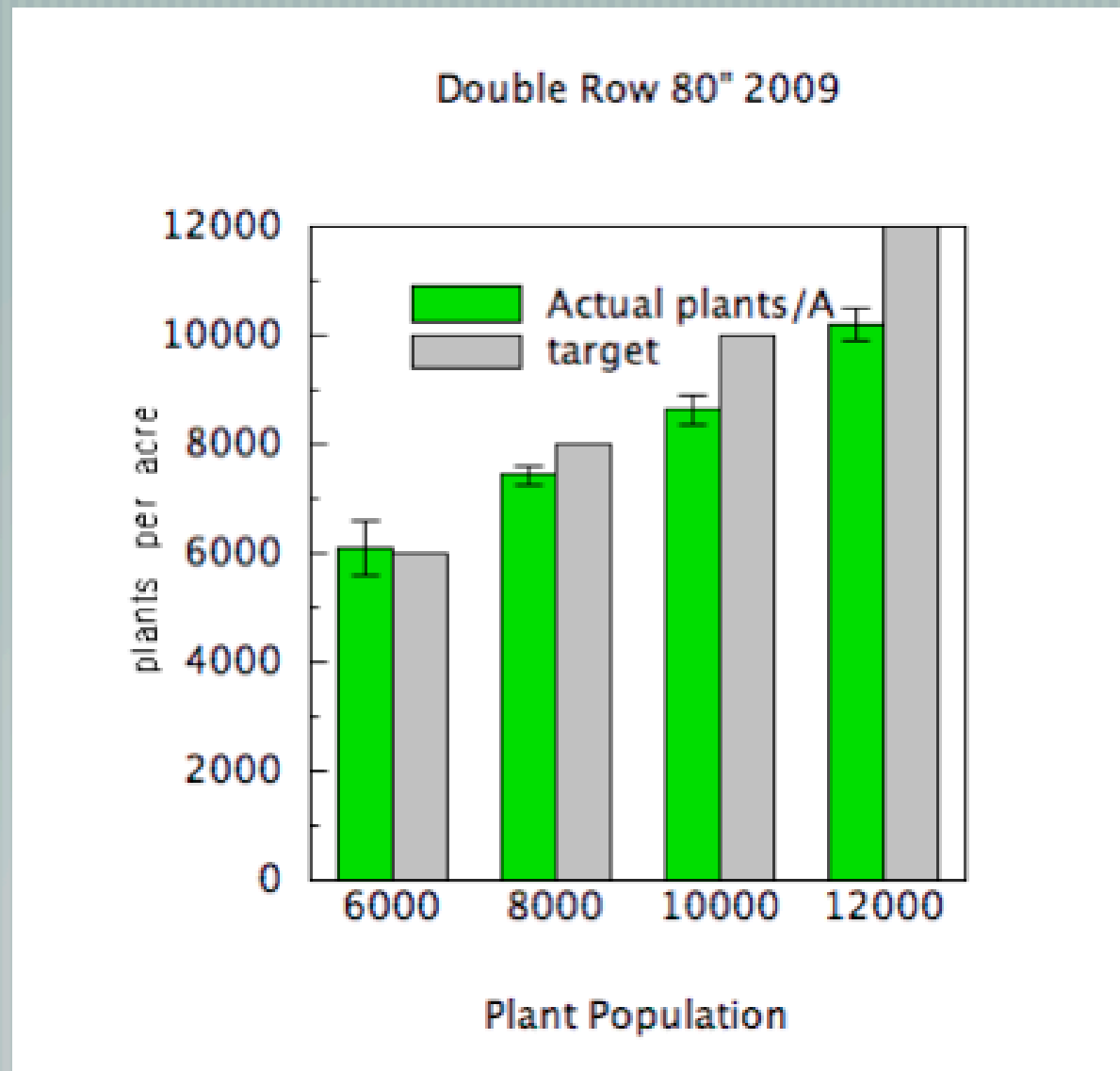
stand establishment

powdery mildew

harvest

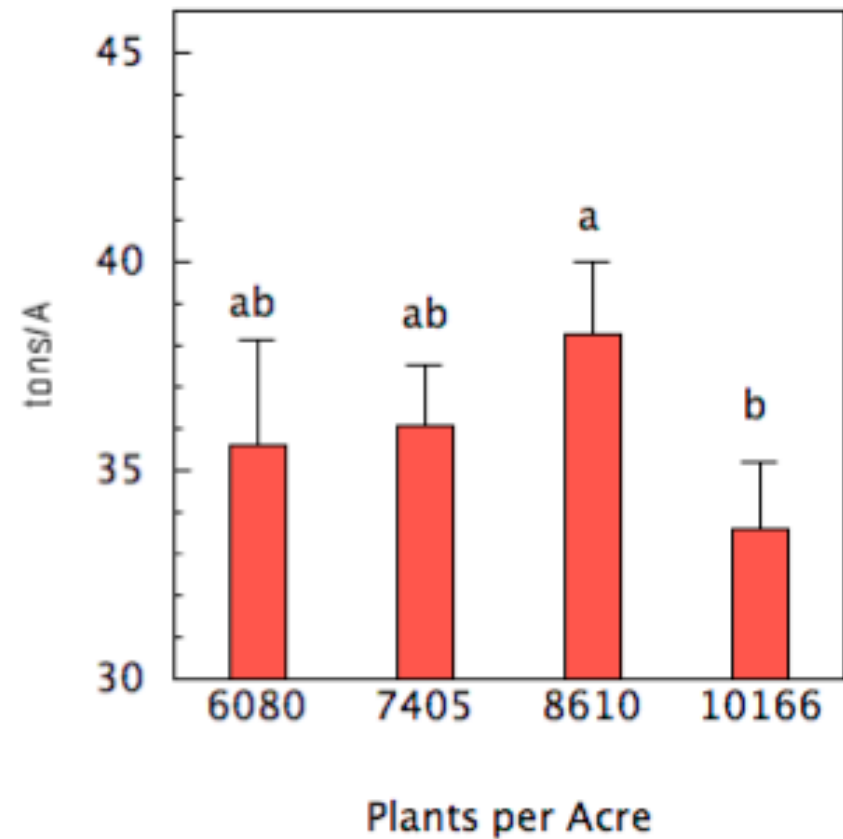
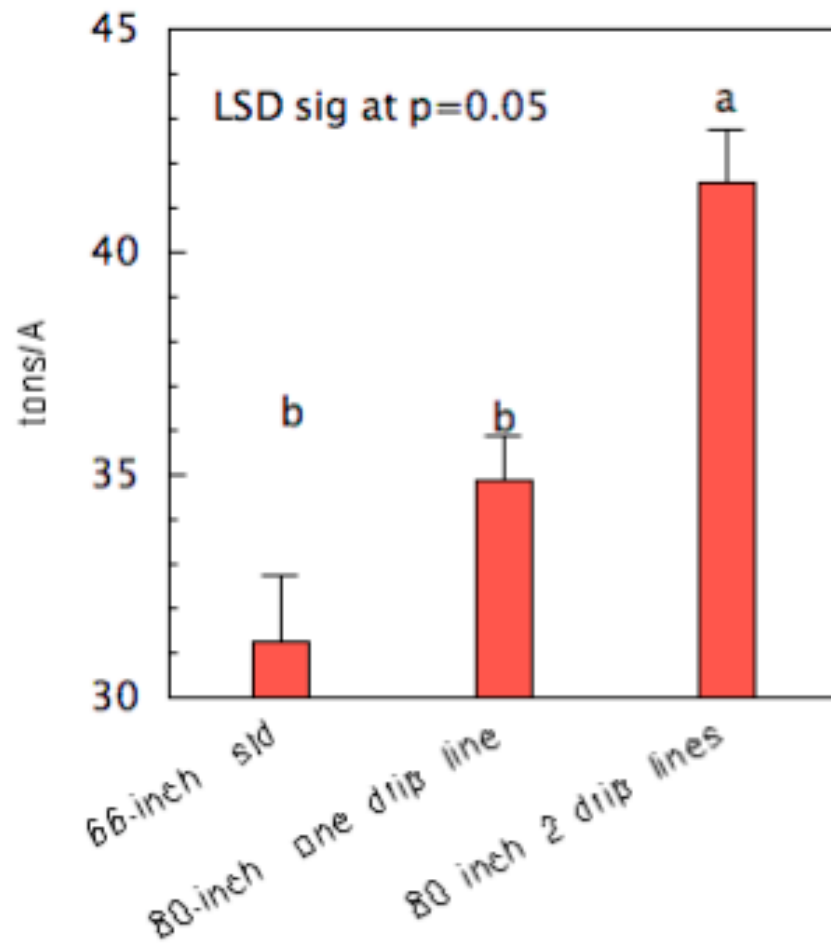


Results

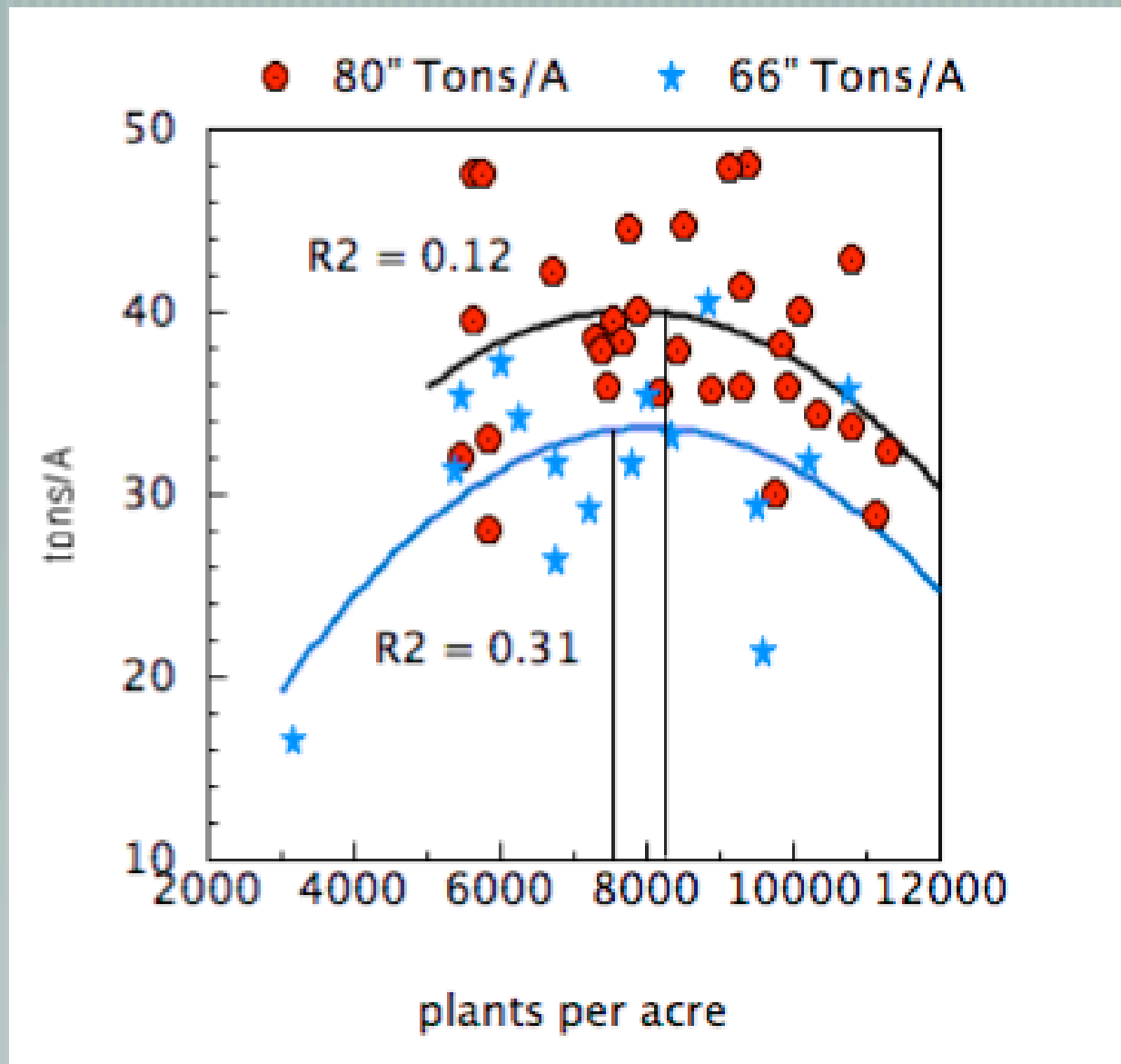


Results: yield

80" Double-row Tomatoes 2009

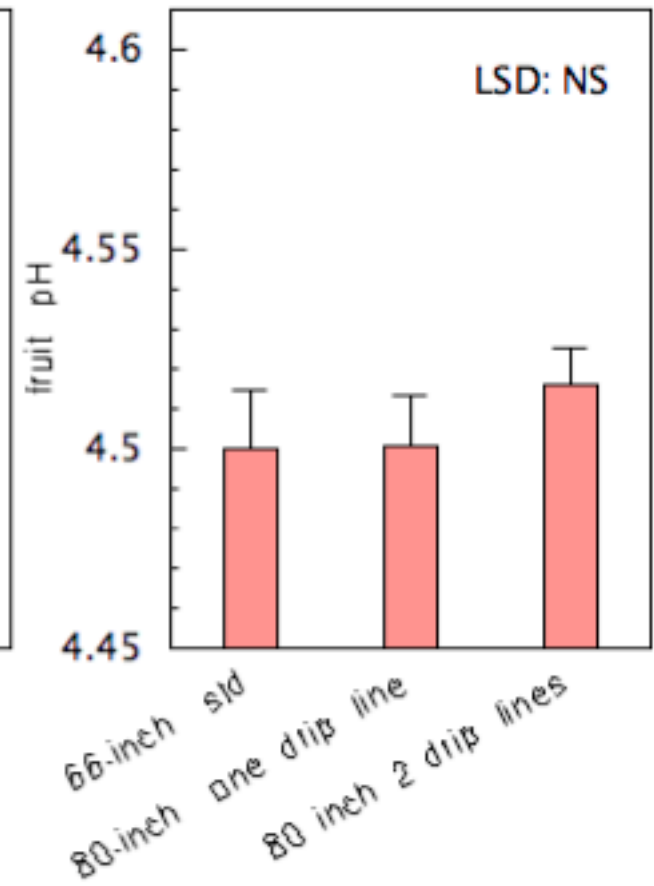
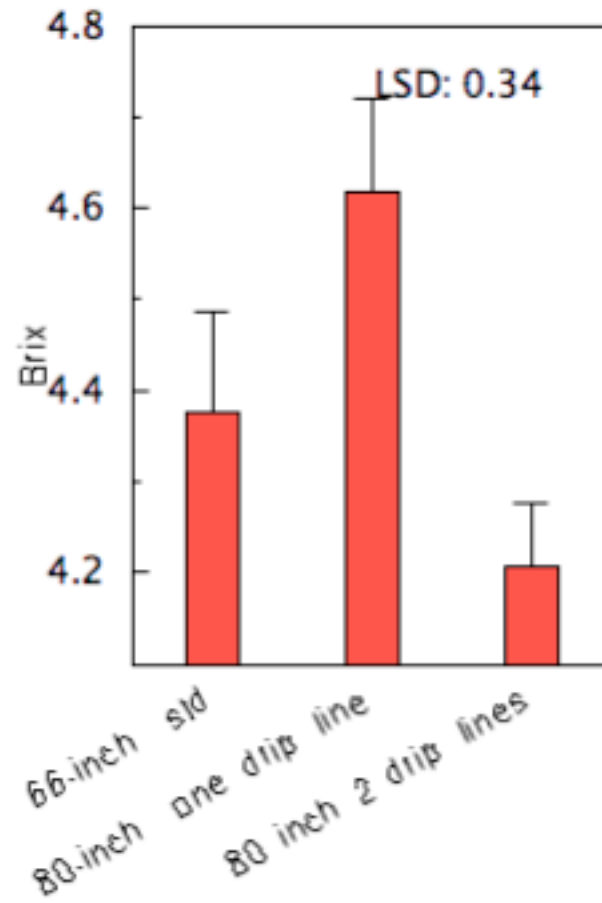
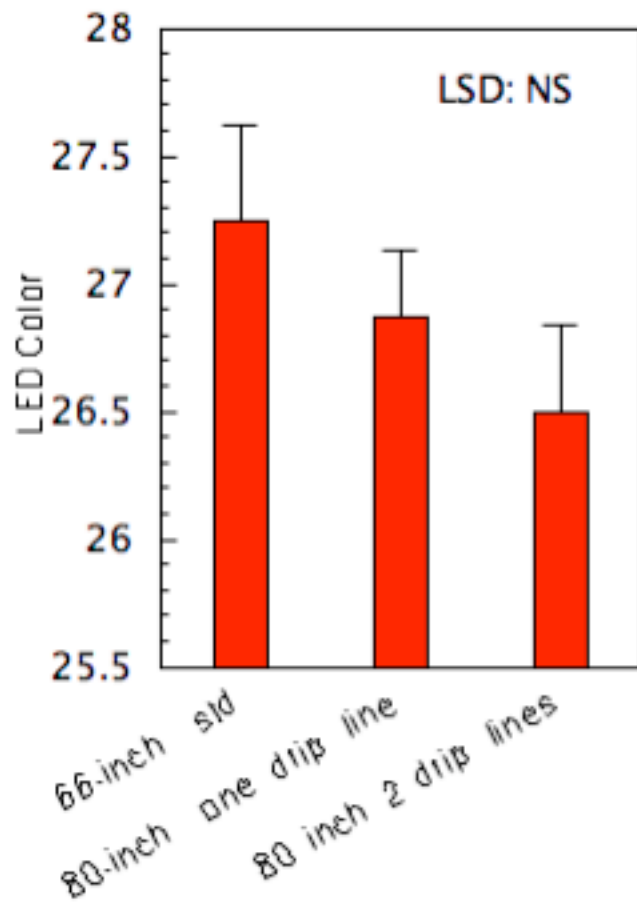


Results: plant spacing



Results: color, Brix, pH

80" Double-row Tomatoes 2009



Results

treatment	water use, inches	N, lbs/A
1. 66" beds	23.0	256
2. 80" one line	21.4	192
3. 80" two lines	20.4	192

Economic Analysis

trt	plant cost	drip line	yield	gross \$ (\$80)	net \$/A
1. 66"	x (\$350)	y (\$160)	31	2480	\$2480 - 510 (\$1970)
2. 80", one line	1.11x	0.75y	35	2800	2800 - 509 (\$2292)
3. 80" two line	1.11x	1.5y	42	3360	3360 - 629 (\$2732)

Proposed Treatments 2010

1. Std 66" bed w/buried drip, single row plants
 2. 80" bed w/single buried drip, double row plants
 3. 80" bed w/two buried drip lines, double row plants
 4. Rotation. 80" bed w/single drip (fallow, tomatoes, melons...)
- A. Same amount of water for trts 1 - 4 (107% Et).
 - a. lower flow rate for double row tape
 - b. similar cut-off date
 - B. Plant spacing split plots of 6, 8, 10, 12 thousand plants per acre
 - C. Measure yield, PTAB fruit quality, economic analysis



Equipment & etc.

— [2009 analyses complete and is posted on the VRIC and CTRI websites

— [Looking for a GT Cart

— [Looking for a transplanter

