

# Drip Irrigated Double-row Tomatoes on 80-inch Beds

Scott Stoddard, Farm Advisor, UCCE Merced & Madera

Tom Turini, Farm Advisor, UCCE Fresno



January, 2009

# 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)

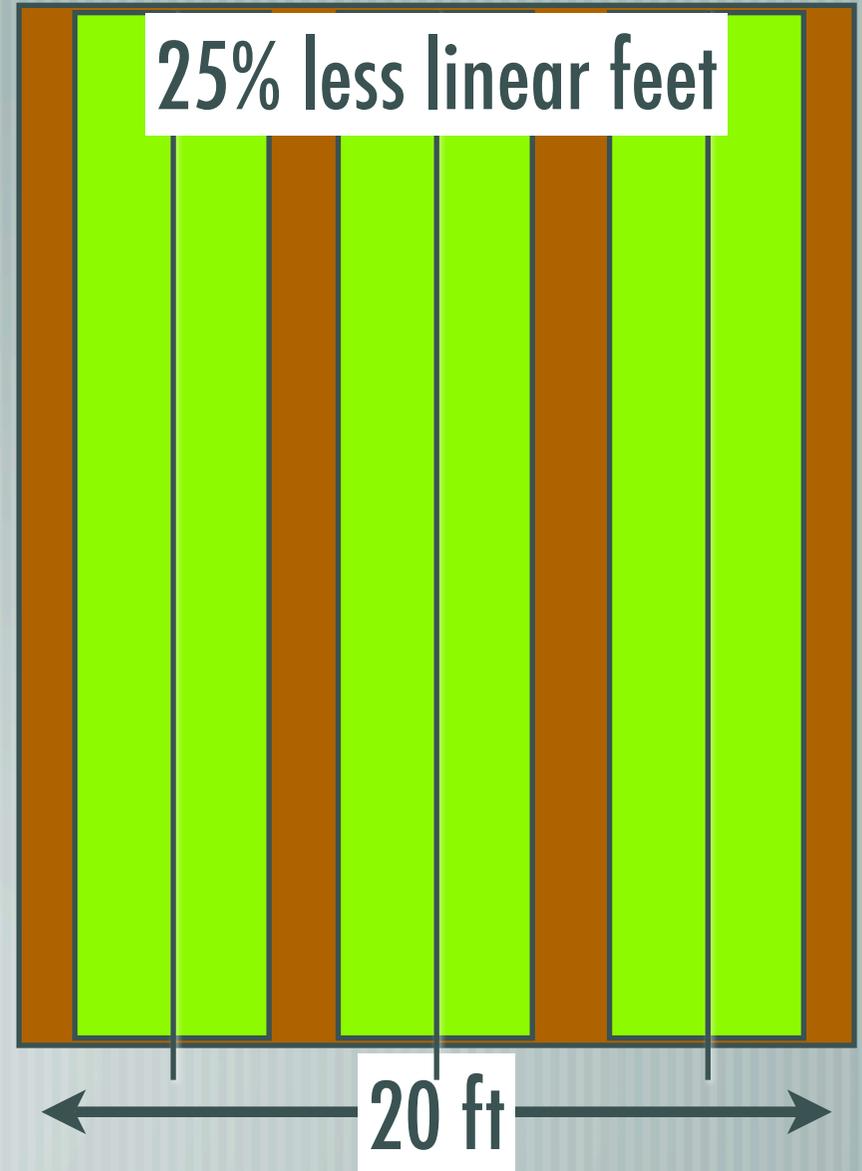
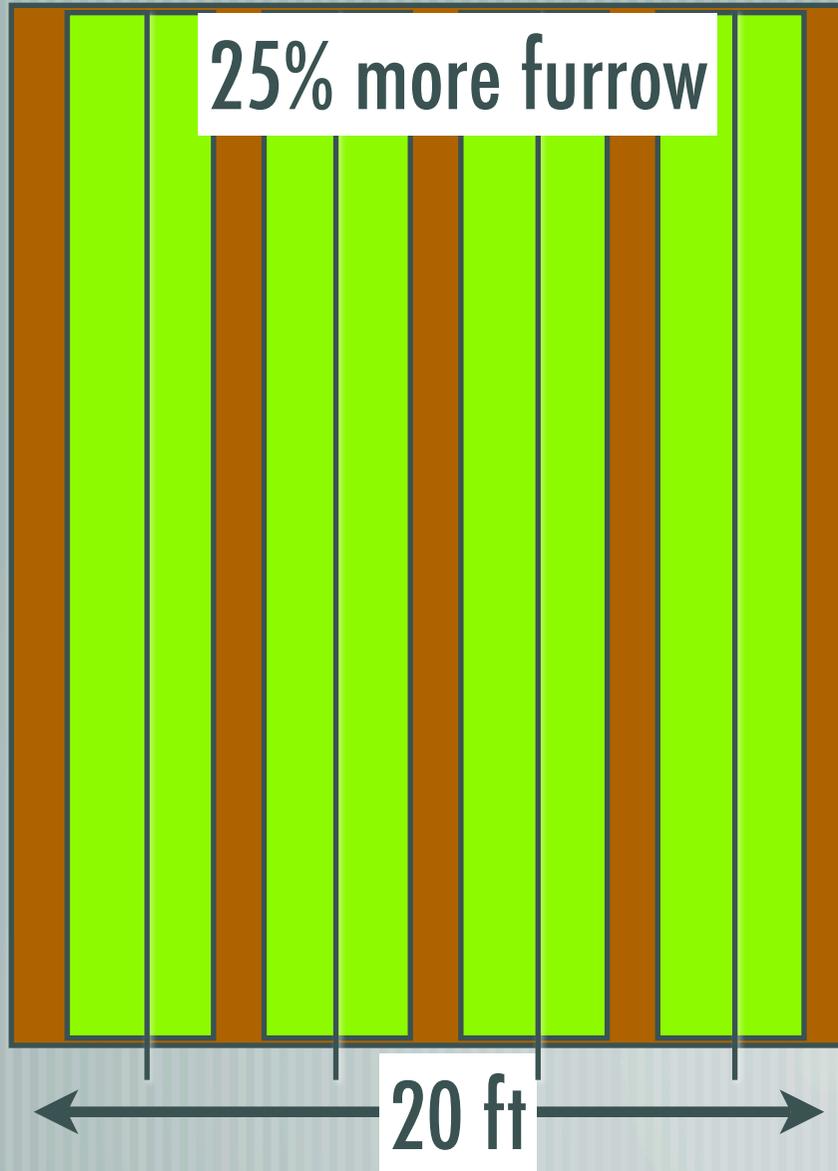
— [ tomato/cotton/corn on  
60" (Merced) or  
66" (Fresno) beds

— [ melons on 80"

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



# bed and drip lines

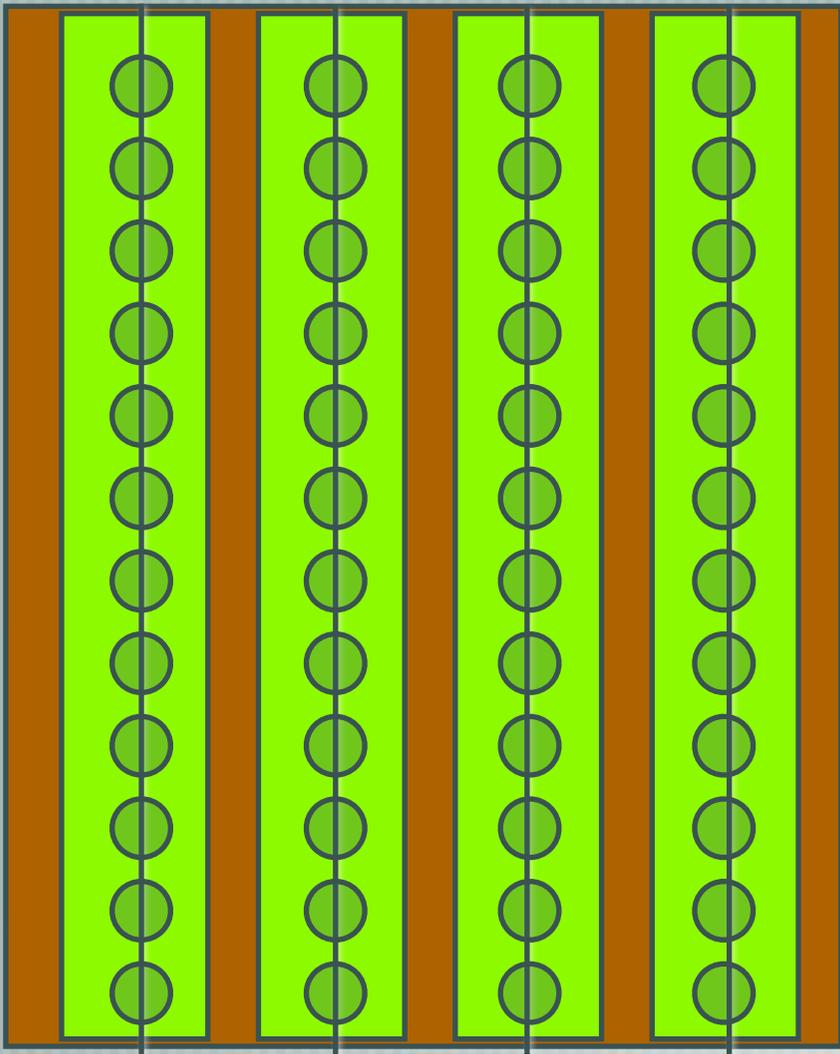


# plant spacing

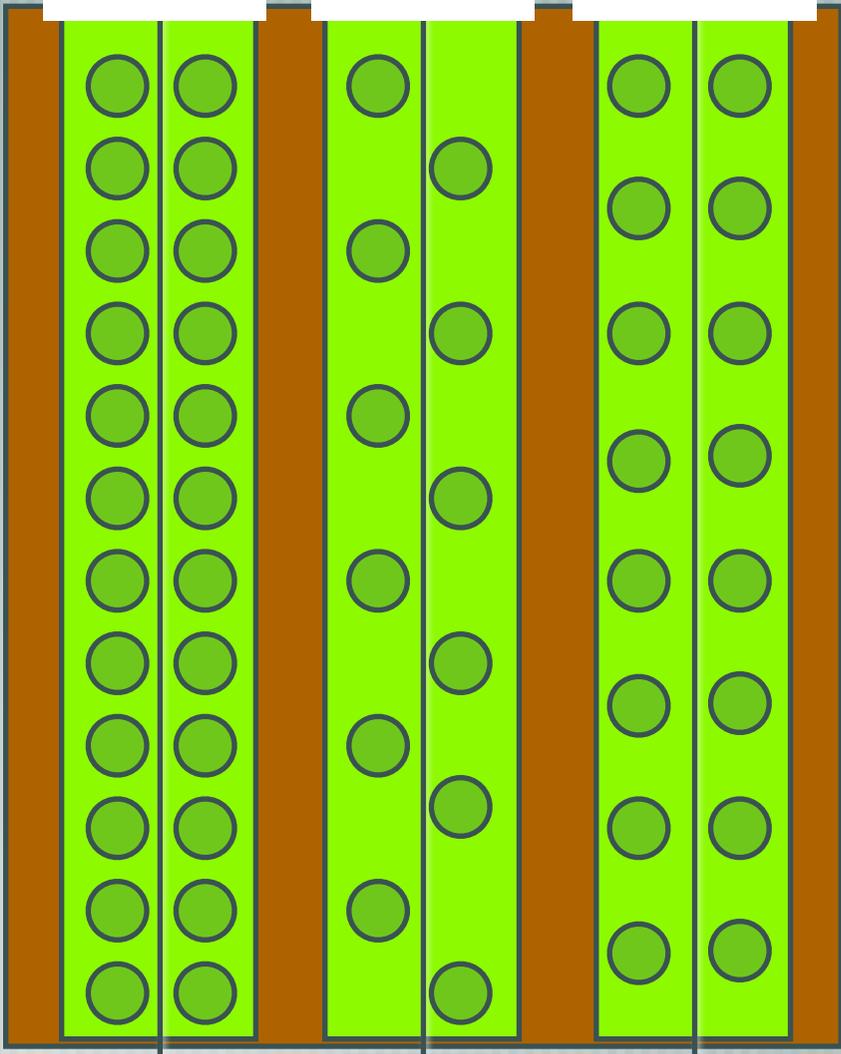
50% ↑

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

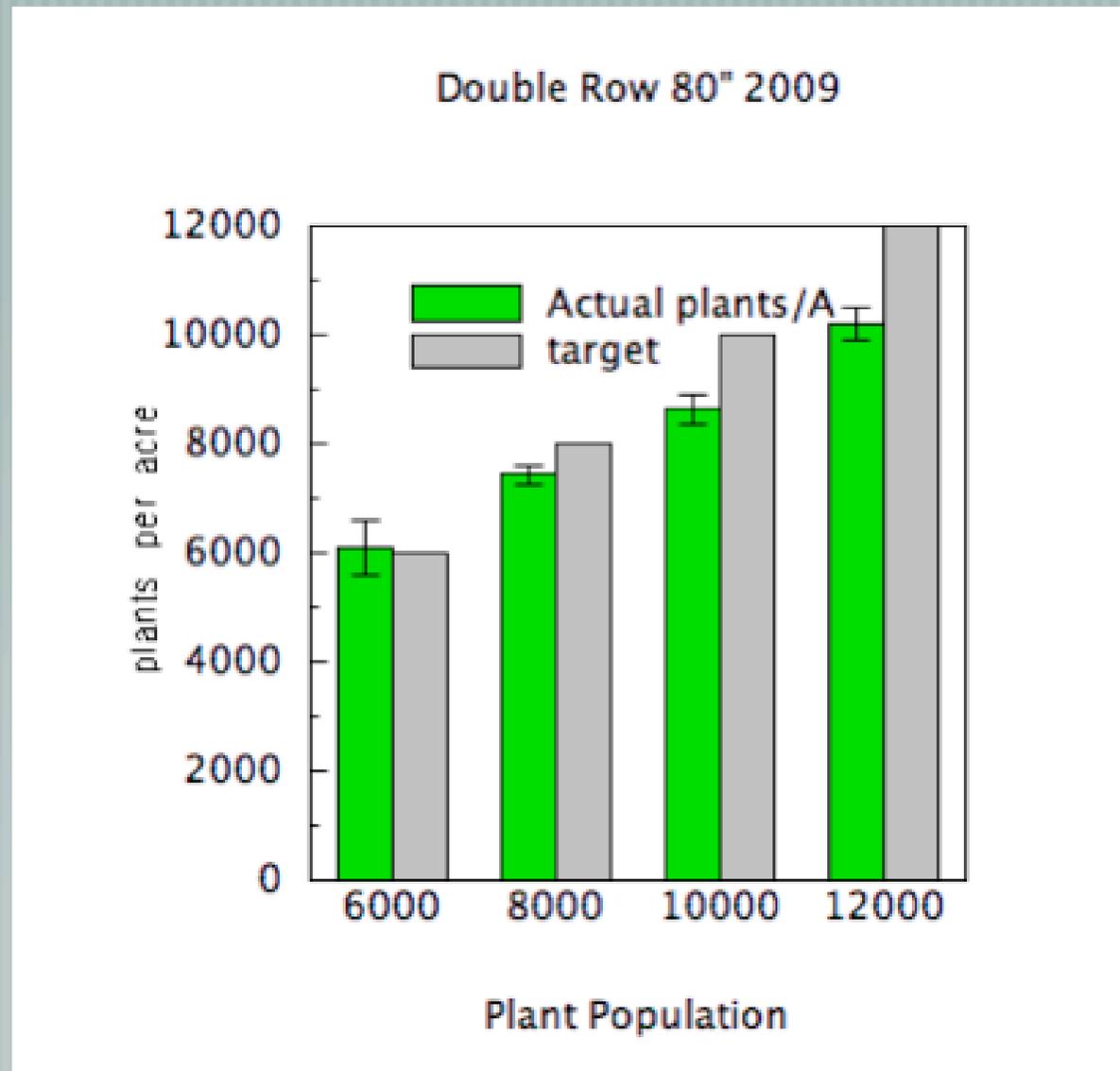
stand establishment

powdery mildew

harvest

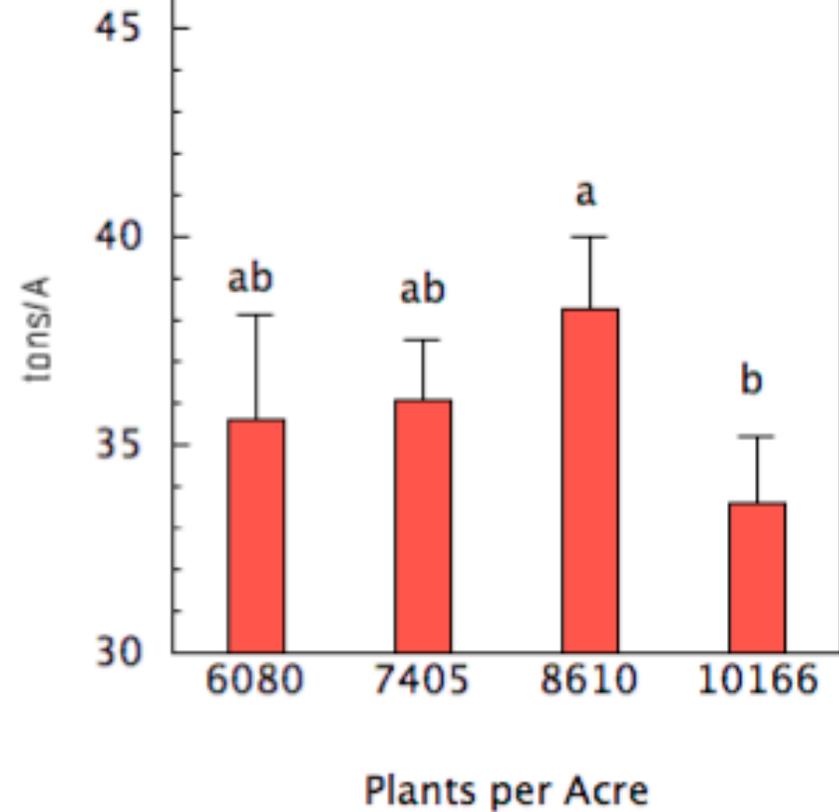
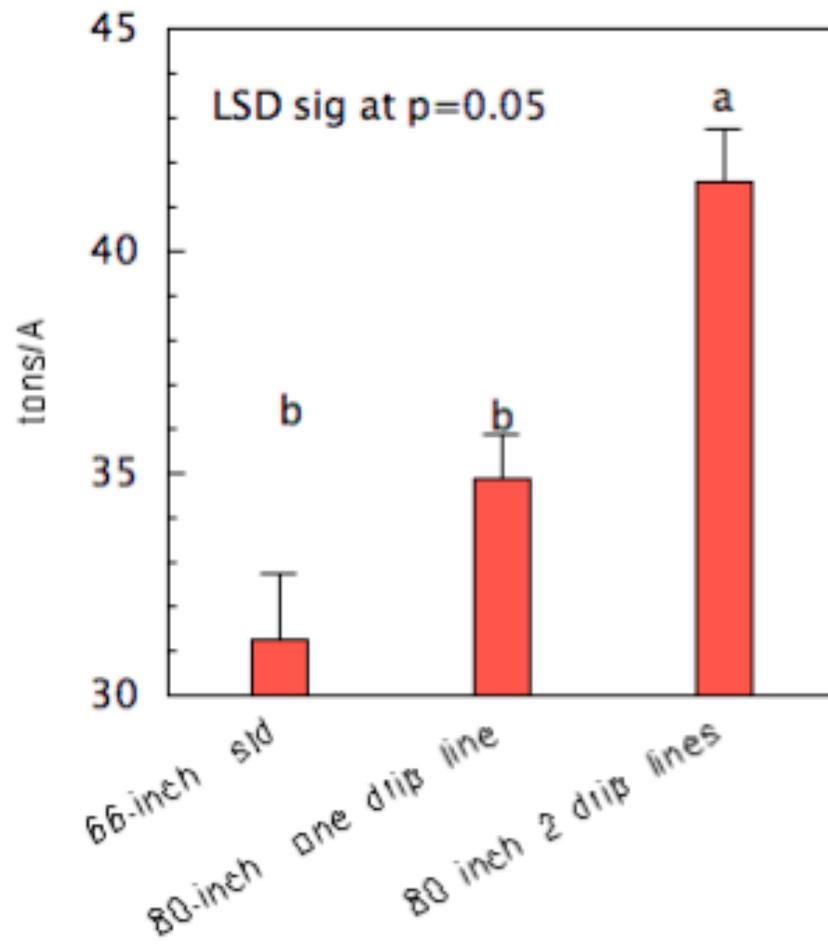


# Results

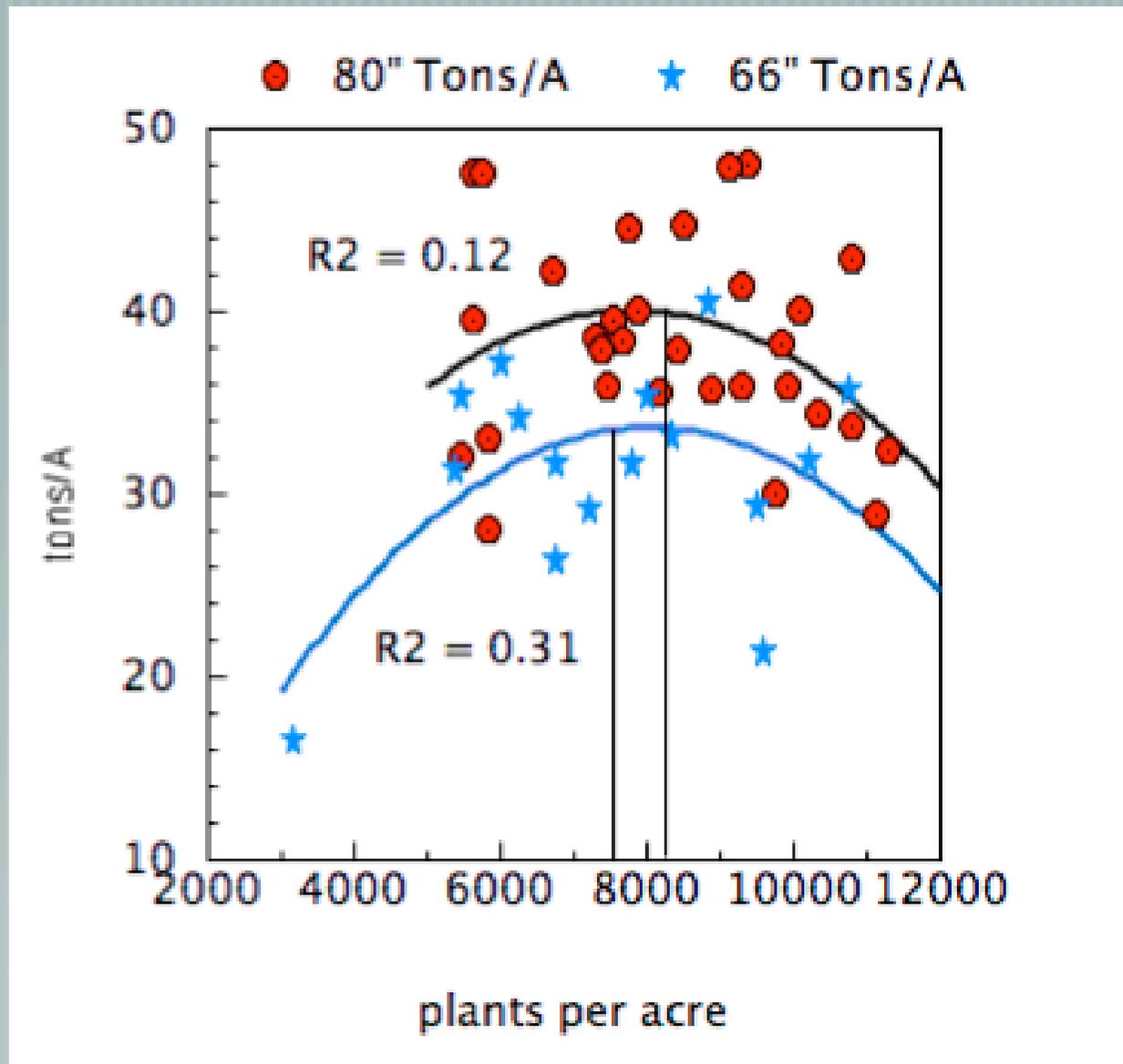


# Results: yield

80" Double-row Tomatoes 2009

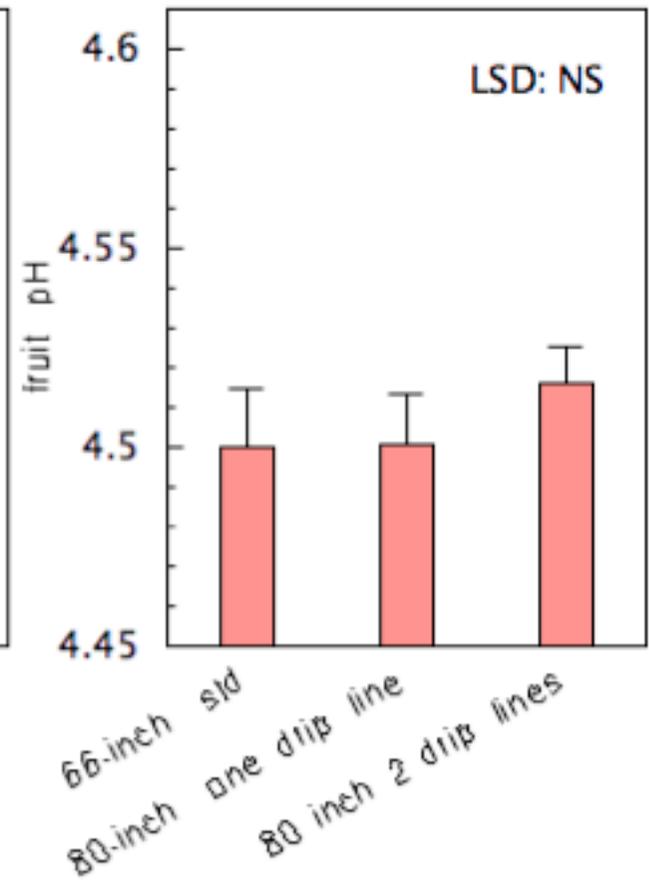
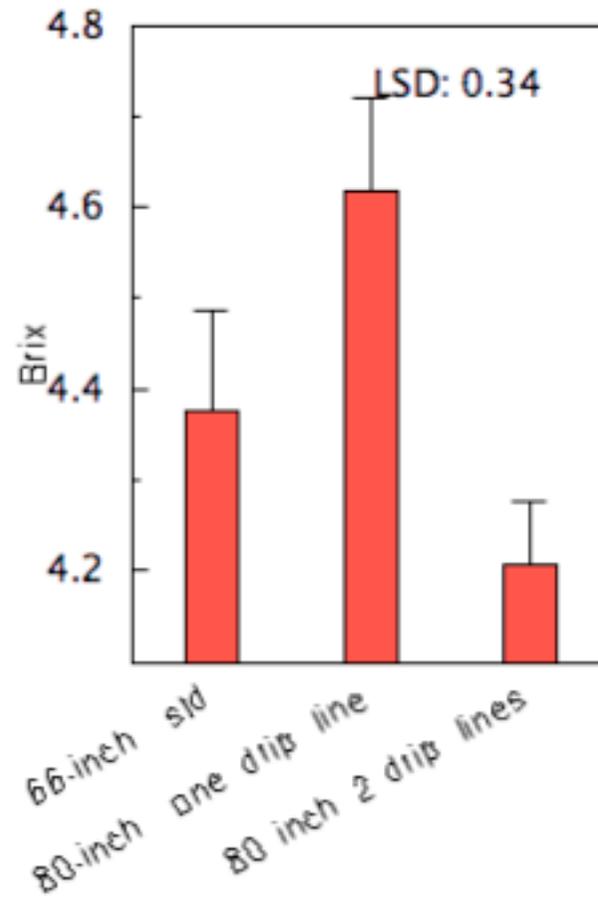
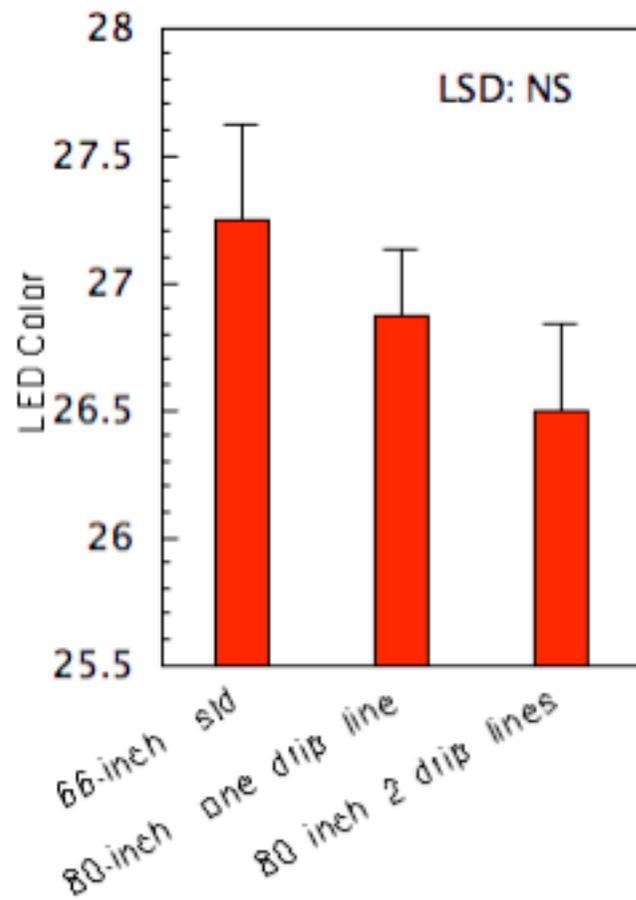


# Results: plant spacing



# 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

