

# Processing Tomato Transplant Studies:

- ✓ Root Orientation
- ✓ Plant Age, Plug Size, Doubles



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# Plant Placement Primarily a Function of Planter Type:

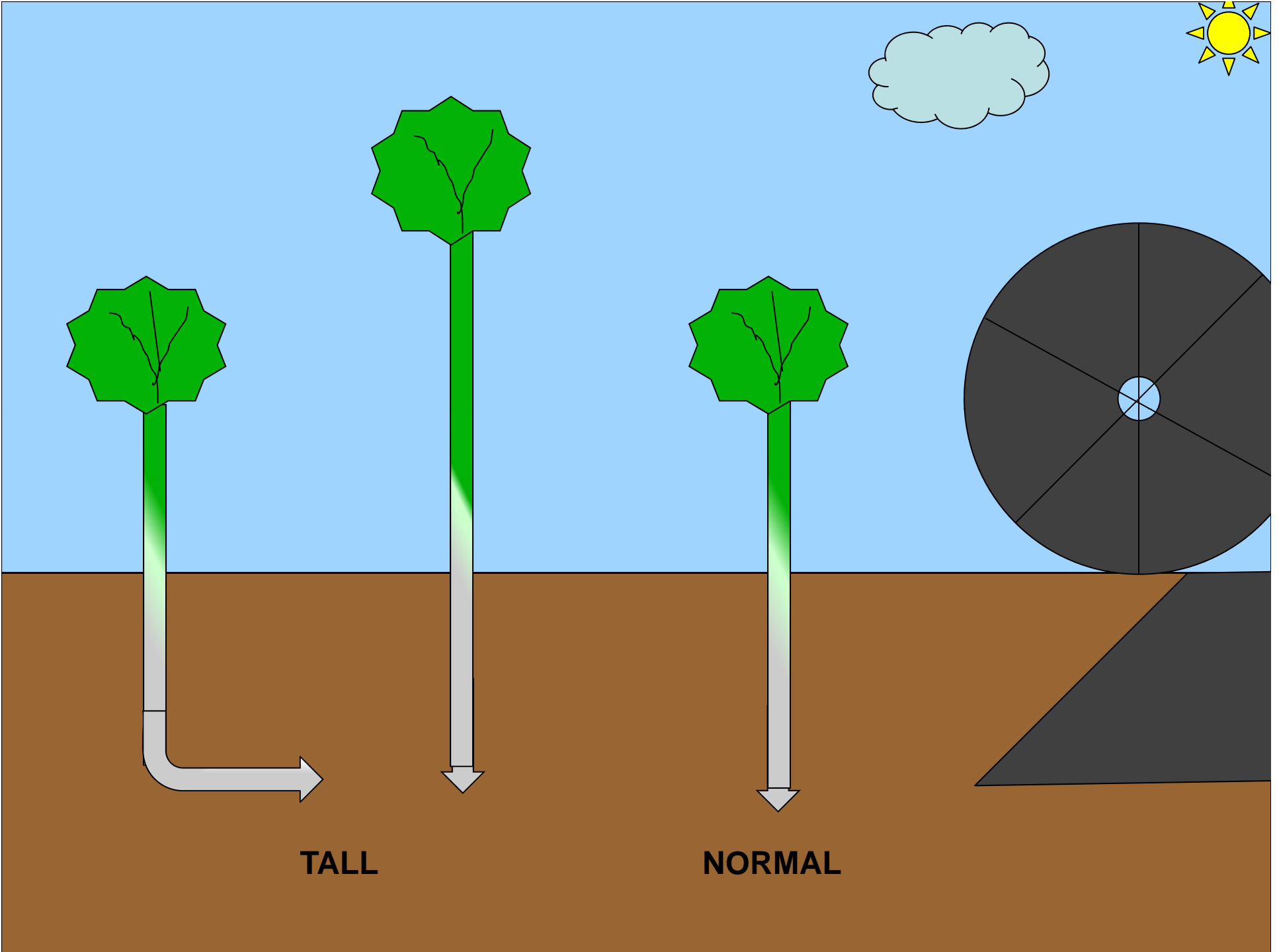


Shoe Depth  
Gravity- dropped

vs

Worker controlled  
Human





TALL

NORMAL



J-Shaped Angle









## Influence of stem angle- orientation

average of 8 reps

	stem angle	plant length	calculated			
			total fruit biomass	Market-able tons	% pink & green	% mold
1	straight	norm	75.0	48.4	31.6	3
2	straight	tall	70.2	42.9	34.8	2
3	J-bend	norm	71.6	46.4	26.5	6
4	J-bend	tall	71.5	39.5	39.1	3
LSD 5%			NS	6.3	NS	NS
% CV			7	14	33	80
F Value			1.3	3.4	1.9	2.7
<u>Group Comparisons:</u>						
Straight vs. J-bend stem			72.6	45.7	33.2	2.5
			71.6	43.0	32.8	4.6
Probability			NS	NS	NS	0.05
F Value			0.3	0.2	0.01	4.3
Normal vs. tall plants			73.3	47.4	29.0	4.3
			70.8	41.2	36.9	2.8
Probability			NS	0.01	0.05	0.14
F Value			1.8	8.4	4.3	2.4

**‘J-bending of stem’ did not influence yield**

**‘normal’ length plants produced higher yields than tall-old plants**



## Evaluation of Transplant Seedlings (Age, Doubles, Small Plugs) at Joe Yeung and Sons, Elkhorn, 2010

	Greenheart		tray	Plant	
transplant stage	Greenhouse	seeded	projected count	height	
			ship date	(inch)	
			plugs		
1 normal	Yuma	5-Feb	7-Apr	231	6
2 old	Arroyo Grande	20-Dec	5-Mar	231	10.5
3 doubles	Arroyo Grande	6-Jan	8-Mar	231	9.5
4 small plugs	Arroyo Grande	21-Jan	27-Mar	338	7

Previous crop: wheat 2009

Transplant date: 8-Apr-2010

Harvest: 8-Sep

Trial Design: randomized complete block with 6 reps



## Evaluation of Transplant Seedlings (Age, Doubles, Small Plugs), Joe Yeung and Sons, Elkhorn, 2010

transplant treatment	yield tons/acre	Fruit (PTAB lab)			% pink
		Brix	pH	color	
1 normal age	40.1	5.65	4.34	22	3
2 old	41.0	5.62	4.35	21	2
3 doubles	41.9	5.77	4.33	22	2
4 small plugs	40.5	5.58	4.34	22	2
LSD 5%	NS	NS	NS	NS	NS
CV	8	4	1	3	106
Average	40.9	5.7	4.3	21.5	2.4
F value	0.4	0.8	0.3	1.8	0.1



## Summary:

- ✓ Tomato transplants fairly resilient
- ✓ Stem angle/root ball orientation not so important
- ✓ Target: Hardy, healthy plants for good stand establishment followed with robust growth

	Location	Year	Variety	Plants per plug			significance at 0.05
				single	double	triple	
1	Colusa	2002 T1	H 9492	52.2	57.0	59.9	yes
2	Colusa	2003 T3	H 9492	29.6	32.9	35.1	85%*
3	Colusa	2003 T3	Halley	26.6	31.7	27.9	NS
4	Fresno	2004 T1	Halley	24.8	29.4	30.7	yes @ 15" spacing
5	Fresno	2004 T1	Halley	20.3	27.9	26.0	yes @ 30" spacing
6	Fresno	2004 T1	AB 2	24.4	28.0	27.4	yes @ 15"
7	Fresno	2004 T1	AB 2	17.4	22.3	25.4	yes @ 30"
8	Fresno	2005 T2	Halley	44.2	42.9	40.0	no @ 14" spacing
9	Fresno	2005 T2	Halley	41.7	40.8	39.4	no @ 28" spacing
10	Fresno	2005 T2	AB 2	43.1	50.3	49.9	yes @ 14" spacing
11	Fresno	2005 T2	AB 2	45.0	49.4	48.3	yes @ 28" spacing
12	Fresno	2006 T3	Halley	52.2	52.5	54.2	no @ 14" spacing
13	Fresno	2006 T3	Halley	44.4	48.7	49.2	yes @ 28" spacing
14	Fresno	2006 T3	AB 2	52.1	52.3	52.4	no @ 14" spacing
15	Fresno	2006 T3	AB 2	42.8	48.7	49.2	yes @ 28" spacing
16	Fresno	2006 T4	Halley	36.7	39.8	-	yes, combined
17	Fresno	2006 T4	Halley	28.0	31.2	-	yes @ 28" spacing
18	Fresno	2006 T4	AB 2	36.3	39.9	-	yes, combined
19	Fresno	2006 T4	AB 2	28.9	33.4	-	yes @ 28" spacing

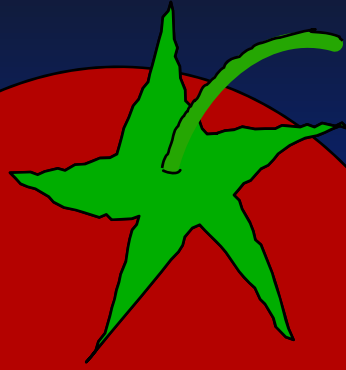


	Location	Year	Variety	Plants per plug			significance at 0.05
				single	double	triple	
20	Yolo	2003 T1	H 9492	32.4	33.9	-	No
21	Yolo	2003 T1	Halley	30.8	31.0	-	No
22	Yolo	2003 T2	AB 2	55.2	52.5	-	No
23	Yolo	2003 T2	AB 5	53.4	54.0	-	No
24	Yolo	2005 T3	Halley	46.4	45.0	-	No
25	Yolo	2005 T3	AB 2	43.2	45.0	-	No
26	Yolo	2006 T4	APT 410	52.7	50.6	-	No
27	Yolo	2006 T4	H 9280	48.9	49.3	-	No
28	Yolo	2006 T5	HyPeel 45	41.5	43.4	-	No
29	Yolo	2006 T5	AB 2	39.7	38.3	-	No
30	Yolo	2006 T5	H 9780	36.9	34.6	-	No
31	Yolo	2007 T6	APT 410	46.6	55.9	-	yes
32	Yolo	2007 T6	H 9280	37.4	47.4	-	yes
33	Yolo	2007 T7	AB 2	64.0	65.9	-	No
34	Yolo	2007 T7	H 9780	60.5	60.6	-	No
35	Yolo	2007 T7	H 2601	53.8	59.9	-	yes
36	Yolo	2008 T8	APT 410	47.0	45.3		no
37	Yolo	2008 T9	AB 2	63.6	65.5		no*
38	Yolo	2008 T9	H 9780	64.2	67.0		no*
39	Yolo	2008 T9	H 2601	52.2	56.2		no*
40	Yolo	2009 T10	AB 2	77.8	73.1		no
41	Yolo	2009 T10	Sun 6366	69.7	73.2		yes
42	Yolo	2010 T11	AB 2	41.0	41.9		no

# UC Field Trials with Multiple Plants per Transplant Plug Years 2002-2010

<b>location</b>	<b>plants per plug</b>			LSD 5%
	<b>1</b>	<b>2</b>	<b>3</b>	
Colusa	<b>36.1</b>	<b>40.5</b>	<b>41.0</b>	1 of 3
Fresno	<b>37.7</b>	<b>41.1</b>	<b>41.0</b>	
Fresno	<b>36.4</b>	<b>39.8</b>	-	12 of 16
Yolo	<b>50.4</b>	<b>51.7</b>	-	4 of 23
<b>average</b>	<b>44.0</b>	<b>46.4</b>		
<i>gain</i>		<b>2.4</b>		





**The End**