Impact of Increased Minimum Wage on Southern San Joaquin Valley Navel Orange Producers

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The California Institute for the Study of Specialty Crops (CISSC) developed a representative farm simulation model for navel producers in the Southern San Joaquin Valley. The farm simulation model simulates a producer's financial statements for 2005-2014, including the income statement, statement of cash flows, and balance sheet. This model allows model prices and yields to vary over time. The variability is based on historical variation in navel orange prices and yield. This is done to capture the risk and uncertainty associated with variable prices and yields.

The producer simulated in the navel orange model owns 300 acres, on which 273 are in production. Mortgage payments for the land are still being made and the producer has no other source of income. Cultural costs in 2005 are $1945/acre, which are inflated each year. Harvest costs per carton start at $5.32 for fresh market. Harvest costs for the processing market were not used because only on tree projected prices for processed navel oranges were available. On tree processing prices reflect net price after harvest costs are taken out of the market price. The majority of on tree processing price for navel oranges are negative, inferring producers lose money on the percentage yield for processing. It is assumed 78% of production goes to the fresh market, the remaining sold to the juice market.

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Minimum wages have been schedule to increase in the next month, leading to increased labor costs for citrus producers. The model was used to simulate the impact higher labor costs may have on a representative navel orange producer in the Southern San Joaquin Valley. Currently, $10-$12 an hour is an average wage, which includes any benefits and state and federal tax costs. Minimum wage is scheduled to increase a dollar an hour. A few steps were taken to determine the impact higher minimum wage will have on navel orange producers. Cultural labor costs and harvest labor costs were separated because harvest labor costs are incorporated into the harvest costs charged by the packing house. For cultural labor, we assumed an average of $12/ hour for the base simulation and $13/hour for the alternative simulation. Harvest costs were increased by percentages rather than a one dollar increase because the packing house will determine how much of the increased labor costs will be transferred to the producers. Since we do not know the exact amount harvest costs per carton will increase, harvest costs were increased by 5%, 10%, and 15% in addition to the $1/hr increase on cultural labor costs.

Table 1. Forecast Mean Prices and Yields

Year	NFAPP Processing Price $/Ton (On Tree Equivalent)	CISSC Fresh Market Price $/Ton (FOB, Packinghouse)	NFAPP Yield Ton/Acre	CISSC Yield Ton/Acre
2006	**-$67.4**	**$293.69**	**11.96**	**10.49**
2007	**-$65**	**$310.64**	**11.44**	**11.54**
2008	**-$64.6**	**$316.90**	**11.64**	**11.22**
2009	**-$63.8**	**$323.17**	**11.6**	**10.93**
2010	**-$63.4**	**$329.43**	**11.63**	**11.31**

NOTE: CISSC fresh market prices and yields are statistically similar to NFAPP fresh market prices and yields at a 99% confidence level.

Table 1 provides a comparison between the CISSC and National Food and Agricultural Policy Project (NFAPP) forecast mean prices and yields. CISSC forecasts were used in

this analysis but as noted they are statistically comparable to the NFAPP numbers. Table 2 shows the labor cost scenarios. The model was used to simulate annual net income, annual cash flow, and net present value based on the Table 1 forecast mean prices, yields, and their variability for each of the labor cost alternatives shown in Table 2.

Table 1. Alternative Labor Costs			
	Labor Cost Increases Cultural and Harvest	**Cultural Labor Costs/Acre**	**Harvest Costs/Carton**
Base	$0/hr and 0%	$840	$5.32
Alternative 1	$1/hr and 5%	$910	$5.59
Alternative 2	$1/hr and 10%	$910	$5.85
Alternative 3	$1/hr and 15%	$910	$6.12

Tables 3-5 below summarize the results of the simulations. Table 3 shows the probability of earning a net income above zero and Table 4 shows the impact for achieving a positive cash flow. The percent change in probability when compared to the base model is shown in parenthesis. Bolded black values indicate the mean values were significantly different from the base mean values at a 95% confidence level; bolded red values indicate significance at a 90% confidence level.

Table 3. Annual Net Income: Probability of Breaking Even[2]				
Year	Base	Alternative 1	Alternative 2	Alternative 3
2006	41%	32% (-9%)	30% (-11%)	28% (-13%)
2007	52%	49% (-3%)	49% (-3%)	44% (-8%)
2008	52%	49% (-3%)	44% (-8%)	39% (-13%)
2009	52%	48% (-4%)	42% (-10%)	**35% (-17%)**
2010	51%	48% (-3%)	46% (-5%)	**42% (-9%)**

[2] Bold numbers in the tables indicate statistically significant differences at the 95% level of confidence.

Table 4. Annual Cash Flow: Probability of a Positive Cash Flow				
Year	Base	Alternative 1	Alternative 2	Alternative 3
2006	20%	18% (-2%)	14% (-6%)	**13% (-7%)**
2007	17%	17% (-0%)	**14% (-3%)**	**13% (-4%)**
2008	12%	9% (-3%)	**5% (-7%)**	**4% (-8%)**
2009	12%	8% (-4%)	**5% (-7%)**	**3% (-9%)**
2010	12%	**7% (-5%)**	**5% (-7%)**	**2% (-10%)**

Table 5 shows the net present value under all four scenarios and the percent change from the base model. Bolded black values indicate the mean values were significantly different from the base mean value at a 95% confidence level.

Table 5. Net Present Value: Probability of a Positive Net Present Value				
	Base	Alternative 1	Alternative 2	Alternative 3
NPV > $0	83%	**68%**	**53%**	**48%**
% Change		-15%	-30%	-35%

The results indicate that net farm income, cash flow, and net present value are all negatively impacted by increases in farm labor. Cash flow and net present values have the greatest number of statistical significant differences.