UC CE UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources Cooperative Extension

Economic Sustainability and Viability of Vegetable Crops Production in Riverside County: Opportunities and Challenges

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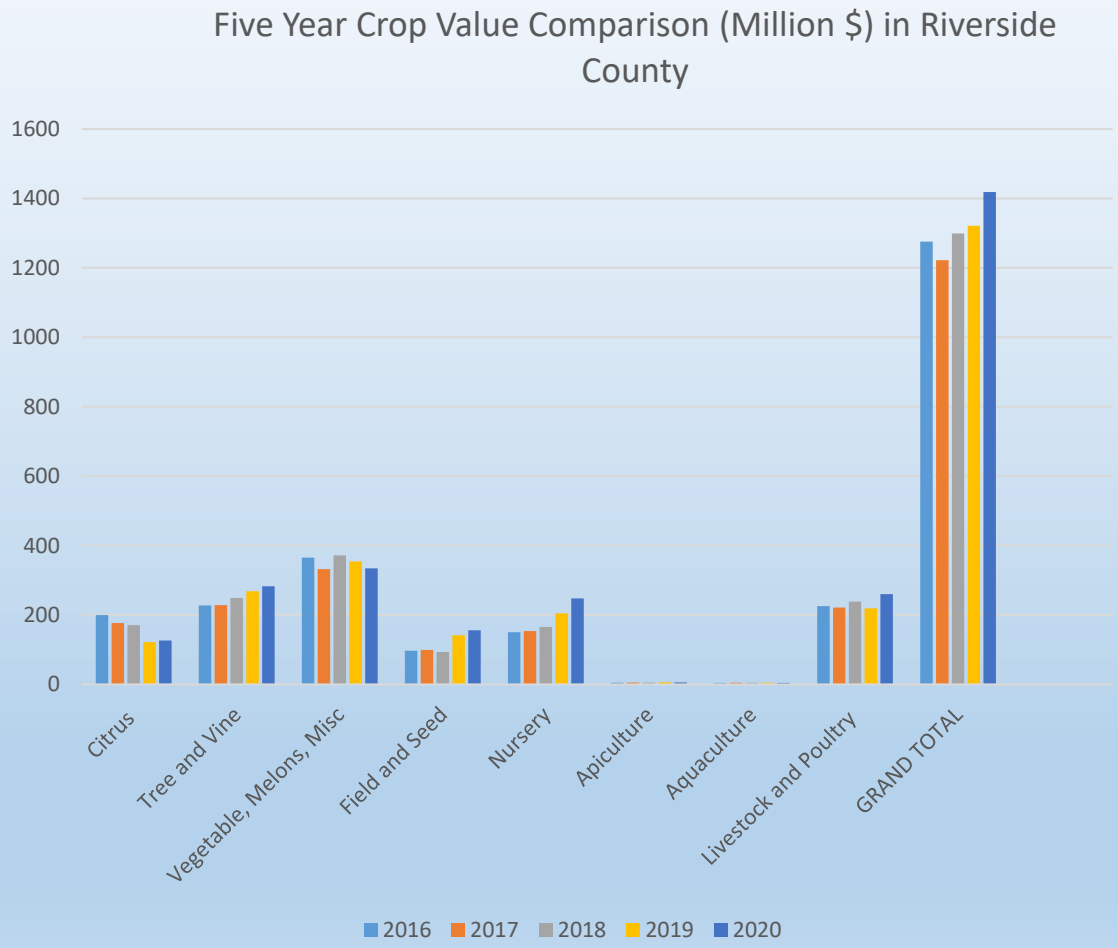
Significance of vegetable crops production in Riverside County

- Riverside County with main production area in the Coachella Valley produces diverse (some 40+ crops vegetable crops) that play significant role in the agricultural and overall economy of the County.

Significance of vegetable crops production in Riverside County



- Vegetable crops is the highest value crop group followed by livestock and poultry and tree and vine crops.
- Vegetable Crop group accounted ~for one-third (average $320 m in the 5 most current years) of the total agricultural value in Riverside County.

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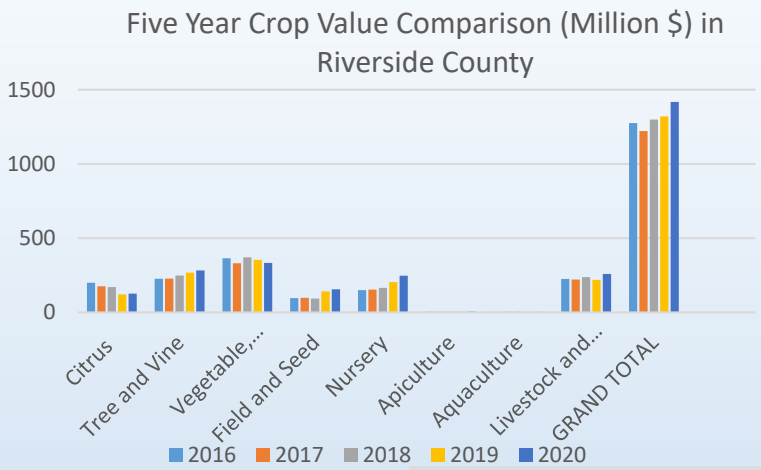
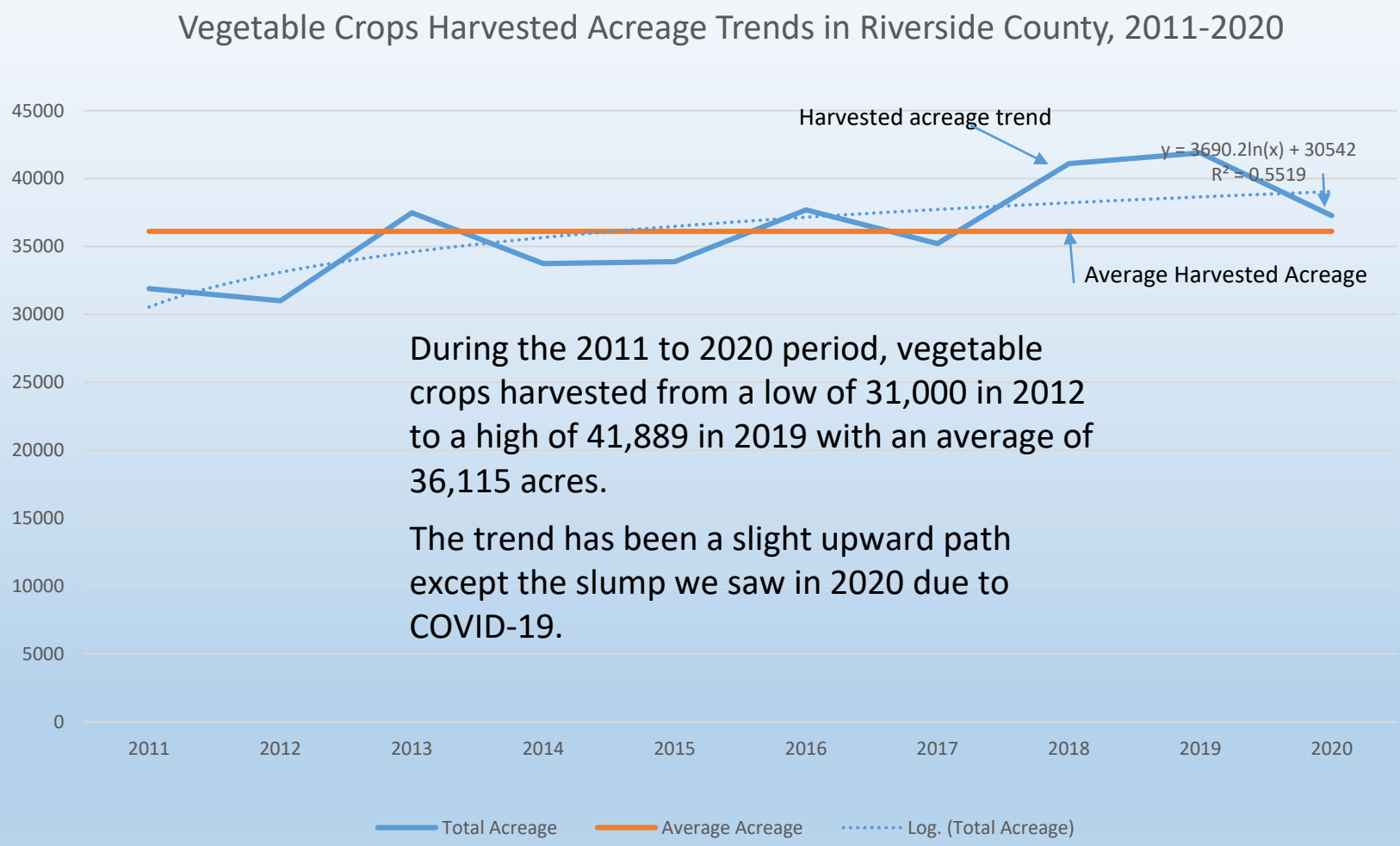


$320 m in the 5 most current years)

In addition, the veg crops production contributes via indirect (business transaction) and induced (consumption) impact to the economy ~48% ($158 million).

Historical Perspectives:



During the 2011 to 2020 period, vegetable crops harvested from a low of 31,000 in 2012 to a high of 41,889 in 2019 with an average of 36,115 acres.

The trend has been a slight upward path except the slump we saw in 2020 due to COVID-19.

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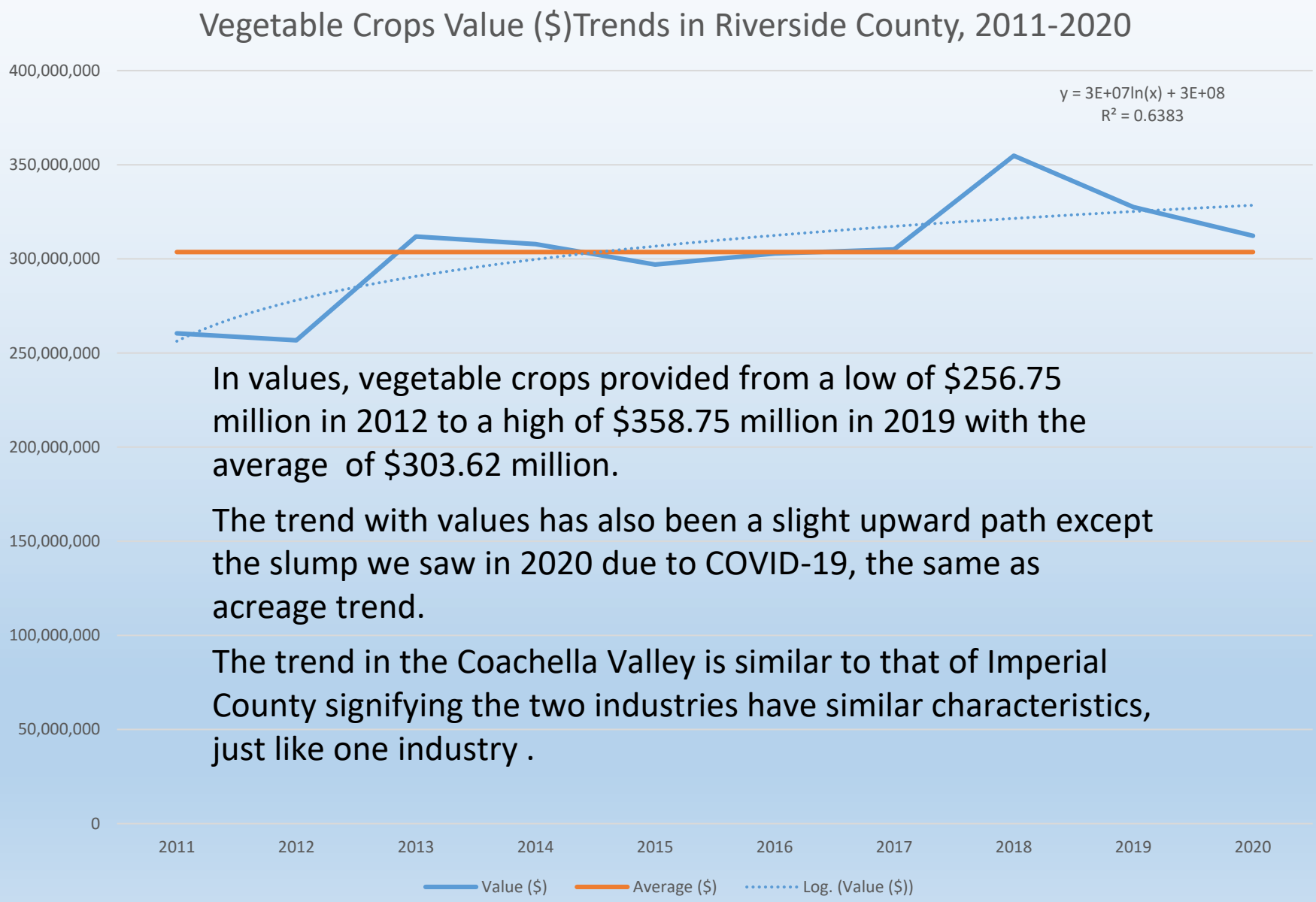


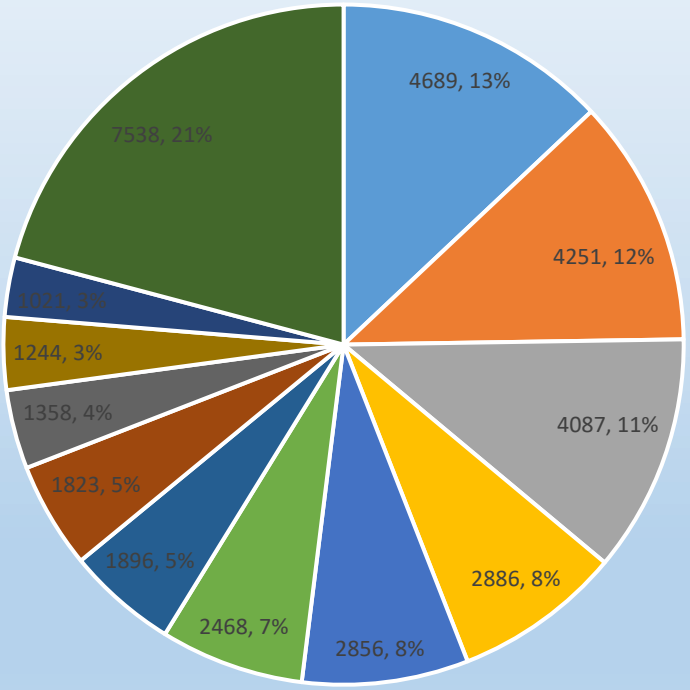
In values, vegetable crops provided from a low of $256.75 million in 2012 to a high of $358.75 million in 2019 with the average of $303.62 million.

The trend with values has also been a slight upward path except the slump we saw in 2020 due to COVID-19, the same as acreage trend.

The trend in the Coachella Valley is similar to that of Imperial County signifying the two industries have similar characteristics, just like one industry .

Crops Significance by Harvested Acreage, (Using 2011-2020 Average)

In miscellaneous category are ~30 crops accounting 21% in this group (total average 7538 acres) on average ~250 acres each

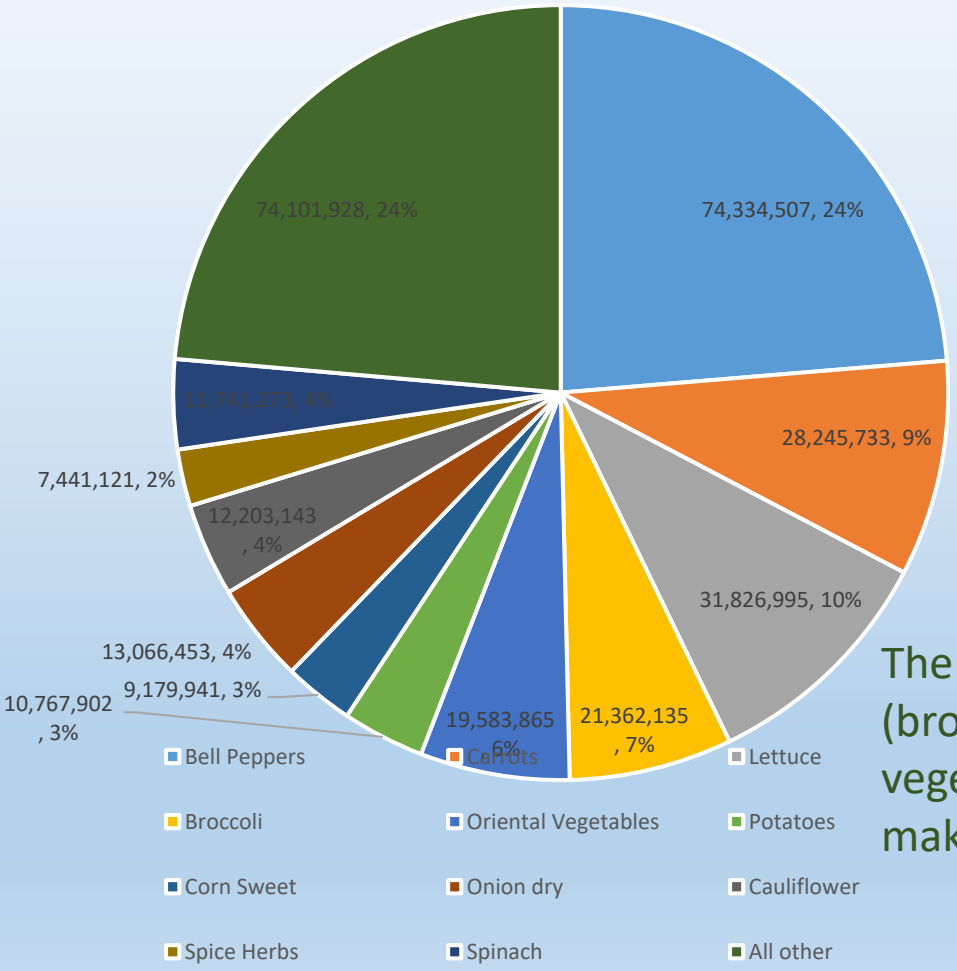


3 varieties (bell peppers, carrots, lettuce) account for 33%; average harvested acreage = 13,206

A 3rd group : Corn sweet, onion dry, cauliflower, spice herbs and spinach account for 20%; average harvested acreage= 7,453 acres

Another 3 varieties (broccoli, oriental vegetables and potatoes) make up 25%, average harvested acreage= 8210 acres)

Crops Significance by Values ($)
(Using Average of 2011-2020)



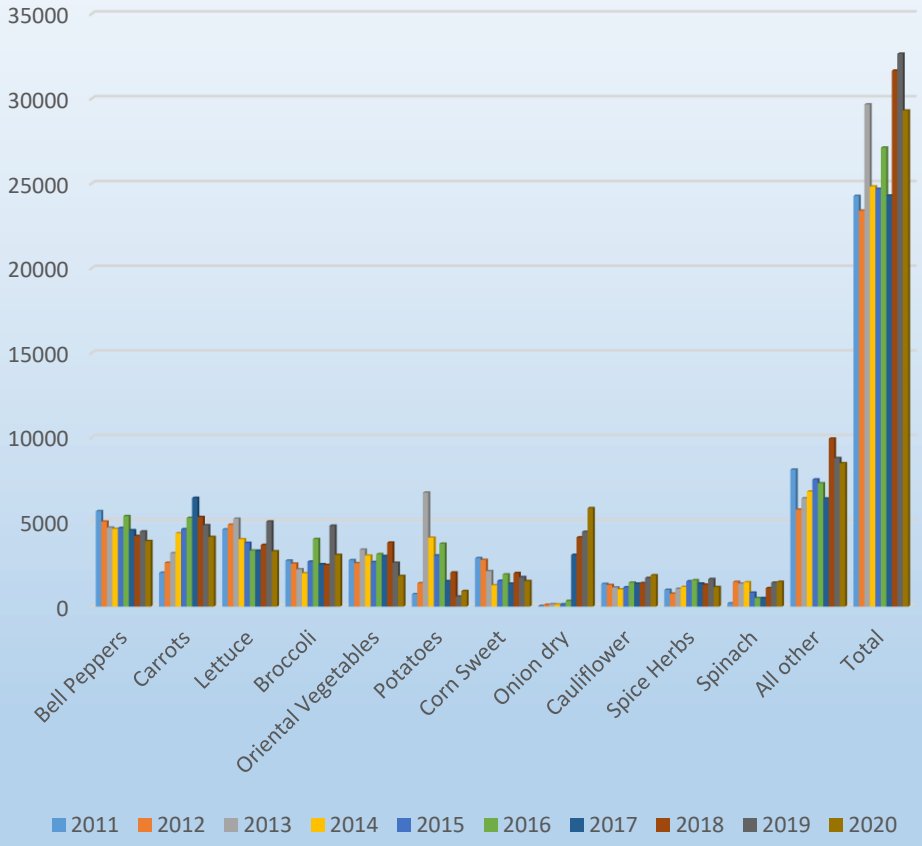
The three crops Bell peppers, carrots and lettuce accounted for 43% of the vegetable crops value.

Bell Peppers had the highest value accounting for 24%, the others Carrots and Lettuce accounted for the 19%.

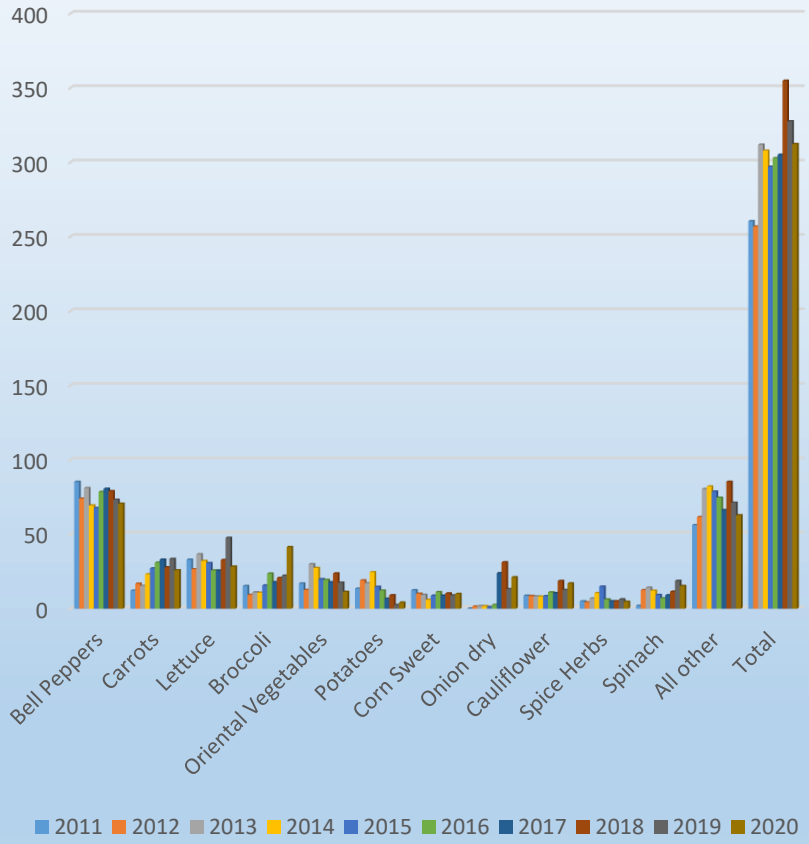
The other 3 varieties (broccoli, oriental vegetables and potatoes) make up 16% of the value)

A look at the Trend by Crop, 2011-2020

Harvested Acreage Trend by Crop,2011-2020



Value (Million $) Trend by Crop, 2011-2020



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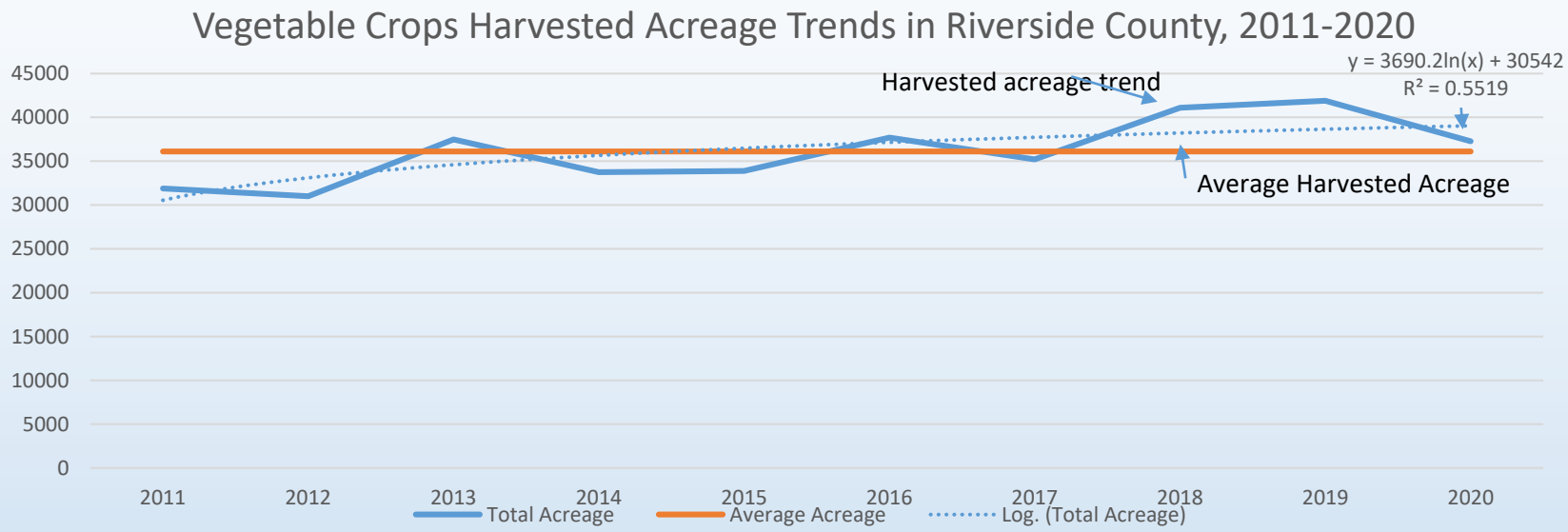
- Three crops (bell peppers, carrots, lettuce) account for 33% of the acreage (total average 13,206 acres) and 43% of the vegetable crops value ($133.38) million.
- Bell Peppers has the leading average acreage of 4,689 (13%)and the highest average value of $75.90 m (24%).

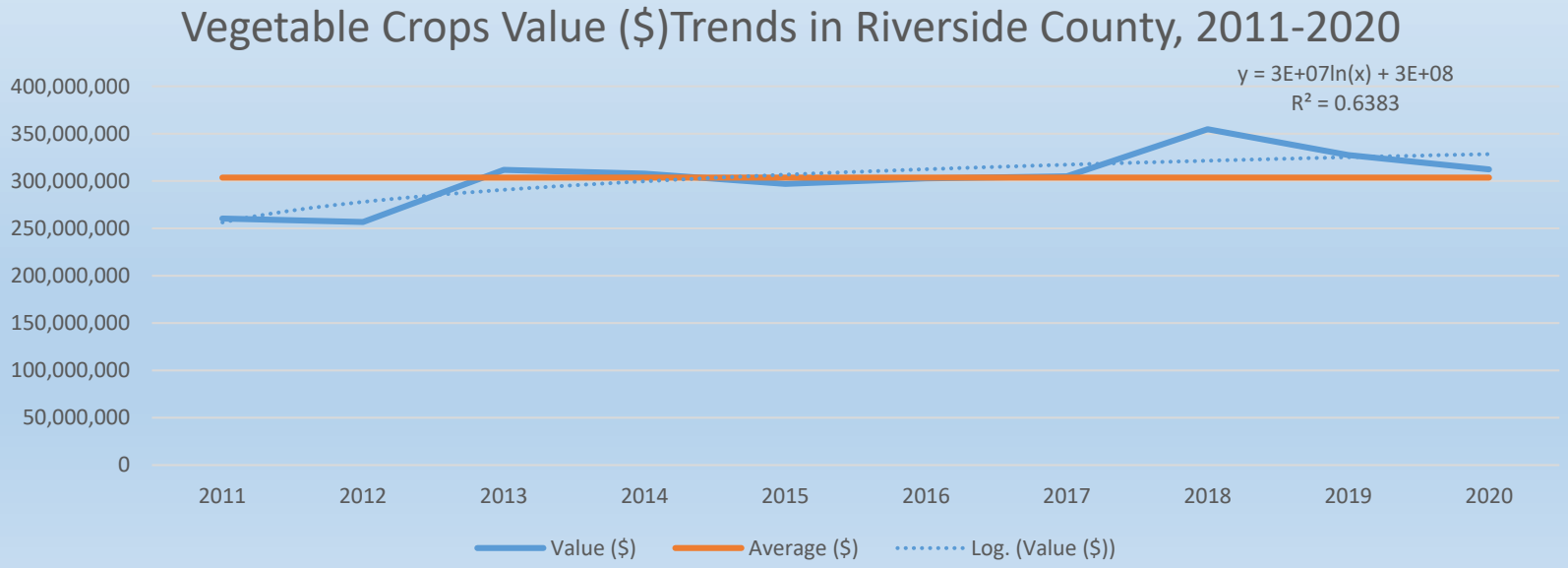
Looking at Vegetable Crops Production Sustainability and Challenges in Riverside County:

Defn. Sustainability: the ability to maintain or support a process continuously over time.

- What are the factors that have contributed towards the Sustainability?
- Also what are the Challenges impacting sustainability?

Historical Perspectives:





Production and Value Relationship?

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.327708909							
R Square	0.107393129							
Adjusted R Square	-0.00418273							
Standard Error	28841235.51							
Observations	10							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	8.00634E+14	8.01E+14	0.962512	0.355289118			
Residual	8	6.65453E+15	8.32E+14					
Total	9	7.45517E+15						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	298137678.8	10698453.26	27.86736	2.97E-09	273467001.3	322808356.2	273467001.3	322808356.2
X Variable 1	2.053847112	2.093461519	0.981077	0.355289	-2.773683807	6.881378032	-2.773683807	6.881378032
				>0.05				

Y=298137678.8+ 2.05X

Regression analysis to observe the relationship of volume and $ (value) was not significant with this data.

More or less signifying that prices or rates did not change much.

Factors that supports Production Sustainability

Availability of Risk Management tool: Product Diversification:

- Veg. crops production in Riverside and Imperial County is a diversified industry with over 40 crops grown each year.
- Diversification is a risk management tool—a tool for income stability in the face of constantly changing situations.
- It helps to balance adversity, when some crops are impacted such as by weather, market or pandemic, etc. other crops more resilient would help to combat the adversity in terms of grower income stability.
- Example in the COVID-19 season onion dry which has a longer shelf life showed acreage increase where other crops such as lettuce showed decreases.

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Having Market Advantage:

The region has market advantage or market window being the major winter crop supplier to the US; both Imperial Valley and Coachella Valley supply 2/3 of the winter vegetable consumption to the US.

That is a dependable market/demand contributing to production continuity/ sustainability and stability.

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Climate and Water:

Suitable climate for production;

Irrigation water availability (though there are issues related to water (politics, conservation, market), but overall the region have had a reliable water supply that ensured prices of water remain relatively low. Limiting rising cost of production stabilizes profit.

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Health and Eating Habit Changes

Nutrition education and wellness guidance have helped increase eating vegetables and fruit. Vegetable consumption increased more rapidly than fruit, rising 24 percent over a 20 year period (1977-1997), compared with 8 percent for fruit. These education will continue.

A Glance of Cost of Production and Returns of Some Crops: The Effect of Factors that Support Sustainability

Bell Pepper		
		$/Acre
Cost of production (2000)	Inflation Factor	8,745
Cost of Proudction adjusted for Inflation (2020)	1.5	13,118
Gross Returns 2020)		14,737
Net Returns (2020)		1,619
Carrots		
	Inflation Factor	$/Acre
Cost of production (2000)		5,473
Cost of Production adjusted for Inflation (2020)	1.5	8,209
Gross Returns 2020)		6,279
Net Returns (2020)		806
Broccoli		$/Acre
Cost of production (2000)		3,794
Cost of Production adjusted for Inflation (2020)	1.5	5,691
Gross Returns 2020)		9,000
Net Returns (2020)		3,309

Cost of production from Imperial County and gross returns from the County Agricultural report

Factors that challenge vegetable crops production in Riverside and Imperial Counties

Narrow Market channel:

- Vegetable crops consumption is mostly within the US; retail stores and restaurants are major consumers. This is very little diversification in the market. There may not be anything we can do about it, but there is a challenge of not having alternative market.

Factors that challenge vegetable crops production in Riverside and Imperial County

Narrow Market Channel

- Vegetable crops consumption is mostly within the US; retail stores and restaurants are major consumers, restrictive (not very much diversified).
- This factor was the major reason (because of restaurant closures and in door seating restrictions) for hurting the demand, consumption and value of vegetable crops during the COVID-19.

Shelf life

Most vegetable crops are in 1-3 weeks shelf life SP768-F-shelf life of produce.pdf, therefore adversity weighs heavy in cases of natural disaster and pandemic; crops do go bad quickly. Crops such as lettuce were most impacted during the COVID-19.

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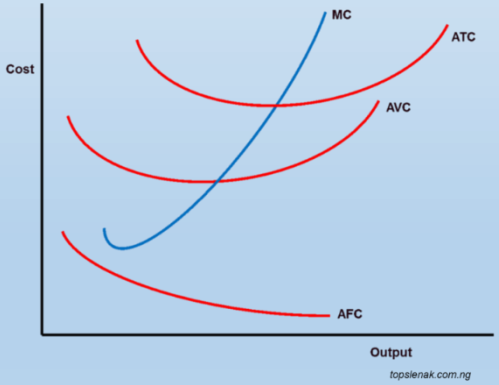
Costs of production Increases



Labor wage changes: Vegetable crops production is extremely labor intensive especially in harvest. Just to see some of the major crops harvest hours per acre: Bell Peppers: ~450; Broccoli 300; loose-leaf lettuce 285. So the minimum wage increases (in agriculture, wages could in fact be more than minimum wages) and the changes in overtime to start after 50 hours instead of 60 hours both will have significant increase in cost of production.

Food safety monitoring: Costs to manage food safety including water quality, labor safety has in the past decade been added to farm management and to the cost of production.

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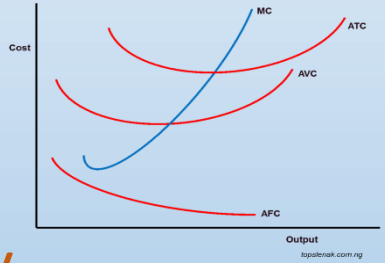


- **Labor cost changes**: Vegetable crops production is extremely labor intensive especially in harvest. Just to see a couple of crops: Broccoli more than 300 hours per acre; loose-leaf lettuce over 285 hours per acre.
- Minimum wage increase and overtime rule changes
- **Food safety monitoring**: Costs to manage food safety including water quality, labor safety has in the past decade increased cost of production (not much).

Labor Availability/ Shortage

- These crops are highly sensitive to labor availability, timely harvest is crucial for shelf life: When cases such as the COVID pandemic happens and labor availability constrained by health and welfare reasons, it will have huge impact on timely harvest of crops.
- Vegetable crops and melons need about an average of 3,000 people yearly in Imperial, San Bernardino and Riverside.

References:

California Agricultural Employment Maps, Detailed Agricultural Employment and Earnings Data Tables
https://www.labormarketinfo.edd.ca.gov/data/ca-agriculture.html

UC Davis Cost Studies website: https://coststudies.ucdavis.edu/en/

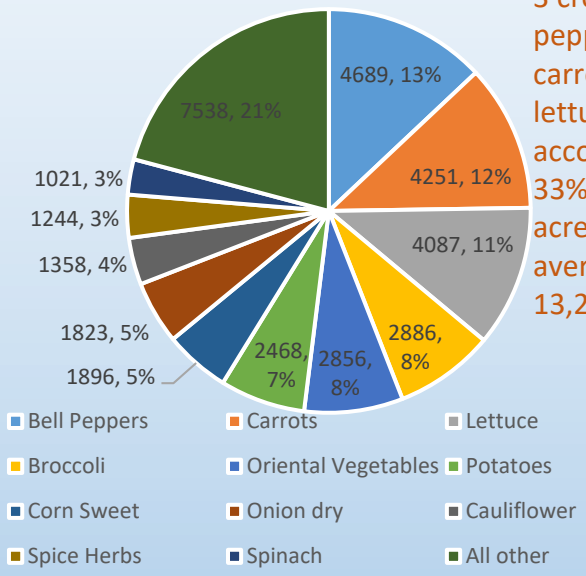
Riverside County Agricultural Reports:
https://www.rivcoawm.org/resources/publications-databases

SP768-F-shelf life of produce.pdf,

Thank you

- Riverside County produces diverse some 40+ crops vegetable crops that play significant role in the agricultural and overall economy of the County.
- Main production area in the Coachella Valley.
- Crops have a marketing niche/ dependable market and reliable demand. That is because the Industry along with production from Imperial County has been the source of winter vegetable supply to the US

Harvested Acreage of Crops: Proportion, Average,(2011-2020)



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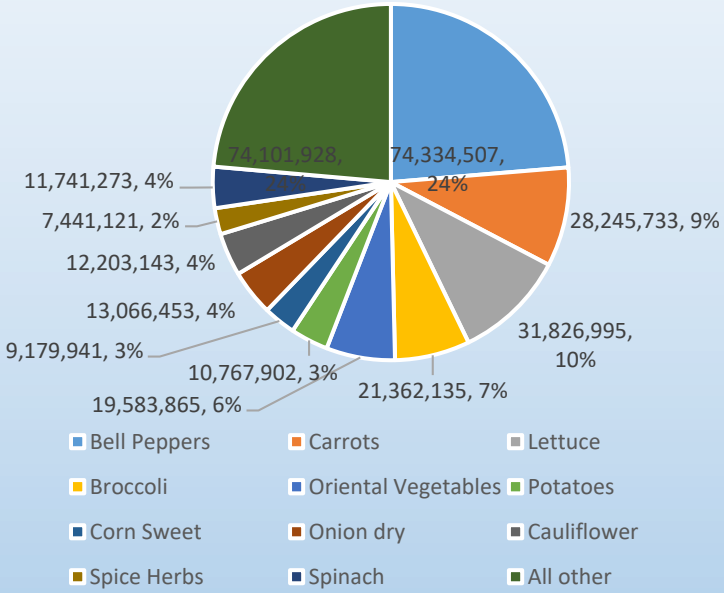
Values of the Crops: Distribution, Average 2011-2020



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