California Citrus Mutual

CLIMATE CHANGE ADAPTATION
LITTLE HOOVER COMMISSION
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Good morning Ladies and gentlemen and thank you for this opportunity to speak about the California Citrus industry's perspective on climate change and on adaptation to climate changes foisted upon us by Mother Nature. As California's first commercially produced fruit the industry has been around for almost 130 years and we plan on being here for that much longer, at least. I can honestly stipulate that our industry has been adapting to a number of changing dynamics, including climate in our 130 year history.

Our ability to adapt for well over a century gives us a bit of institutional knowledge relative to climate and its effects on the production of fresh California citrus. We are one of the state's largest agricultural commodities. Annually gross revenue achieves $2 billion. We supply 85% of the nation's fresh citrus and export another 25% of our tonnage around the world. Florida may produce more oranges but 90% of that tonnage is for juice whereas we pack 80-85% of our tonnage in cartons destined for the fresh market. We are the number one producing state for lemons and mandarin varieties as well. We do this on 285,000 acres with over 3500 growers, the vast majority of them being family farmers. Almost 100 shippers handle this fruit and the industry employs some 12,000 people annually.

There is another $1.5b in ripple effect and another 10,000 people in ancillary jobs dependent upon our industry for employment. We know all this because of climate change and Arizona State University. For us climate change is when Mother Nature hits us with a freeze and when the loss is 100% that many people file unemployment. The University did an economic impact analysis for our industry a few years ago and developed a statistical base of value our industry creates on several fronts. I would be remiss in not noting that our growers and our employees contribute over $500 million to the state general fund via income taxes.

Another statistic is one developed by Cal Poly San Luis Obispo. They conducted an economic analysis using citrus and lettuce as bell weathers and determined that over $400 per acre of cost for our industry was contributed to the state for fees, permits and other charges. The comparative state, Texas, was 15% of our figure. That is an obscene $114 million figure; I'll connect these dots shortly.

Our primary varieties are navel oranges, lemons and the exploding category mandarins. We have significant tonnage for grapefruit, summer oranges or Valencia's and assorted other varieties some sounding as exotic as Buddha Hand Citrus.

The library at California Citrus Mutual consists of at least a dozen books and documents associated with climate change. We cooperated with the House of Representatives Agricultural Committee evaluation of climate change impacts in 2009. We worked with the Schwarzenegger Administration

report “Climate Adaptation Strategy.” We’ve read Global Warming: A Time To Act; Climate Confusion, the Deniers; Bad Science and Bad Policy; Climate Gate –Caught Green Red Handed and assorted papers and even conducted some interviews. Believe me – some of this was tough reading!

This past year we assisted the California Department of Food & Agriculture, where we could; in their report “Climate Change Consortium for Specialty Crops: Impacts and Strategies for Resilience” published this past December. Candidly we are struggling with this phenomenon called climate change. Is it real or is it a cycle? Was Y2K real? Was placing our first moon walkers in isolation for a week upon their return good science? How has the controversy about the “hockey stick” temperature evaluation impacted the credibility of the scientific community? The prevailing opinion in our industry is that the term “global warming” was negatively impacted by credibility issues and flawed use of data points at both the UN and in Europe so rather conveniently the term for the same phenomena is now called climate change.

We all have our opinions and beliefs about this topic but as an industry leader with a grower board of 24 individuals we have determined that we need to make our grower members cognizant of “what if” scenarios. What if this is real? What should we as an industry be looking to or at to mitigate and adapt to the effects of climate change? More importantly how has our 100 year old trees managed to survive against weather related changes if in fact we are not adaptable?

The first “hot component” of this discussion is water, or the lack thereof. Our industry has and continues to fund studies about deficit irrigation. Water management for tree and fruit needs depends upon three factors; surface water availability, ground water management and, of course, rain and then the timing of irrigation. Our studies were conducted in Arizona where it is hotter, less surface water is available and a waning industry still exists.

We know deficit irrigation can keep trees alive and produce a crop in year one. In year two the tree stays alive and production is stable but fruit size begins to become a problem. The fruit will become smaller and small fruit is not attractive to the market place. If the tree suffers unplanned stress, usually defined as heat during bloom then sustaining the bloom and subsequently maintaining the fruit on the tree can become a problem.

For mandarin varieties the impacts are more pronounced. It appears, at this time, only one variety of four popular varieties can handle deficit irrigation. It is an early variety harvested in the October-December time frame. So far September/October varieties and January-April varieties are less amenable to deficit irrigation and the crop would be adversely affected sooner.

Older trees, trees stressed from cold temperatures, trees with earlier harvesting fruit and trees on specific soil types suffer adverse effects sooner.

Water management will become an issue specific to frost protection. Will such stringent management conditions exist that running water to keep grove temperatures elevated become scarce? If you don’t protect the trees then you can’t protect the industry.

A degree or a few degrees of change should not impact the tree and its ability to produce a good crop. Our colleagues in Texas and Florida operate under more moderate conditions and while we believe their fruit is not as good as ours they are able to produce sufficient tonnage that is marketable. So trees can adapt but trees are more susceptible to tree damage during frost periods. Our trees presently are much more tolerant of cold temperatures than those in Florida, Texas and Arizona. So when a December cold snap occurs, fruit loss may be a problem but tree damage may become more of a reality.

While not a major concern a warmer climate will affect the color of fruit. The vibrant orange hue that exists for oranges and mandarins will not be so dramatic inasmuch cooler temperatures bring that dynamic visual effect to a stunning result.

So what do all of the above factors mean to yields? It means our navel orange and mandarin seasons would be shorter. It means as growers transition to varieties that can prosper under deficit irrigation practices annual crop sizes would be reduced. As new plantings that can handle deficit irrigation come into production an oversupply situation will result and lower prices will occur. This will result in an economic crisis as the law of supply and demand determines which growers survive and thrive.

Eventually the need for 100 packing houses will be eliminated and as the acreage is reduced the combination of reduced acreage and reduced packinghouses results in fewer jobs. Less acres and fewer jobs results in the figures cited earlier about dollars to the state reduced significantly.

If the climate becomes warmer pest pressures will increase. Because our fruit is marketed fresh appearance is an issue and a more moderate climate increases pest pressures. This could affect utilization and by that I mean not as much fruit will be eligible for fresh marketing. By way of comparison it is very easy to determine a California orange and that from Florida and Texas. There is a reason why we are number one in fresh sales. We'll have more red scale, mite and thrip issues for example. Pests will be able to reproduce more frequently thus the question becomes can we treat more pests more frequently without developing resistant issues? We need to examine the possible loss of effective crop protection tools. The need to develop alternative tools and practices will be come more pronounced. Will government hinder or help the process to access alternative tools?

We pioneered Integrated Pest Management Practices in the California Specialty Crop Industry. We have good snails eating bad snails, little wasps going after scale critters, other wasps attacking the Asian Citrus Psyllid, good mites after bad and the list continues. We have yet to determine how these programs will be impacted.

I can carry this to an extreme. Squirrel pressures will increase as their hibernation period is reduced. Those cute little things chew on baby trees, eat the wraps that guard against snail damage and have the audacity to climb a tree and eat the fruit. At a recent CCM committee meeting, as I asked for input, this was one of the first items suggested and the entire crew of growers, about a dozen, gravitated to the yes column almost immediately.

The citrus industry stores its fruit on the tree. Once fruit is harvested the quality will start to diminish. Obviously our shelf life is greater than a strawberry for example but unlike grapes or apples our fruit cannot survive in cold storage or your refrigerator for long periods of time; hence the term perishable. Once our fruit is harvested it is moving into the channels of distribution within 48 hours unless other dynamics affect this process. It is five days to the East Coast and 18 days to China and 14 to Korea. We can't pick fruit when it is wet so foggy mornings and inclement weather affect harvesting schedules. If prognosticators are correct and more rainy days develop the number of picking days will be reduced.

Moving fruit into the channels of distribution occurs via truck and ships. We rely very little on rail. This past winter, and usually every winter, our efforts to move fruit to the East Coast are affected by blizzards and snow so that dynamic is nothing new. If ports and ships are affected that would interrupt export opportunities a great deal. Rail, at this time, simply doesn't offer us the flexibility necessary to move fruit to demand centers.

All of the above paints a picture of an industry that cannot relocate. It can adapt and while we believe this may be a cycle and may be something less than some members of the scientific community articulate we are attempting to identify areas of concern and pathways to resolve problems.

But now let's talk about the one area that is harder to predict and always causes concern. Government! Government has a tendency to over react, require documentation, regulation and establish rules that survive within a government structure but not in a practical field application. As an example, the Food Safety Modernization Act; to be sure a federal rule is an attempt to create a system that equally affected a wide variety of farming practices. But it is a mess because farming lettuce and citrus are very distinctive.

I can cite state examples. Regarding ground water there is redundancy with the Department of Pesticide Regulation, Regional Water Boards, State Water Resource Control Board and the legislature relative to detections and contaminants. For crop protection tools we have USEPA, the Department of Pesticide Regulation, Office of Health Hazard Assessment and Division of Toxic Substances. For air quality our members respond to District Air Boards, USEPA, and the California Air Resources Board. Did I mention that the Legislature always thinks they have the best ideas?

For labor agency involvement includes ALRB, DOL, OSHA, EDD and the Fair Housing Board. Frankly we can only stand so much help! When the state and federal government work together the results are more dramatic. For example since 1992 their combined efforts have shifted 1.6m acre feet of water on annual basis away from the original users in the South San Joaquin Valley. If I were to be too cynical I would argue that this shift has created the water supply crisis that presently exists, not necessarily Mother Nature or climate change. This type of help is less than stellar.

Government can profile an issue; it can educate and evaluate the scope of an issue. It can create options and identify opportunities but can it manage solutions to Mother Nature? I seriously doubt it. Will government create a pathway to increase storage via higher dams or new ones? I haven't seen that since the 50's. Can state government fund the University system, in my case ag education, with sufficient dollars to work with industry and identify future pathways for adaptation? It should.

Right now almost 25% of citrus producers farming costs are directly attributable to regulations, fees, permits and other such charges. You tell me where the leadership exists that can create a balanced approach and I'll give you the answer you want. Otherwise the definition of a government solution is open our wallet and document what I take. Will government streamline a pesticide registration process? And by that I don't mean creating risk but simply getting the job done quicker for this element or any process that offers a solution path?

In conclusion I would be remiss in not urging the Commission to review CDFA's report Climate Change Consortium for Specialty Crops. It is very broad because it had to be but it touches upon the varied subjects of concern for a wide variety of specialty crops. Agriculture is not one monolithic industry as many want or would believe. Certainly there are some common denominators but how each commodity addresses each dynamic has to be varied thus government cannot create a solution path that is too specific. The transportation industry is a metaphor for our industry. How often are United Airlines, General Motors, Greyhound Bus Lines, Carnival Cruises and Santa Fe Railroad singing the same song? Annual crops whether they be grains or vegetables, 120 day row crops, permanent crops and animals all have different dynamics. Individually and as commodities they will adapt in our view. The role of government is to allow that to happen without trying to manage change.

Again, thank you for the opportunity and for your time and attention.