

## A question for C-Level Executives - how well are you sleeping at night?

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**November, 28, 2018** - There is nothing like the fresh produce industry where we constantly deal with volatile markets, weather affecting crops, and labor issues, among many other areas across our supply chain.

I guarantee you that the one thing keeping C-Level executives up at night is if the unthinkable happens – a food safety outbreak implicating their business. Most companies try to do their best by having a crises management plan, a traceability system, and a food safety plan with annual audits in place.

Especially over the last few months, we've experienced significant outbreaks with E. coli on romaine lettuce shipped from Yuma, Ariz. (and elsewhere); cyclospora on fresh-cut vegetables and romaine salads; and salmonella, first on cut melons and, more recently, suspected on cucumbers.

Collectively, we need to do a better job of instilling a “culture of food safety” throughout our organizations. This means continual improvement of our food safety programs, by applying the latest in scientific research, properly training staff in food safety, and continuously monitoring to ensure SOP's are adhered to.

It all starts at the top with engagement from C-Level executives. Many of you may know Joe Pezzini (president and CEO of Ocean Mist Farms), who has been involved with the Center for Produce Safety from its inception more than 10 years ago. Joe's main interest in attending the CPS annual symposium was to learn as much as possible about survivability and transfer of pathogens. He took key learnings from CPS research projects and then worked closely with his food safety staff to implement practical solutions.

Ocean Mist Farms is a highly regarded field vegetable grower, packer and shipper. Known for its artichokes, Ocean Mist Farms grows the whole line of vegetables including lettuce, leafy greens, broccoli, Brussels sprouts and washed and ready-to-eat spinach. Joe took a keen interest in a 2010 research project led by Dr. Luo from USDA-ARS called “Minimizing pathogen transference during lettuce harvesting by optimizing the design of the harvesting device and operation practices.” This study examined CIF (cutting in field) tools and harvesting practices with head lettuce. Interestingly, the coring knife commonly used had welded pieces with rough surfaces that ended up being a harborage site for pathogens.

Key results of this study included:

- A prototype coring knife design that had smooth, shiny surfaces to minimize pathogen transfer.



- Improved coring knife cleaning and sanitation with the most effective option using hydro-sonic emersion with a chlorine solution (effective as low as 1 ppm).
- Harvesting practices to avoid touching the coring knife to the ground and then transferring to edible portions of the lettuce.

While most CPS research projects focus on a specific research topic, there is often wide applicability across many sectors of our industry. For example, how many other harvesting hand tools have rough welded areas or do not follow an effective cleaning and sanitation program?

Clippers used in greenhouses to harvest peppers, cucumbers and tomatoes, if not effectively cleaned and sanitized, can transfer dangerous pathogens and other microbes that cause stem decay.

What about inspection and packing tables? Do they have smooth stainless steel surfaces and solid legs (as hollow legs can be a harborage site for pathogens)? What about automated packing equipment, such as conveyer belts joined together with a rough surface metal clasp – another harborage site for pathogens that needs special cleaning and sanitation attention? Where possible, ensure that any equipment that touches fresh produce has smooth surfaces, and has an effective and verifiable cleaning and sanitation program.

Annually review all facets of your supply chain, from water source, irrigation, harvest equipment, wash systems and automated packing equipment. By ensuring effective food safety systems are in place, not only will you minimize pathogen transfer but also other non-pathogenic microbes that can affect the saleable condition of your products. In other words, investing in food safety is also an investment in improving product quality and shelf life.

Another critical area that Joe Pezzini pays close attention to is CPS research around pre and post-harvest water. “It wasn’t that many years ago,” Joe says, “where the EPA recreational water standard was all we had for irrigation water. The thinking at the time was if we could swim in it, then the water must be OK for use with fresh produce!” In Joe’s business, they carefully monitor water sources and irrigation, they triple wash and sanitize spinach and other bagged ready to eat vegetable items, and carefully monitor any pre-cooling (hydro-coolers) used with other fresh produce items.

Our industry has learned a great deal about water usage over the years, as it has been a suspected culprit in many outbreaks. CPS researchers have done extensive work in pre-harvest water sources and irrigation methods, as well as post-harvest wash water systems. There are significant distinctions between single-use water systems and recirculated water systems.

We know how important it is to monitor water quality from the source through all phases of growing and packing. We know that disinfectants in water minimize pathogen transfer but are not a kill step. We know how important it is to understand water chemistry and verification methods to achieve the right disinfectant concentration required to be effective.

We know that water disinfection treatments need to take into account many variables including pH, temperature, salinity, dissolved organic materials, and contact time, to name a few.



We know that biofilms on fresh produce surfaces are hard to eliminate with disinfectants and sanitizers.

We know that wash water systems need to be designed with the right product-to-water ratio to avoid being overloaded with organic material.

Yet, there is still a lot we need to learn about water usage to minimize pathogens on fresh produce.

The CPS has many research articles completed as well as several new research projects scheduled over the next couple of years.

It's no coincidence that Joe Pezzini has been so engaged with CPS over the years and works continuously on improving his company's food safety program.

At this year's PMA event in Orlando, Joe was awarded the 2018 Robert L. Carey Leadership Award for his volunteer work around the industry and the leadership he has shown as the chairman of the Salinas Valley Grower Shipper Association, the inaugural chairman of the CA Leafy Greens Marketing Agreement, and on PMA's board and as chair of the science and technology committee, among other volunteer work.

A message to C-Level executives — if you want to sleep well at night, be as proactive as Joe is around food safety.

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