Message from the President

Tom Bellamore

A Reasoned Approach To Food Safety

As produce items go, the food safety record of whole, fresh avocados is rather enviable. Poll industry experts and no one can recount an incident where a whole, fresh avocado was identified as the known cause of a reported illness.

Some believe that the unique attributes of the fruit — the hard, green state that the fruit remains in throughout much of the distribution chain and its tough, outer skin — greatly reduce or eliminate the likelihood of fruit being a source of bacterial contamination. Add to this the best practices adopted by California avocado growers to mitigate anticipated risks, such as those associated with worker hygiene, and the absence of food safety incidents seems to be no accident.

Just weeks ago, Florida-based Brooks Tropicals voluntarily recalled more than 400 boxes of fresh green-skin avocados that potentially were contaminated with *Salmonella* bacteria. The action was likely prompted by the avocado sampling pilot program presently underway by the U.S. Food and Drug Administration (FDA). Earlier this year, FDA informed avocado industry representatives that it had selected whole, fresh avocados for a special Surveillance Sampling Program to be conducted over a period of about one year. Collection of imported and domestic fruit samples under the program began soon after, with the agency testing the surface of whole, fresh avocados for the presence of *Listeria monocytogenes* and *Salmonella*. FDA cited "data gaps" as one of the reasons behind their interest in avocados; to be fair, there is, in fact, a dearth of information about whole avocados and these specific pathogens.

Taken together, the heightened scrutiny by FDA and the recent avocado recall are part of a continuum that began with the Food Safety Modernization Act of 2011. The government's newfound commitment to ensuring the safety of the U.S. food supply through prevention of contamination has now come to roost where avocados are grown.

Simply put, our world has changed. No longer is it possible, nor sufficient, to rest on our laurels, our stellar record. The combination of targeted surveillance, increased testing and improved detection techniques means that whole, fresh avocados are being looked at differently, and will only be deemed "safe" when the results come in. It gets even more unsettling when you realize that *Listeria monocytogenes* lives in the soil and is commonly found in surface water and sediments, and that FDA has a "zero tolerance" policy when it comes to the presence of *Listeria* on ready-to-eat foods. Any such foods with detectable levels of *Listeria monocytogenes* are considered adulterated. The underlying rationale for FDA's position is linked to the potency of this particular bacterium. According to the *Emerging Infectious Diseases Journal* (1999), listeriosis — the human disease caused by *L. monocytogenes* infections — has a high fatality rate; deaths occur in about 20 percent of all cases, compared to less than 1 percent for other food-borne pathogens like *Salmonella*, *Campylobacter*, or *Escherichia coliform* O157:H7.

There are a few other characteristics of *L. monocytogenes* that make it a formidable risk. The bacterium thrives in moist, cool locations and can grow, albeit slowly, at temperatures below 40 degrees F. Bacteria counts can double within 30 hours at temperatures between 35 to 38 degrees F, giving it the ability to persist for months or even years on certain surfaces, where it can form extremely hardy "biofilms" that are particularly resistant to sanitization. Further, it does not require oxygen to survive

and grow, so it can survive in modified atmosphere packaging.

For all that we know about *L. monocytogenes*, there remains much that we have yet to learn, especially when it comes to risk management in the field or in packing facilities. Sauders *et al.* wrote: "Even though different studies have provided evidence that *Listeria* spp. are broadly distributed through the natural environment, our understanding of the ecology and reservoirs of *Listeria* species and *L. monocytogenes* is fairly limited" (*Applied and Environmental Microbiology*, 2012). This strongly argues for a reasoned approach to prevention by all involved: growers, harvesters, packers and regulators.

The California Avocado Commission has begun the process of digging deeper to better understand biological hazards like *L. monocytogenes*, where they reside, how they are transmitted and, most importantly, how they can be minimized. The Commission's Good Agricultural Practices Manual affords us a good start but we will likely have to go farther.

Current guidance published by FDA for the fruit and vegetable industry recommends: 1) identifying locations where pathogen harborage is likely; 2) conducting an environmental sampling program designed to monitor potential bacterial contamination and verify the effectiveness of cleaning and sanitizing programs; 3) establishing an action plan in the event that a microbiological test positively indicates the presence of a target pathogen; and 4) documentation of corrective actions. These responsibilities fall primarily on packinghouses and field pack facilities, but growers will have to remain vigilant as well by taking steps to minimize contamination from animal waste — domestic and wild — and water sources where animal contact is possible.

On the regulatory side, FDA must endeavor to learn more about the correlation between detection of *L. monocytogenes* (and other pathogens) and serious public health risk. At this time, without scientific data to the contrary, the agency generally errs on the side of caution by treating every detection as a potential public health risk. The avocado track record — i.e., an absence of listeriosis outbreaks linked to our product — suggests that special circumstances may exist such that FDA should rethink its zero tolerance policy, as least with respect to our product. FDA's counterpart to the north, Health Canada, has taken such an approach. In 2011, Health Canada revised its policy on *L. monocytogenes* in ready-to-eat foods. That agency concluded that foods containing low levels of *L. monocytogenes* [e.g., <100 colony-forming units per gram (CFU/g)] pose very little public health risk. Consequently, Health Canada places a lower priority on products that have limited potential for bacterial growth where levels do not exceed 100 CFU/g throughout the expected shelf life.

The California avocado industry has already demonstrated its willingness to work cooperatively with FDA to ensure the safety of whole, fresh avocados from our state (see *From the Grove*, Summer 2014, page 16). In fact, our premium positioning strategy in the marketplace makes it imperative that we do so. In return, we expect that FDA will base its actions on the best available science and remain open to policy shifts when the science indicates that change should occur. Proactive steps being taken now by industry will enable us to mitigate potential public health risks as we continue to learn more about *L. monocytogenes* and other human pathogens. Of utmost importance to our future will be our ability to ensure the freshest, high-quality premium avocado that a supplier can deliver – a *California* avocado, of course.