

# Good Sprout News



“Tradition is what you resort to when you don’t have the time or the money to do it right” – Kurt Adler

--JULY 2009--

Welcome to the July installment of Good Sprout News, a publication of the International Sprout Growers Association (ISGA). This month we review the very informative Convention in Chicago in which some significant progress in the world of sprouts was made. A summary of the first few speakers has been included as a refresher for those of you that were in attendance and as a briefing for those of you unable to make it.

Also in this edition is our first Ask Dr. Sprout which I am sure you will all find very relevant and interesting and our first sprouter of the month giving an insight into one of our member’s business.

Enjoy your read.

## **PRESIDENTS UPDATE:**

The 19<sup>th</sup> ISGA Convention, held at the Hyatt Regency Hotel in Chicago, June 17-20, was a very informative, productive, and enjoyable event.

The ISGA BOD meeting was held on June 17<sup>th</sup>. The main orders of business were: continuity and support for a regular ISGA Newsletter, which has been started by Stephen Dench; integrating the Newsletter with the ISGA website; a decision to limit the BOD to 11 members, in order to facilitate reaching a quorum and to simplify the decision-making process; discussion of the ISGA’s financial condition, and ongoing need to bring in more members; and the establishment of a Task Force to work with the FDA to review and, where advisable or necessary, upgrade the 1999 FDA Guidance. It is the immediate objective of the Task Force to take effective steps to minimize the likelihood of further sprout-related outbreaks.

The Task Force members are: Bob Rust, Bob Sanderson, Earl Hauserman, Jay Louie, Carlos Stolzenbach, and Stephen Dench. This group will keep the ISGA informed of developments, and requests input from the ISGA membership as to effective ways of reaching its objectives.

Thursday, June 18 focused on on-going food safety challenges, with an emphasis on greater industry self-regulation. The need for increased self-regulation is a result of many factors. From an industry point-of-view, there is an interest in alternatives and improvements to the recommendations in the FDA Guidance, which have remained unchanged since they were first issued 10 years ago. From a regulatory perspective, there is the on-going problem of limited resources, coupled with restrictions as to the FDA's proper function in its oversight of overall U.S. food safety, that prevent it from directly addressing the countless problems of many different constituencies.

Friday, June 19<sup>th</sup> offered a more mixed program, with some presentations on cutting-edge nutritional research, as well as what sort of research is required as a prerequisite to nutritional claims for foods. There were also presentations on some innovative safety-related research areas; creative culinary suggestions; and low-cost approaches to industry promotion.

More detailed descriptions of the many talks provided at the Convention will be published in on-going ISGA newsletters.

The fact that there was a unanimous decision to again hold next year's ISGA Convention in Chicago was a clear indication of the attendees' sense of the value of continuing the kinds of dialogues with FDA and the National Center For Food Safety and Technology (NCFST) that were re-kindled at this year's Convention, and also of the critical importance of involving more US growers in discussions and decisions regarding the future of our sprout industry.

Bob Sanderson  
President

## 1999 Sprout Guidance: FDA Perspective

ISGA Technical Day  
June 18, 2009  
Michelle A. Smith, Ph.D.  
Senior Policy Analyst, U.S. FDA  
Center for Food Safety & Applied Nutrition

Michelle Smith was pleased that the ISGA is taking food safety seriously and planned an extra day for technical discussion of food safety. She felt that this is a timely meeting considering the recent uptick in sprout related outbreaks.

The FDA attended this meeting to listen to the views of sprout growers and to continue to work for the betterment of the industry.

Sprouts were identified as a problem by the CDC in 1995. In the Mid to late 1990's a significant amount of work was undertaken to identify and implement safe production practices for seeds and sprouts. This ISGA meeting is the tenth anniversary of the Sprout Summit, also in Chicago, to introduce the Guidance and discuss Sprouts Safety.

The NACMCA (National Advisory Committee for the Microbiological Criteria for Food), is a body of experts in the field of microbiology food safety with a subcommittee related to fresh produce safety. They started developing a white paper on produce. Sprouts were one of the items included in that paper. The challenge that sprouts face is that the conditions that encourage sprouting also encourage the growth of microorganisms.

The produce white paper was followed by a white paper focusing specifically on sprouts with microbiological evaluations and recommendations. The FDA used this information to form the sprout guidance. The Sprout White Paper of 1999 can be accessed at <http://vm.cfsan.fda.gov/~mow/sprouts2.html>.

The following things were taken into consideration when writing the white papers:

- Seeds are the most likely source of microbial contamination;
- Contamination can be of low levels and sporadic (estimate 0.3 – 4 cfu/kg seed);
- Poor sanitation can exacerbate problems, if present;
- Recent *Listeria* findings enforce importance of good GMPs.

The FDA's Sprout Guidance of October 25, 1999 is a very broad guidance document titled "Reducing Microbial Food Safety Hazards for Sprouted Seeds." It sets out in simple terms the range of recommendations making up their multi hurdle approach to enhancing the safety of sprouts.

This broad scope guidance is supplemented by a second guidance document, "Sampling and Microbial Testing of Spent Irrigation Water during Sprout Production." These documents are located at:

<http://vm.cfsan.fda.gov/~dms/sprougd1.html>

<http://vm.cfsan.fda.gov/~dms/sprougd2.html>

The broad guidance identifies the most important steps which should be implemented to reduce the risk of sprouts as a vehicle for illness, but does not provide detailed information on all individual steps that should be followed to produce seeds and sprouts.

There were six sprout related outbreaks in 1999 and the FDA wanted to get something out quickly. That is why this is a short document that can be hung on a wall in a sprouting facility. The FDA wanted all of the recommendations to stand out.

The FDA believes that everyone in the chain has a responsibility. The Broad Sprout Guide specifies that seed producers need to use Good Agriculture Practices. **Processors** need to minimize the risk of contamination in seed conditioning, storage, and transportation. **Sprout producers** need Good Manufacturing Practice. Seed needs to be sanitized with something such as 20,000 ppm prior to sprouting. And the spent irrigation water of each and every batch of sprouts needs microbiological testing for *Salmonella* and *E.coli O157:H7*.

The Microbiological Sampling and Testing Guidance gives information regarding:

Who should perform tests?

- Trained personnel

Criteria for testing laboratory:

- Separate from food production (external lab preferred)
- Safety precautions and quality management

Additional information:

- Spent irrigation water preferred over sprouts
- When to test - 48 hours
- Suggested sample plan and test procedures
- Interpretation of results and corrective actions

Some time ago an Educational there was a sprout safety video called “Safer Processing of Sprouts” produced by the CDPH – FDB and the FDA in cooperation with industry and academia. It was on video tape but is now available on U-Tube at <http://postharvest.ucdavis.edu/Pubs/video-library.shtml#Sprouts>. Michelle encouraged all growers to watch this.

After the Guidance the number of outbreaks and illnesses declined. From 2005-2007 there were no sprout related outbreaks whatsoever.

Unfortunately, in late 2008, there was one sprout associated *Salmonella* outbreak. In 2009, a number of *Salmonella* outbreaks resulted in more than 200 confirmed cases of illness, including 26 hospitalizations. Sprouts have also been linked to *Listeria monocytogenes* illnesses in 2009.

Although the FDA believes that the guidelines are still sound, these outbreaks raise a number of questions. Are there things in the guidelines that could be improved upon and is there a better way to communicate the recommendations?

Michelle highlighted some things observed in the field that are not consistent with the guidelines and pointed out what needs to be done:

**Seed Production, Conditioning, Storage, and Transportation:** Seeds that may be used for sprouting should be conditioned, stored, and transported in a manner that minimizes the likelihood that the seeds will be contaminated with pathogens. These recommendations are still problematic at this stage. What can a sprouter do?

The FDA recommends knowing as much as possible about where the seed came from and how it’s been handled. This includes knowing producers or suppliers.

Seed screening (visual exam) was not covered in 1999 guidance but has been emphasized in subsequent programs and may be as simple as black lighting the seed bags and examining seed samples with a hand held magnifying glass.

Seed testing has gotten significantly better in the last ten years with sampling methodology and microbiological testing programs. If sampling and microbial testing of seed is done it needs to be done in a very rigorous way to be meaningful. If it is not done in a very rigorous way then it just gives a false

sense of security. But seed testing has identified contaminated lots and kept the contaminated seed off the market.

**Sprout Production:** Sprouters should employ good sanitation practices as a standard operating procedure to maintain control throughout all stages of sprout production. They observed in some facilities poor sanitation under wet environment which gives the potential for pathogens to become established and spread. They saw aging equipment, cracked drum doors repaired with duct tape, and other hard to clean food contact surfaces. This does not represent the industry across the board but were observations they saw at individual facilities.

**Seed Treatment:** Seeds for sprouting should be treated with one or more treatments (such as 20,000 ppm calcium hypochlorite that have been approved for reduction of pathogens in seeds or sprouts). They observed a failure by some to follow all label directions when mixing and using antimicrobial chemicals. There were issues with:

- concentration of seed sanitizing solution,
- ratio of seed to solution,
- failure to adequately agitate seed/solution mix during seed treatment
- treatment time.

**Testing for Pathogens:** This is their strongest recommendation and the most difficult to properly carry out. Sprout producers should conduct microbiological testing of spent irrigation water from each production lot to ensure that contaminated product is not distributed. Testing should be done by trained personnel, in a qualified laboratory, using validated methods.

The FDA has observed issues with sample collection, sample size and pooling samples from multiple production lots. They also observed intermittent (occasional) sampling rather than sampling each production lot. Some growers were using test methods not validated for spent irrigation water (or sprouts). There was misinterpretation of presumptive positive and or confirmatory test results. Some were using the wrong material for confirmatory tests after a presumptive positive is found. And they noted a failure to adequately clean and sanitize the facility and equipment after finding a positive.

Regarding records, they noted absent or incomplete records of testing or records of positive test results. They also noticed absent, incomplete, or conflicting records of the disposition of the seed and/or product when samples are positive or there is an outbreak.

Product tracing cannot prevent a foodborne illness outbreak from occurring. However, being able to trace a food back to its source quickly can limit the public health and economic impacts of an outbreak, if it occurs. These are some issues and observations:

- Lack of uniformity in assigning meaningful lot identification numbers to seed
- Maintaining lot identity of seed from farm to sprout facility
- Maintaining records of seed lots used and their connection to production lots of sprouts

Michelle also noted a greater need for communication throughout the seed supply chain in the event of a seed related issue.

In summing up, Michelle discussed what has been done recently, which included the 2005 Sprout Public meeting at the FDA, the April 2, 2009, FDA, CDC & Sprout Industry Call to renew dialog, the May 1, 2009, FDA Letter to Sprout Industry, and today's June 18, 2009, ISGA Technical Day.

The FDA has made a commitment to revisit the guidance and make it stronger. The sprout industry will play a significant role in improving the document. There are opportunities for research, which the industry and FDA will work together to determine the priorities. Education will be important as will incentives in the form of a carrot and a stick. The key to achieving safety of fresh produce, including sprouts, will be collaboration with food safety partners, industry, universities, and all our stakeholders.

**SPECIAL THANKS TO BOB RUST FROM ISS FOR COMPILING THE SUMMARY OF THIS TALK**

## **MARK CARTER, Silliker Labs: Food Safety Standards an International Perspective**

### International Challenges:

- Sprouts have been consumed for a long time
- Many types of sprouts and growing conditions
- Many types of production processes
- Distribution of seeds
- Harmonization
- Laws
- Methods
- GAPs
- Interventions

### Intervention Outbreaks:

- 1988 – UK St. Paul            143 cases
- 1994 – S. Bovis Sweden    595 cases
- 1995 – U.S. & Finland       242 cases
- 1996 – Japan                    6000 cases

### Risk Prioritization:

1. World Health Organization - FAO
2. Work in 2007 based on expert advice at 38<sup>th</sup> session of Codex
3. Response to a call for data
4. 22 countries responded to call

### Goal:

- Establish priority commodities

#### Ranking Criteria – WHO / FAO repetitions

- Frequency and severity of disease
- Size and scope of production
- Diversity and complexity of the production chain and industry
- Potential for increase of pathogens through the food

#### Commodity levels and priorities:

- Level 1 – leafy green vegetables
- Level 2:
  1. Berries
  2. Green onions
  3. Melons
  4. Sprouted seeds
  5. Tomatoes
- Level 3:
  1. Carrots
  2. Cucumbers
  3. Almonds

#### Reason for Level 2:

1. Outbreaks in a number of regions around the world
2. Regional difference / small production units
3. Sprout type dependent
4. Significant opportunity for pathogen growth
5. Preventative control such as:
  - Seed pre-treatment
  - Irrigation water control
  - Water testing
  - Seed testing before sprouting
  - Sprout seeds widely traded but not sprouts

#### Sprouted Seed Assessment – Microbial Hazards

1. Salmonella Euteritica
2. Enterohaemorrhagic E. Coli
3. Enterotoxigenic E. Coli
4. Bacillus Oreus
5. Other bad actors

#### Different countries:

Canadian standard for fresh cut produce:

FOOD GUIDELINE	<u>N</u>	<u>C</u>	<u>M</u>	<u>M</u>
FECAL	5	2	10 <sup>3</sup>	10 <sup>5</sup>
E. COLI	85	2	10 <sup>2</sup>	10 <sup>3</sup>
SALMONELLA	5	0	0	

Australia and New Zealand

Cultured seeds and grains:

FOOD GUIDELINE	<u>N</u>	<u>C</u>	<u>M</u>	<u>M</u>
SALMONELLA	5	0	0	

Philippine study 2006

- Region wide assessment of Mungbean sprouts
- Production practices and vending process

Salmonella positive – 94% of samples conclusion – unhygienic production practices and vending

Microbiological Criteria (Codex):

A microbiological criterion defines the acceptability of a product.

Food Safety Objective:

FSOs specify a maximum frequency or concentration of a pathogen. Toxins or metabolites in a food provide a desired level of protection.

Microbiological criteria could specify the same limit as an FSO or per l.

Challenges:

1. Performing quantitative risk assessments
  - Criteria development
2. Performing economics studies to understand impact
3. Development and acceptance of alternative processing/sterilization technologies
4. Validation and verification of sampling and testing

**SPECIAL THANKS TO CARLOS STOLZENBACH FROM CAUDILL SEED FOR COMPILING THE SUMMARY OF THIS TALK**



## Worried About Employee Training?

What one Sprout Company Does

The below link gets you to a page on the web where the various sections of the video, *Safer Processing of Sprouts*, has been put into a utube presentation. Go to this link and scroll down a page or so until you see the section titled -

Produce Food Safety  
Sprouts:

<http://postharvest.ucdavis.edu/Pubs/video-library.shtml#HandlingSystems>

One Sprout Company shows one section of this video every Monday morning before lunch break. All new employees are required to view every Monday until they are signed off for each section. All continuing employees are required to review sections annually, and are also signed off for each section they review. This is an easy way to help employees understand the important safety issues and to make sure your company meets the requirements for employee safety training without letting training slip through the cracks.

## ASK DR. SPROUT:

Welcome to the new section of our newsletter!! In this section you will be able to ask all those vexing questions you have been too afraid to

Dear Dr. Sprout:

**Question:** After taking a sample of my spent irrigation water (approximately 48 hours after germinating the seeds), and sending it to my local testing lab to run the tests identified in the FDA Guidelines for Salmonella and E. coli O157:H7, I received notice from my lab that I've got a presumptive positive for Salmonella. What should I do now? Ms. Green Thumb

**Answer:** Dear Ms. Thumb, To answer your question, I will assume that you have followed the "Guidance" document in the proper collection of spent irrigation water samples, and that your testing lab followed the appropriate testing procedures. The test kits described in the guidance documents were chosen to get results as simply and quickly as possible. Typically, you will get results within 48 hours. Because rapid test results are necessary, there will be occasions when one will get a "presumptive positive." A "presumptive positive" does not necessarily mean that your sprouts are contaminated with a pathogen, in your case, Salmonella. It simply means that the test results is not negative for the pathogen, and that further testing is necessary in order to confirm the presence or absence of Salmonella.

The guidance document gives you two choices in the event of a presumptive positive: 1) Treat the presumptive positive to be true, and proceed with corrective action, or 2) Run confirmatory test, and take corrective action only if the confirmatory test is also positive for the presence of Salmonella.

The corrective action recommended in the guidance documents is very drastic. The guidance document not only states that you destroy that batch of sprouts, but it also recommends that the seed lot used to produce that sprout be discarded, as well as, any other sprout production lots grown from that same seed lot, that remains under your control. In most cases, this will put you out of business for a period of time, if you do not have an alternative back-up seed lot.

Because the recommended corrective actions are very harsh, it will behoove you to run the necessary confirmation test. The guidance document is very vague regarding the type of confirmation test to be conducted, other than that the “testing should be done using standard methods in FDA Bacteriological Analytical Manual.” Typically, the confirmation testing under BAM takes several more days to complete, and utilizes selective media Petri dishes to confirm the presence or absence of a pathogen.

What is not clearly stated is that the confirmation test should be run using the already “enriched” water sample used in the initial rapid test, not a duplicate water sample that you may have taken and kept in the refrigerator. The rapid test kits involve an enrichment step to encourage the selective growth of a specific pathogen, in order to make their detection possible. Using a sample that has NOT been enriched may give you false negative results. In other words, you may be releasing contaminated sprouts into the market place.

The confirmation test described in the guidance document will take several days to complete, and thereby lessen the marketable shelf life of the sprouts. The impact is especially critical for mung bean sprouts, which has a significantly shorter shelf life than green sprouts. However, technology has come to our rescue. Within the last ten (10) years since the guidance documents were published, other testing methods have come available, including a more rapid confirmation testing. Depending on the testing equipment available with your lab, confirmation testing using the PCR (polymerase chain reaction) method is quicker and may be just as accurate as the BAM method. However, you should consult with your lab when deciding which method to use.

If the confirmation test comes back negative, you are home free. However, if the confirmation test comes back positive, the first obvious course of action is to dispose of the batch of sprouts confirmed to be positive. Additionally, you should make sure your plant and equipment receives an extra thorough cleaning and sanitation. Beyond disposing the contaminated sprouts, you face a choice now, on what to do with sprouts currently growing, and what to do with the suspect seed lot. The specified corrective action outlined in the guidelines is very draconian, and, perhaps, never thought out that thoroughly.

The guidance document states that seed is the likely source of contamination, and that investigations have shown that a single contaminated seed lot can result in contamination of multiple production lots of sprout. Under this rationale, regulators feel that the seed lot should be discarded, as well as, all sprouts grown from this seed lot. However, not mentioned in the guidance document is that investigation has also shown that when testing a suspected seed lot for contamination, they have often not been able to find the pathogen. Furthermore, regulators have stated that contamination in seeds is more random than homogeneous, necessitating the testing of every batch of sprouts. The guidance document was not very forthcoming when disclosing all investigative findings and theories.

Regulators do not have to face economic realities. What if the test results on sprouts currently in production is negative, and continues to be negative. You may have been using this seed lot for some time, and tests were all negative. Your seed lot was previously tested by your supplier, and the tests

were all negative. You have just received this new lot of seeds, and you do not have access to another seed lot. What if your seed supplier refuses to credit you for returning the suspected seed lot. Now, if your seed supplier tells you that other growers have experienced positive contamination test results, than your recourse may be to stop using that seed lot immediately, and hope you can get some replacement seeds quickly. There is no clear cut answer on what to do with the seed lot. There are many factors to consider. In this regard, a sprout grower has no guidance, but must consider all the facts, and make the best decision he/she can make.

## RECIPE OF THE MONTH:

### BEANSPROUT AND PESTO PIZZA

- 1 13oz Great Grains brand Old World Organic Pizza Crust
- 1/2 cup (1/2 large) red onion, sliced to preference
- 2 large cloves garlic, coarsely chopped
- 1 cup *prepared pesto (approximately 8oz)*
- 4 oz JONATHAN'S MUNG BEANSPROUTS
- 1 6oz bag shredded Mozzarella or pizza cheese



Preheat oven (and pizza stone if you have one) to 450° F. Fry onion and garlic in olive oil on medium high until golden. Meanwhile, spread pesto on pizza crust to cover. Sprinkle onion and garlic over pesto, then uncooked bean sprouts and finally cover the whole pizza with shredded cheese. Transfer onto stone or cookie sheet and bake 10 minutes.

MAKES 6 PIECES

## SPROUTER OF THE MONTH: N.Z.FRESHCUTS

Comprised of our dedicated growing and processing company, several product development companies, and a growing number of popular consumer brands - the NZFC group of companies has taken great pride in being the first to market with many innovations that have made a lasting and positive impact on the health of many New Zealanders. N.Z. Freshcuts has two specialist marketing companies, Sunsprout featuring the Sproutman brand and Fraisbon Foods.

The NZFC group of companies are recognized industry leaders in product development, long shelf life packaging, production, processing, hygiene and growing techniques. NZFC was recently confirmed as being the worlds first Carbon Neutral salad and sprout company, something the business is very proud to have achieved and it continues to lead innovation around the sustainability of its business and products.

NZFC is structured as a growing and processing company dedicated to achieving industry leadership in the ability to supply without disruption and achieve consistent high-end product quality performance at a competitive cost. Our key focuses include keeping up with the latest in processing and packaging technologies to ensure maximum shelf life and quality, ensuring the best possible food and consumer safety, and providing the technology and expertise required to drive new product and process developments for our partners.

Since our establishment in 1980 we have enjoyed a leadership role in our industry. We have achieved this through our constant commitment to seek out and implement international best practice, and by playing an active role in our international industry.

Throughout our 27-year history our purpose has never wavered. By remaining at the forefront of fresh cut and sprout innovations we will continue to provide safe and nutritious fresh food choices that meet the market's growing demand for quality, convenience and taste.

From small beginnings, Sunsprout today offers a range of 19 different sprout combinations, including our core range of Alfalfa, Snow Pea Shoots and Mung Beans. These together with our growing range of fresh produce lines and complimentary condiments enable us to provide our customers with all the convenience of a ready to eat meal that offers both health benefits and flavor.

NZFC now employs 180 people across two factories (one in Auckland in the North Island and the other in Nelson in the South Island) and 5 farm sites throughout NZ and supplies export markets into the Pacific and South East Asian regions, we operate 7 day per week facilities around NZ.



