

## GOOD SPROUT NEWS

*"Sprouting Solutions"*

September, 2011



## Upcoming Events

## Calendar:



## October 2011

- Oct 18: BOD Meeting  
 Oct 19-20: Convention, Las Vegas

**Annual Membership Campaign** [Contact the office](#) for information on how you can save money on your 2011 membership! We also have a new PayPal webpage for membership renewals. [Visit that site here.](#)



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## Suggestion box.....

If you have an event or article that you would like considered for the next newsletter, please e-mail it to [secretary@isga-sprouts.org](mailto:secretary@isga-sprouts.org).

## ISGA CONVENTION



The 21st Annual Convention of the ISGA is being held at the MGM Grand Hotel in Las Vegas on October 19 - 20.

[www.mgmgrand.com](http://www.mgmgrand.com)

877-880-0880

Please book your room directly with the hotel, as early as possible, and please remember to mention ISGA

*Both Deluxe Rooms and Bungalow Rooms are available*

(A deposit will be charged when reserving)

## Update on the Sprout Safety Audit

The Sprout Safety Audit has been finalized as Version 1, and Armand Paradis, IFSH, is getting a copyright for it. The Audit will be publicized in press releases and there will be a **Sprout Safety Training Workshop** at the October ISGA convention which will discuss the highlights of the audit, have updates from the FDA and IFSH, and a time for questions and answers on best practices.

**Appendix B** has listed 5 AOAC RI rapid methods for testing spent irrigation water in addition to the four listed in the original FDA guidance documents.

*Continued on page 8 ----->*

# A brief description of some of the presentations at this year's convention.....

**D**r. Jay Garland will speak to us about a basic necessity for sprout production, and for life itself: water. He is familiar to many in the sprout industry, having provided a very informative talk on competitive exclusion at the 2008 ISGA Convention in Cancun, Mexico. Dr. Garland has since taken over the position of Director of the Microbiological and Chemical Exposure Assessment Research Division (MCEARD) at the US Environmental Protection Agency. Dr. Garland's work presently involves issues of water resources and reuse on a national and global scale. Since our industry depends entirely on the availability of high-quality water, Dr. Garland's talk should provide a valuable perspective on this critical resource.

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Jim and Maggie Mumm of Mumm's Sprouting Seeds are long-time ISGA members. They are among the few seed suppliers who actually grow the seed they provide to the sprouting industry. As such, they are directly involved in all issues of seed production, quality, and availability. As organic growers they are also on the front line with regard to the present and future impacts of genetically modified seeds. As organic growers, they can share their expertise on the relationship between organic and conventional seed production, with regard to cost and quality, and can also discuss the extent to which different production methods may impact seed safety.

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The ISGA is very fortunate that a highly respected international company, Pall Life Sciences, has taken an interest in

some of the challenges facing the sprout industry, and that they will be describing some of their work at the Convention. Pall's GeneDisc test kit was used to help identify the organisms that caused the terrible E. coli 0104:H4 outbreak in Europe this spring, with the result that many European sprout, shoot, and microgreen producers are beginning to use the Pall system in their production. Although "non-0157" STEC E. coli testing is not presently recommended for US producers, our Pall speakers can put us ahead of the game in terms of understanding and preparedness.

Pall may be best-known for their expertise in filtration technology. They are currently working on a method for concentrating organisms from large volumes of spent irrigation water onto filters, as a way sprout producers may be able to sample larger volumes, and improve the detection sensitivity of their pathogen sampling and testing.

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AquaPulse Systems will be speaking to us about Biofilm presence and removal in water systems. Karan Khurana teaches the UGA HACCP certification course, UC Davis Fresh Cut Food safety course, and the Washington State University Sanitation Program for Food safety. The company also serves on the United Fresh technical committee, and has participated in developing the water sanitation sections of the food safety standards for the Leafy Green, Tomato, Melon and Green Onion commodity specific metrics.

Richard Harris from Prostar Business Solutions will discuss Business Productivity in an increasingly mobile world. The talk will focus on subjects such as cloud computing, monitoring production and customer relationships when you are off site including several real world examples.

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Representatives from the Japanese Bean Sprout Growers Association will make two presentations including Developments in the Japanese Beansprouts market and Examples of Safe, Secure, and Reliable sprout production processes in Japan.

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The Sprout Safety Task Force in conjunction with IFSH looks forward to receiving feedback from stakeholders at the convention workshop about the usefulness of their new checklist to validate its suitability for broad adoption by the sprout industry.

Recently, an independent review panel, comprised of representatives from FDA, the U.S. Department of Agriculture (USDA), universities, retail grocery operators, produce associations, and allied sprout industry service companies, recently gave a green light to the initial test run of a sprout specific audit in a working operation.

In addition to an expert report by Wil Sumner of Sumner Analytical Services on the results of the recent field test of the audit checklist in a sprout production operation, the IFSH Sprout Safety Training Workshop will feature presentations by scientific research, government, and industry leaders.



Bob Sanderson  
President, ISGA

### Verification and Validation of Treatments and Testing Methods

The Codex Alimentarius, which is "...the global reference point for consumers, food producers and processors, national food control agencies and the international food trade." defines verification and validation as follows:

Verification - the application of methods, procedures, tests, and other evaluations, in addition to monitoring, to determine whether a control is or has been operating as intended.

Validation - obtaining evidence that a control measure or combination of control measures, if properly implemented, is capable of controlling the hazard to a specified level.

([http://www.codexalimentarius.net/web/index\\_en.jsp](http://www.codexalimentarius.net/web/index_en.jsp))

If you trust someone, their word is generally good enough evidence that if they say they've done something, they actually have done it. But it's not uncommon that a very honest and reliable person doesn't understand what you say in quite the same way that you intend it. Sometimes this can cause big problems.

"Hey Nancy! Did you get the lab report from last Tuesday?"

"What, I thought you said you got it..."

"No, I told you I had to go to the dentist, and for you to get it"

"I never saw it. Maybe Ted has it."

"Ted's gone fishing today"

"Who's covering for him?"

"I think it was Bob"

Food safety audits are becoming increasingly detailed, with more and more emphasis on documentation as part of both verification and validation procedures. One cannot simply tell an inspector "we wash the room thoroughly at the end of each production day," although this might have been considered adequate not very long ago.

To pass today's audits there must be a detailed list of procedures for every conceivable activity related to the process, signed off by responsible parties who have decided what these procedures should be, how they should be done, what equipment should be used, what standard of cleanliness needs to be attained, how this standard is measured, who did the cleaning, who reviewed the report that the cleaning was done, who inspected whatever was cleaned to determine that it was adequately done. Probably a lot has been left off of this list of requirements for a single cleaning operation, which is only one among many others.

To sell in the mainstream, and particularly the international markets, you have to run two businesses: one consists of all the complex actions of the people working with the materials to arrive at the product and get it to the customer, and the other consists of documentation of everything that is done, starting before the raw materials arrive at the facility, and ending after the product has left the facility.

One problem with this evolving situation is that overseeing this "duplicate business" of verification and documentation requires a full-time individual (properly trained, of course) or a whole department, and this is very costly, and may be prohibitive for small businesses. But the big retailers are continually moving in the direction of requiring compliance with these very detailed, thoroughly documented production systems.

What about validation? One could have the most meticulous verification procedures in place, with every detail of production represented on lists, charts, flow diagrams, according to stated specifications, with everything consistently monitored and documented,

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and yet be operating a very risky business. If the processes are not effective in controlling the hazards to an adequate degree, the most carefully executed procedures will not assure safe products.

The Codex definition for validation includes the requirement that control measures are "... capable of controlling the hazard to a specified level." What this specified level is can vary, but obviously the overall result must be that the hazard is reduced to as close to zero as possible.

In the 1999 FDA Guidance, four test methods are mentioned, and these methods were subjected to a rigorous review before being found acceptable. This research has been accepted as validation of these methods, since they all showed the capability of detecting very low levels of pathogens in spent irrigation water, and it seems reasonable to assume that if these methods could detect these levels of pathogens in the laboratory, they would be able to detect the same levels in spent irrigation water in a production setting, provided the sampling and testing are properly done.

The Guidance includes prerequisites for tests other than the four that are specified: "If screening methods, other than those described here are used, they should first be validated either by formal collaborative studies or by comparative studies with standard methods using the specific commodity in question, spent irrigation water or sprouts."

<http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlantProducts/ucm120244.htm>

Since the Guidance was issued, a number of other test methods have been validated for use with sprouts, which may have advantages over the four methods mentioned in the FDA Guidance, such as less time required for results, or lower likelihood of false positives or negatives.

The prerequisite for validation of seed disinfection methods provided in the FDA Guidance is worded quite differently from the prerequisite for validation of microbiological testing. There is only one disinfection method mentioned, and it is offered by way of

example, rather than as the only option. It may be assumed that an alternative treatment must be as effective as the one mentioned, and unlike the testing requirements, EPA or FDA must approve it, ostensibly to assure its safety to the consumer. However, the basis for determining equivalent effectiveness - such as the "collaborative studies" required for alternative test methods- is not mentioned.

Since the FDA Guidance was issued 12 years ago, no treatment other than what was suggested in the Guidance has been validated as an alternative, in large part because the process by which such validation could occur has not been clear. This situation may be about to change, through the work of the Sprout Safety Task Force that was set up 2 years ago, made up of sprout industry members, scientists at the Institute of Food Safety and Health (IFSH), and an Expert Science Panel consisting of many researchers familiar with sprouts and sprout safety.

Determining equivalent effectiveness of treatments remains very challenging, to a large extent because it is much more difficult to accurately reproduce production conditions with seed disinfection research, than is the case with testing research.

Part of the problem is that production uses quantities of seed much greater than what is usually possible in a lab. Another is that the levels of pathogens that have been observed on contaminated seed, and that can cause outbreaks, are extremely low, in the range of 10 or even fewer pathogens per kilo of seed, and there is no reliable way to duplicate this level of contamination in a research setting.

If a researcher tried to inoculate a kilo of seed with only 10 pathogens, the chances of all or any of them being viable and remaining alive during the inoculation and drying process prior to disinfection would be miniscule. For this reason, if no pathogens were found on the seed, following the treatment, there would be no way to know if their absence indicated that the treatment had worked, or that they had died off due to other factors.

For this reason, the lowest inoculum levels used in research are tens or hundreds of thousands of times greater

than what would normally be encountered on naturally contaminated seed. Using these high inoculum levels provides a good assurance that a high proportion of the inoculated organisms will remain viable up to the point where the disinfection treatment is carried out.

A 3 log cfu/g inoculation, which would be on the low side of what is often used in disinfection studies, translates to about 1,000 organisms per gram. Since there are 1,000 grams in a kilogram, this inoculation is around 1,000,000 organisms per kilo, or around 100,000 times lower than the usual range of pathogens found on naturally contaminated seed.

Although it may seem obvious that if a treatment could reduce, say, a 5 log cfu/g (100,000 organisms per gram) inoculation level to a 2 log level (100 per gram) in a research setting, (a 3-log reduction), the same treatment could be expected to completely eliminate the much lower levels found on naturally contaminated seed, this is not necessarily the case. There is good evidence that the log reduction achieved by a given treatment becomes less, the lower the inoculation level, and vice-versa. The same treatment might reduce a higher level, such as 6-logs, by 3.5 logs, or an even higher level by more than 4 logs. Conversely, the same treatment would probably achieve less than a 3-log reduction, if the starting point is below 5 logs.

For this reason, validation of a treatment method may not be able to be described in terms of likelihood of pathogen elimination at a given contamination level, but may be limited to comparing the treatment with another treatment, using as close to the same research conditions as possible. However this may not tell us much about what the treatment is actually likely to achieve, in terms of log reduction, in a production setting.



# Decision Point: Recalls

*Written by Jay Louie*

Sprout growers have experienced two different types of recalls this past year. Recalls can arise from an outbreak, where a cluster or clusters of people are reporting illnesses. Recalls can also arise when nobody has reported any illnesses, but from the discovery of product adulteration from routine testing conducted by USDA.

In either case, a recall is financially devastating. Furthermore, the frequency of recalls does not give consumer confidence in the safety of sprouts. Sprout growers are put on the defense, promoting food safety, rather than promoting the nutritional benefits of sprouts.

The April 2011 ISGA newsletter described the Microbiological Data Program (MDP). Briefly, MDP is a USDA program that monitors data on targeted pathogens in selected fruits and vegetables, i.e. sprouts. USDA would collect samples of finished product and test it for *Salmonella* and *E. coli* O157:H7. If a positive result is discovered, the results are reported to the CDC, who will, in turn, report it to the FDA and local state health authorities. The FDA or local state health authority will then contact the sprout grower, and request a recall of potentially adulterated products. Notwithstanding the fact that the grower is following FDA guidelines, and that spent irrigation water tests show negative product contamination, the grower is pressured to perform a precautionary recall, otherwise, the governing agency will issue an advisory alert.

The more well-known type of recall is that arising from a cluster of reported illnesses. Local state health authority will receive reports of illnesses. If the illness exceeds the typical average rate, and the illnesses are similar (specific pathogen is identified), an epidemiological study will be initiated to

track down the source. Both victims and non-victims will be interviewed to discover the potential source of the illness. This is a very time consuming process, taking weeks to complete. A statistical probability is generated to hopefully identify the source of the illness cluster, i.e., outbreak. The cluster can be located in several states, in which case, several states will be involved with the FDA. If a source can be identified, the FDA will track down the supplier/manufacturer of the potentially contaminated product to request a product recall. In this case, the FDA may not have actual proof that a particular product is contaminated, but only statistical data that a particular product is likely to be the source of the outbreak. Due to the urgent nature of the situation, a recall is requested immediately, while the investigation continues.

In either case, the cost of a recall to a grower may be devastating. Production is temporarily halted. Products produced or in the course of production must be destroyed. Customers are advised to return or destroy products in their possession. After re-cleaning and sanitizing your facility, you need to perform environmental tests to validate that your facility is pathogen free. In order to commence production, you may need to order a different lot of sprouting seeds, because your current inventory has been embargoed.

MDP Observations: In the past 12 months, four growers were visited by FDA/state health authorities due to the detection of *Salmonella* in sprouts collected under routine sample collection. All four growers were requested to initiate a recall of their products immediately, and issue a press release to warn consumers of the potential hazards of consuming contaminated sprouts.

Based on the information received, all four growers had their facility thoroughly inspected and tested. Not only finished product and environmental swabs were tested, but also seeds used in the production of sprouts. All test results were negative. All the test results corroborated existing spent irrigation water test results, and seed testing results where available. It should also be noted that at no time were any illness reported to be associated with the products recalled.

The discovery of contamination in a small random sampling of finished product should translate into the discovery of contamination at the factory site. However, in four out of four cases, regulatory authorities have not found any trace of contamination at the factory site. It is truly baffling not to find any sanitation issues by growers subjected to this precautionary recall. The “precautionary” recalls were simply precautionary, but costly for the growers.

Suggested Consideration: In the future, if a grower is contacted by the FDA or state health authority to initiate a precautionary recall due to a positive random sampling of finished product, the grower should advise them of the history of their program. In four out of four cases, positive findings have not translated into positive findings at the grower level. At most, the FDA or state health authority should be invited to conduct a full investigation of the facility and products. The issuance of an immediate precautionary recall is, perhaps, premature, since no illnesses have been reported. Unless there are exigent circumstances, like a cluster of illnesses associated with the same pathogen, the grower should take the position that there is no urgency, and that the recall should only be issued with a positive finding at the grower’s site. Based on the FDA track record thus far,

# Decision Point: Recalls

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positive findings by the USDA under MDP are highly suspect.

Outbreak Initiated Recalls: Using epidemiological studies to trace a source of an outbreak is the typical tool used by the FDA. As recently as June of this year, a sprout grower was asked to implement a recall of sprouts. FDA had epidemiological evidence that seems to point the finger at alfalfa sprouts from a particular grower. The grower wanted hard evidence before issuing a recall of products. By this time several weeks had passed, and the initial cluster of 20 cases had diminished significantly. Although the FDA has the authority to mandate a recall under the new Food Safety Modernization Act, it chose not to do so in this case, but did issue a public advisory to consumers not to eat sprouts from the grower.

The net effect was the same. Institutional buyers stopped ordering sprouts from the growers. The grower lay off workers and the business was on the verge of collapse. Assets were sold just to raise funds to pay bills. After weeks of public warnings, test samples of the growers operation were confirmed negative for salmonella contamination. Despite the negative test results, FDA remains steadfast that the grower's sprouts were clearly implicated in the salmonella outbreak.

This case followed one of the worst outbreaks in Germany. As of early June 2011, over 2000 illnesses, and 22 deaths were associated with an outbreak of E. coli O104:H4, a relatively new toxic pathogen. O104:H4 is a Shiga Toxin-producing E. coli (STEC) that produces deadly effects. As you would expect, and epidemiological investigation was initiated by governmental authorities in several European counties where the

outbreak had spread. This was one of the worst outbreaks in modern time. Health officials initially pinned the blame on lettuce, cucumbers and tomatoes from Spain. This had devastating effects on Spanish farmers. Then the blame turned on bean sprouts from an organic farm in Germany. (Mung bean sprouts and green sprouts are lumped together and summarily called bean sprouts in Europe, creating additional confusion.) After testing sprouts, officials backtracked and said it was not the sprouts, and then changed their minds again and summarily blamed it on sprouts. In the mean time ban on Spanish lettuce, cucumbers and tomatoes were lifted. The German sprout grower was forced to shut down, until the investigation was completed.

This evidence shows us that the science of epidemiology is not an exact science. It is based on statistical probabilities that many of us don't understand. Was it sprouts, or was it political pressure to protect one industry at the expense of another.

Forceful recalls by the FDA can be interpreted as bullying tactics. Just as in real life, the victims of such bullying tactics will sometimes fight back. Recently, Del Monte Fresh Produce filed a lawsuit against the FDA and Oregon Public Health, challenging the ban on the importation of cantaloupe from their fields in Guatemala. FDA had earlier placed a ban on the importation of Guatemala cantaloupes because it was suspected of causing an outbreak that had sickened 20 people in 10 states. Based on FDA epidemiological findings, Del Monte had already voluntarily recalled nearly 5,000 cartons of cantaloupes, and because of the ban, they could no longer import cantaloupe from their company's site in Guatemala.

Del Monte claims that its cantaloupes were wrongfully blamed for the outbreak. Del Monte claimed that the ban was based on erroneous speculations, unsupported by scientific evidence. The complaint further state that neither the FDA nor any state health agency had offered evidence or data to support the FDA action.

FDA credibility will always be questioned as a result of a 2008 Salmonella outbreak that was originally blamed on tomatoes in Mexican salsa. Further investigation led to a finding that peppers were the actual source of the Salmonella, the same peppers used in the salsa. That error cost the tomato industry millions of dollars.

Summary: Recalls, whether forceful or voluntary, have devastating effects, not only for the individual grower, but also the industry. Unlike Del Monte, the sprouting industry does not have the resources to seek the recall transparency. In most cases, the proverbial smoking gun will never be found, and the details of the investigation are seldom released. When they do find a smoking gun, the evidence becomes public knowledge. It is important to have the investigative information from both successful and unsuccessful outbreak cases. There is much to learn in either case. How will we know whether an epidemiological study was conducted properly, unless it is reviewed by all parties concerned? Public safety is a major concern, but the evidence is not black and white. There are so many shades of grey, that it is hard to determine whether a decision to force a recall was the proper choice. How that decision is made should be subject to industry review, and not made exclusively behind closed doors.

### Convention Registration

*Rates for the Las Vegas Convention  
October 19-20:*

Grower Member \$685  
Paid ISGA member by Jul 1  
Registered after Sep 1

Grower Non-member \$785  
Either never joined or joined/renewed  
after Jul 1

Supplier Member \$885  
Paid ISGA member by Jul 1  
Registered for Convention after Sep 1

Supplier Non-Member \$1,085  
Either never joined or joined/renewed  
after Jul 1

### Agenda (Oct 17-20)

Mon: Golf Outing

Tue: Tennis

BOD meeting

Opening Reception

Poker Tournament

Wed: Neogen

Pall Lifesciences

Jay Garland, EPA

Aqua Pulse, Karan Khurana

IFSH Workshop

Sprout Task force

Sprout Audit

Report on Audit

Panel Discussion

Thu: ISGA Public Relations

Caudill, Seed Technology

JBSG: Beansprouts Market

JBSG: Safe Sprout Production

Mumm's, Food Safety/ GAPs

Strata Marketing

Prostar Preferred

Annual Meeting

Resume BOD meeting

President's Dinner

Dancing

### Quick and Easy Stir Fry

3 Tbls Vegetable Oil  
1/2 lb. Firm tofu, drained and cubed  
1 clove garlic, minced  
1 onion, sliced  
1 stalk celery, sliced  
1 green pepper, sliced  
12 ounces beansprouts  
1/2 teaspoon fresh ginger, diced  
2 teaspoons light soy sauce

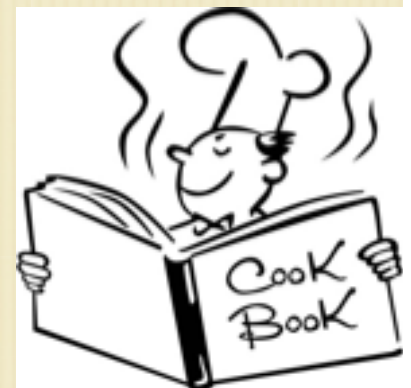
Prepare and set aside all ingredients. In a large skillet or wok, heat 1 tablespoon of oil. Brown tofu and remove to a bowl. Heat remaining oil, add garlic, onion and celery and cook 1 minute, stirring continually. Add pepper and beansprouts and continue cooking 1 minute more. Return tofu, season with ginger, soy

### FROM THE SPROUT COOKBOOK:



sauce, salt and pepper, heat thoroughly and serve over rice or noodles. Recipe serves 2.

A simple Oriental gravy can be made from bouillon, soy sauce and cornstarch if you like sauces.



This is a recipe from the ISGA cookbook. If you have a recipe that you would like to add to the cookbook, please submit it to the ISGA Office.



# Update on the Sprout Safety Audit

## (Continued)

These include:

- Neogen's Reveal *Salmonella* 2.0 test,
- DuPont Qualicon's BAX System with Automated Detection PCR Assay for screening *Salmonella*,
- Raisio Diagnostics' Transia Plate *Salmonella* Gold,
- bioMerieux' VIDAS Easy SLM (*Salmonella*) with ChromID *Salmonella* (SM2) Agar, and
- IEH *E. coli* O157:, Stx productin *E. coli* (STEC) with Intimin and *Salmonella* Test System.

**Appendix C** has listed 7 alternative seed sanitization methods, peer reviewed and published, that have shown comparable effectiveness as 20,000ppm calcium hypochlorite. These are

- Hot water treatment (Bari et al.)
- 2000ppm calcium hypochlorite (Montville and Schaffner)
- Peroxyacetic (or Perocetic) acid or "Tsunami 100" (at 10,000 -30,000 ppm) Buchholz and Matthews)
- Levulinic acid and SDS (Zhao et al.)
- Acidified sodium chlorite (Liao)
- Germin-8-or (aka Keeper by BioCide) Chlorine Dioxide (Warriner)
- Fit (Beuchat et al.)

These above treatments are being submitted to our Expert Science Review Panel for comments and suggestions. We hope to have more information by the time of the ISGA convention in October.

Because we are creating an audit that may be a consideration for audits in other countries, we are submitting treatments that are being used in other countries, that have not been carried out in relation to 20,000 ppm calcium

hypochlorite, but show strong reduction of pathogens:

- Gaseous Acetic Acid (Delaquis et al.) and
- Fumigation with Ammonia (Himathongkham).

We are also asking these generous scientists to comment and advise on 3 research papers that have shown promise with *Pseudomonas Fluorescens* 2-79 in competitive exclusion – where do we go from here? What are the next steps?:

- Inhibition of *Salmonella enterica* by Plant-Associated Pseudomonads (Fett)
- Growth of *Salmonella* on seeds per inoculum size etc *Pseudomonas Fluorescens* (Liao)
- Control of *Salmonella* on Sprouting Seeds Based on Antagonistic Bacteria & Lytic Bacteriophages (Warriner)

The Sprout Safety Audit is intended to be a living document that can keep up with current advances in science and work in conjunction with FDA rulings to allow the sprout industry to grow, and indeed flourish, into the future.

Respectfully submitted:  
Barbara Sanderson, Jonathan's Sprouts Chair, Sprout Safety Audit Sub-committee of the Sprout Safety Task force, IFSH



## New Members in 2011

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### Affiliates

**Assurance Agency**  
**Doug Nelson**



# Pathogens: Hide them or Find them?

*Written by Michael Lalley*

**I**n order to understand the issue a few facts need to be stated and stipulated to:

1. All raw agricultural commodities are subject to contamination by pathogenic bacteria.

2. Sprouting seed is a raw agricultural commodity, and as such some lots will be contaminated.

3. There is no silver bullet that can guarantee the elimination of pathogens from sprouting seeds that does not adversely effect germination and or quality, not 20,000 ppm sodium chloride, not hydrogen peroxide or acetic acid not fit not even irradiation unless subjected to seed killing levels.

4. Dr. T.J. Fu has proven that contaminated seed when grown in rotary drums with frequent and cold water can produce sprouts which when microbially tested show no contamination. Does this mean they are not contaminated? In Dr. Fu's opinion, this is NOT the case.

5. So where does that leave us. First we start the process with a product that is known at times to harbor pathogenic bacteria, the pathogen has historically been at low levels and the seed screening by suppliers has assured that highly contaminated seed will not be in the sprouting market.

Secondly we expose the seed to a sanitizing process [generally 20,000ppm] which is known to knock down the already low levels of pathogens, with no assurance of complete eradication.

Then we grow in rotary drums which have been shown to minimize the outgrowth of the bad bugs.

Finally we sample irrigation water, test for pathogens, find none, and send the product to market. Once the product has left our growing facilities it may be subjected to temperature abuse [check your local supermarket shelf temperature] which may result in the pathogen proliferating to detectable levels capable of producing outbreaks

I'm not sure what this sounds like to you but I think it ought to scare the hell out of you, considering, a recent death from ecoli in strawberries, and that since we started to follow these FDA guidelines, outbreaks have continued, and the governments MDP [Microbial Data Plan] has found several batches of contaminated sprouts in the marketplace, some of which were produced by ISGA board members and leadership. How can this happen? Low levels of contamination, made lower by 20,000 ppm, made lower by cold grown sprouting, then missed by sampling and testing.

Is there any other option in securing the safety of our consumers and sprouts in general, other than suggesting they be cooked or not consumed? I suggest there may be. Once again, we must look at Dr. Fu's study. She found that when growing contaminated seeds in a mason jar [vat method] she was able to detect the bacteria in the spent irrigation water. This must be the most important step in our process, and on the face of it, seems logical that this

method may be superior when it comes to food safety.

To be more certain of this hypothesis I suggest a simple experiment which would be to take seed believed to be not contaminated, place in a mason jar and introduce a single contaminated seed into the mix [ this is the least number of seeds possible to be contaminated] then grow out for the 48 hours using lukewarm water [this is the method that Johnnys Seeds suggests], and test. If the pathogen is detectable at this absolute minimum level of contamination, then we as an industry must re-examine our processes and be bold enough to make the necessary changes to protect the public and once again regain the trust that has been lost in recent years, and most importantly improve the public's health with these miracle foods, and perhaps save the world in the process.

# ISGA WANTS TO HEAR FROM YOU!

Calling all members! We want to hear what your company is doing these days. In the coming months we will be ramping up our yearly membership campaign and with that comes a new membership directory. This year, the office has thought to include a picture and brief description of what you are doing in the

world! So send us a quick blurb and a photo of yourself, your mascot, your logo, or your sprouting headquarters. Please e-mail your information to [office@ISGA-Sprouts.org](mailto:office@ISGA-Sprouts.org) and include your company's website so we can link to it from the ISGA website!



We want to know what you're up to!

## PRESENTATIONS FROM APRIL 27TH IFSH CONVENTION

### Links to the presentations:

[AGENDA sprout safety task force meeting - Apr 27 \(pdf\)](#)

Many thanks to the IFSH and the speakers.

[Procedures for sampling of spent irrigation water \(pdf\)](#)



[Sprout safety audit comments \(pdf\)](#)

[Validated test kits for sprout irrigation water \(pdf\)](#)

[Anti-microbial treatments for sprouting seeds \(pdf\)](#)

[Criteria for reviewing submitted research results \(pptx\)](#)

[Sprout safety task force update April 27 2011 \(ppt\)](#)

[Risk management options for sprouts - Dr. Ding \(ppt\)](#)

[Safety requires multiple interventions - Caudill Seed \(ppt\)](#)

[Presentation of guidance - Dr. Rajkowski \(pptx\)](#)

**\*\*\*If you have trouble opening any of the above links, please e-mail [Rich Wolfe](mailto:Rich.Wolfe@isga.org) for the member username and password.**



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