



Sprout Safety Requires Multiple Interventions

- Application of good agricultural practices
- Controlled storage and transport of sprouts and seeds
- Intensified testing of seeds
- Sanitization of seeds and hold and release testing of sprouts
- GMP's
- No pooling of samples
- Seed treatment

The Commercial Disinfection of Sprouting Seeds in a Controlled Atmosphere

- Seed treatment is only one of the critical steps in the process for Safe Sprouts.
- The process Caudill Sprouting is employing has proven to be robust.
- This is the fourth in a series of process evaluations.





The Commercial Disinfection of Sprouting Seeds in a Controlled Atmosphere

- The process was evaluated on three (3) seed varieties (alfalfa, clover and onion)
- Three (3) pathogens: *EC 0157:H7*, *Salmonella typhimurium*, *Listeria monocytogenes*



The Commercial Disinfection of Sprouting Seeds in a Controlled Atmosphere

- Pathogenic reference inoculums, seed inoculations and post process evaluations of the 30 inoculated seed sachets were prepared and analyzed by McCoy & McCoy Labs Inc. Madisonville, Kentucky.
- K. Rajkowski USDA/ARS (Wyndmoor, PA) was consulted for clarification of the published microbiological procedure.



The Commercial Disinfection of Sprouting Seeds in a Controlled Atmosphere

- Construction, design, internal configuration and process parameters were developed by Caudill Sprouting LLC. (Louisville, KY).
- The process chamber is equipped with 16 temperature thermocouples and 6 atmospheric monitors capable of monitoring and controlling the chamber condition as well as monitoring the conditions inside the bag.



Results of the Process Evaluation

- ***EC 0157:H7*** - Mean population log reduction across three (3) seed varieties = **4.66 log**
- ***Salmonella typhimurium*** - Mean population log reduction across there (3) seed varieties = **2.54 log**
- ***Listeria monocytogenes*** - Mean population log reduction across there (3) seed varieties = **4.90 log**



Conclusions (1)

- Physical characteristics of seed coats may contribute to microbiological loads.
- Bulk densities of seed variety may affect results.