Fresh fruits and vegetables grown in spaceflight may provide critical nutritional and behavioral benefits, but introduce unacceptable microbiological risk that could lead to foodborne illness. It is critical that a produce disinfection method be identified to prevent foodborne illness. A water wash method would impact vehicle design, and requirements must be determined in time to inform transit vehicle designs. The Pro-San wipes currently used to disinfect space-grown produce require continual up-mass and create trash. Other novel methods that have been investigated, including hydrogen peroxide and cold plasma chambers, generated a noticeable quality reduction during disinfection. Crewmembers will be harvesting and processing produce themselves, and it is imperative that quality is not reduced during disinfection. Some examples of items of interest:

- Development of a water wash system that can directly integrate in a closed loop with the spacecraft water system.
- Use of food grade sanitizers. No soaps or detergents. Residuals should not exceed approved food amounts.
- Systems that disinfect and dry a range of fruit and vegetable amounts (0.25 - 2 kg) and types (leafy greens, tomatoes, radishes, green peppers) in both microgravity and reduced gravity environments.
- Proposals that use the least amount of crew time (both active and passive) will be given greater consideration.
- Proposals that use the least amount of water for both disinfecting and rinsing will be given greater consideration. Note, crew currently receive less than 3 L of water a day each for consumption.
- Demonstrate greater than a 3 log reduction in Aerobic Plate Count, Yeast and Mold, and both *Bacillus cereus* ATCC 14579, a common contaminant on fresh produce, and in *Escherichia coli* ATCC 11775, a non-pathogen used as a surrogate for other gram negative organisms that have been associated with foodborne illness.
- Demonstrate that produce quality is not noticeably reduced from the beginning of the process to the end.
- Systems that are lowest in mass, power, volume, crew time, etc. will be given greater consideration.
- Reliability; capable of operation for up to 2-5 years and withstand launch loads and gravity changes.

Proposals for novel approaches or systems other than a water solution wash system that meet the success criteria may be considered. Note, systems that require pressurized gases or that generate toxic byproducts will not be considered at this time.

**Phase I Deliverables** - Prototype system design and evaluation. Final report detailing resource use (crew time, water, mass, volume), sanitizer compatibility, microbial reduction achieved and initial quality results.
Phase II Deliverables - Completed first generation unit that integrates with the ECLSS water system and detailed data regarding resource use, microbial testing, and quality evaluations.