

**Green and Clean Approaches- Studying Microbial Contamination of Produce and Other Foods from Farm to Fork- Ravishankar Lab**

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**Contamination Routes and Stressors Being Explored**

- ❖ Soil
- ❖ Dust
- ❖ Irrigation Water
- ❖ Seed
- ❖ Sunlight/UV
- ❖ Plant antimicrobials, organic sanitizers, edible films
- ❖ Animal and Bird Feces
- ❖ Compost/Compost teas
- ❖ Harvesting and Handling
- ❖ Post harvest sanitization

**Studies Being Conducted**

- ❖ Bacterial survival in and transfer via Soil, Irrigation Water, Manure, Compost, Compost Teas
- ❖ Bacterial attachment, attachment strength, internalization in produce
- ❖ Biofilm formation on produce contact surfaces
- ❖ Efficacy of plant antimicrobials, organic sanitizers and edible films against foodborne pathogens
- ❖ Sanitizer development, sanitizer evaluation, large scale testing
- ❖ Probiotics application in aquaculture
- ❖ Antibiotic resistance among foodborne pathogens in food production environments

**Specialized Equipment/Microorganisms**

- ❖ Plant Growth Chamber
- ❖ Biophotonic Imager
- ❖ PCR, q-PCR, Droplet Digital PCR
- ❖ Confocal Microscope
- ❖ Microplate Reader
- ❖ Bioluminescent, Fluorescent and Antibiotic Resistant Strains
- ❖ Bacterial Viability Assessment Stains
- ❖ Large Scale Simulation

**Testing Capabilities**

- ❖ Microbiological Quality of Produce
- ❖ Tests for coliforms, *Salmonella*, *E. coli* O157:H7, *Listeria*
- ❖ PCR- Molecular Confirmation
- ❖ Serological/Biochemical Confirmation
- ❖ GAP- Good Agricultural Practice Evaluation
- ❖ Sanitizer Development and Evaluation
- ❖ Shelf-life Testing
- ❖ Product Evaluation and Process Validation
- ❖ Testing for aflatoxin in foods