Bell Pepper Shelf Life Study

- The objective of this work was to select an Ultraviolet-C (UV-C) treatment for mature bell pepper, and evaluate the effect of its UV-C treatment.
- Bell peppers were treated with 10 and 100 mJ/cm² UV-C in the outer surface and stored at room temperature 75°F.
- During the first 5 day of storage, all UV-C treatments reduced deterioration as compared to the control.
- The treatment with 100 mJ/cm² was the most effective to reduce deterioration.
- UV-C-treated peppers showed lower exudates and shriveling than the control.
- UV exposure also reduced decay, tissue damage, and electrolyte leakage.
- After day 12 at 75°F, UV-C irradiated peppers remained firmer and had higher resistance to deformation than the control.
- UV-C exposure decreased the counts of mesophilic bacteria and molds, and did not affect acidity or sugars.

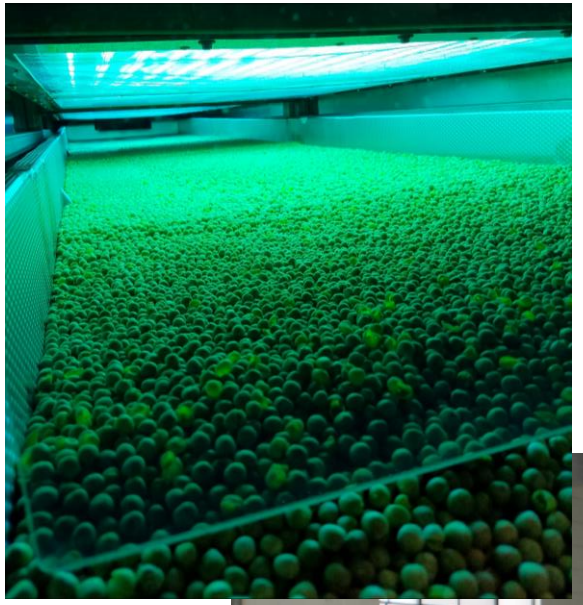
Mushroom Shelf Life Study

- UV-C exposure resulted in 0.67–1.13-log reductions of E. coli O157:H7 that was surface inoculated onto mushrooms.
- UV-C treatments inhibited lesion development on the surface of mushrooms.
- This study indicated that UV-C radiation applied at proper doses was effective in reducing E. coli O157:H7 and microbial loads on button mushrooms, and may potentially extend storage periods without causing deterioration of nutritional quality of button mushrooms.
- Furthermore, remarkably high amounts of vitamin D2 could be obtained by UV irradiation of each side of the mushrooms under optimized conditions.
- In addition, intensity of the UV radiation and the dose of irradiation applied, also contributed to the conversion of ergosterol in mush-rooms to vitamin D2. Even under normal conditions, 5 g of fresh shiitake mushrooms irradiated for 15 min with UV-A, or UV-B is more than enough to obtain the recommended allowances of vitamin D for adults (10 lg/day).

- Viraj J. Jasinghe, Conrad O. Perera *
- Department of Chemistry, Food Science & Technology Program, National University of Singapore, 3 Science Drive, Singapore 117543 Received 29 November 2004; accepted 10 January 2005

RUV saves 8 million lbs of Peas

- Frozen Vegetables Customer in Oregon had 4 million lbs of frozen peas quarantined by FDA.
  - Radiant worked with FDA and Client to develop a UV tunnel system to deliver a 2 log Listeria reduction
  - Keys to Innovative solution:
    - Temperature control of product
    - Product agitation through tubular system or shaker system to toss and turn product to ensure 306 degree dwell time
    - RDM Measurement to ensure control of dosage to product for 2 log reduction
    - Estimated savings over $1mm



Bread Treatment for Large Fast Food Chain

- Client required by FDA to implement intervention in process line to prevent cross contamination between uncooked and cooked products.
- Verification Phase completed, 2 log reduction of Listeria for biscuit product.
- 200 day validation process to commence Dec. 2017, once completed system will be retrofitted on 16 process lines.
- UV Tunnel Design in process.