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High tunnel field greenhouses are evaluated for improving and extending seasonal local production. A high tunnel field greenhouse erected for the 2005 growing season supported production of various crops including leafy greens, various types of lettuce, snap beans, peppers, onions, potatoes and culinary herbs. The quality of produce from both high tunnel and field production was exceptional with overwhelming consumer acceptance in limited marketing tests. The high tunnel results suggest opportunities to produce cultivars not fully adapted to our seasonal conditions. These often higher quality selections offer additional harvest options, higher yields and non-traditional types and varieties.

An enclosed environment with only artificial lighting is in the final stages of construction on the UAF campus. The growing area in this facility is approximately 1,400 ft<sup>2</sup>. Initially lettuce and tomatoes will be evaluated for local year round fresh market production. Management techniques best suited for these types of production settings under our geographical conditions need to be developed. Various combinations of high pressure sodium and metal halide lamps will be used and evaluated for various crops. Studies on inter-lighting and inter-planting are planned for increased and efficient year round production of tomatoes.

Geothermal resources are explored in a collaborative partnership with Chena Hot Springs Resort (CHSR), to efficiently drive and energize seasonal and year round sustainable field, greenhouse and controlled environment production of high value perishable fresh market vegetables, berries, flowers, culinary herbs and leafy greens. The objectives are to identify crops feasible for local production, determine regional preferences and demands, develop strategies, protocols and schedules to efficiently grow and market the identified crops and products.

A permanent greenhouse structure is under construction at CHSR for year round production of primarily lettuce and tomatoes. Heating arrangements using geothermal resources, ventilation, humidity control, lighting and CO<sub>2</sub> control systems are in the process of development and installation to uniquely suit the local settings, logistics and the specific needs of the crops produced. Although a large volume of general information is available, the year round production approach poses challenges as to environmental controls, off-season production protocols, scheduling, cultivar selections, harvesting techniques, packaging and marketing.

## Publications

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- Karlsson, M. and J. Werner. 2005. Daylength effects on pot crops. Greenhouse Product News. Scranton Gillette Communications, Inc. 15(12): 38-40.
- Karlsson, M. and J. Werner. 2005. Day length controls flowering and height of sunflower. HortScience 40:1013-1014.
- Karlsson, M. and J. Werner. 2004. Enhanced development and flowering of *Rudbeckia hirta* in far-red amended environments. HortScience 39:834.
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