

Combinations of controlled environment, greenhouse, high tunnel and field production techniques provide opportunities to extend the season and substitute for brought in plant products with high quality fresh market crops. Several, both traditional and non-traditional crops are promising for local production and marketing. While field culture procedures are well known for many crops in Alaska, the intense management of controlled environment systems requires more detailed understanding of growth, development, flowering and fruiting physiology to optimize climatic and environmental resources. Adequate, correctly managed and designed facilities are fundamental to successful greenhouse and controlled environment production.

In a collaborative partnership, the Chena Hot Springs Resort and the Agricultural and Forestry Experiment Station, are exploring geothermal resources 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. These greenhouse, controlled environment and field production projects offer research as well as educational opportunities in support of many scientific interests, levels and disciplines. A high tunnel greenhouse erected for the 2004 growing season supported the production of tomatoes, cucumbers, beans, raspberries and herbs. Produce from high tunnel production supplied local restaurants with freshly harvested high quality culinary herbs, vegetables and greens throughout the summer. The high tunnel greenhouse was modified for continued efficient year round production at the Chena Hot Springs Resort. A second polyethylene layer was added, end walls constructed, supplemental lighting and temperature control established, and geothermal heating installed. Ventilation, dehumidification and CO<sub>2</sub> control systems are in the process of development and installation to best suit the unique local settings and logistics.

#### Publications

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