

# Underwood's Greenhouse

## Controlled Environment Agriculture



### Hydroponic Herb Greenhouse Production Facility

#### Shushan, Washington County

The production of locally grown fruits and vegetables in greenhouses located in New York State has the potential to increase dramatically based on consumer preference shifting toward locally grown produce, deteriorating water quality in major vegetable growing states and increased transportation costs. The production of fresh herbs, vegetables, and fruits grown in controlled environments (i.e. greenhouses) is currently dominated by out-of-state and foreign producers, while local greenhouses provide only a minimum volume of out-of-season fresh produce to the market.

Underwood's Greenhouse facility in Shushan, NY is currently demonstrating an energy-efficient Hydroponic Herb Greenhouse. The system will use innovative equipment including solar pumps, shade cloth, a closed feed system, and computer controls for lights and start up. The growing practices in the new vegetable production greenhouse will reduce on-peak electric load while expanding local agricultural output.

Due to its greater efficiency, the demonstration greenhouse reduces peak electricity demand by 130 kW and saves 102,000 kWh/yr compared to the equipment it replaces. The actual energy cost savings and economic benefits for Underwood's Greenhouse will be quantified in the monitoring phase of the project. In addition this facility will avoid the use of fuel needed to transport equivalent production from traditional suppliers in California and elsewhere.

#### Benefits Include:

- Increase production by 30% using off peak lighting in the greenhouse.
- Increase harvest to 1800 plants a week.
- Two additional full-time jobs created for greenhouse operation.

#### Results to Date:

- All phases of construction and procurement are complete.
- Production began March 2006.
- Seed to sale cycle reduced from 70 days with traditional field grown produce to 42 days with the controlled environment, greenhouse grown produce.

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