

Workshop Title: Hops

Speaker & their title: Rosalie Madden, P.Ag

Executive Summary:

Rosalie spent several years promoting small-scale organic hops production in the Northeastern United States. Much of her work was through the University of Vermont. Rosalie provided an overview of hop production and management practises. She referred participants to the Hops website available at University of Vermont Extension Service as a very helpful resource.

Capital Investment Requirements:

- The establishment of a hop yard will cost up to \$12,000 per acre.
- Only high quality produce is accepted in the marketplace.

Start up Considerations:

- Trellis Design is an important aspect of growing hops. Plant spacing needs to be generous as hops are vulnerable to downey mildew. So room for unrestricted air circulation is critical. Hops do well in well-drained soils. Therefore sandy soil is preferred with full sun exposure for the plants. A location close to water is necessary as irrigation will be required.

Fertility:

Taking soil samples and making necessary adjustments and corrections before planting is critical. It is hard to made corrections afterwards. A pH of 6.2 to 6.5 is recommended and liming should be done the season before planting. Other requirements include boron and zinc. The quantities of NPK requirements are available online.

With appropriate care hops can produce 5,000 pounds of dry matter per acre.

Growth Habits:

First year of growing is very important for future plant development. As the bines grow, burrs form. Internodes develop and more of these will result in increased production. Crowning results in increased internode formation.

Training the bines is best done earlier in the season before bines twist around each other. Later training can affect maturity and yields.

Weed Control:

This is the biggest problem next to ensuring proper fertility. The use of mulch is highly recommended and the use of cover crops such as buckwheat and clover between the rows is very helpful.

Irrigation:

Drip irrigation is best but take care not to put irrigation lines directly on the crowns. Although hops require thirty inches of rain each year they do not like "wet feet". Research has shown that even in wet years plants that were irrigated produced up to three times more the volume of hops than plants that were not irrigated.

Variety Selection:

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Management requirements vary greatly from variety to variety. Look for downey mildew resistant varieties and choose very carefully. Varieties can also vary a great deal in performance from year to year. Look for consistently performing varieties.

The primary quality control points for hops are:

- in the field
- harvest
- drying
- conditioning
- packaging
- storage

With hops heat, time, moisture and oxygen = poor quality

Hop harvest timing:

The harvesting window for hops is usually mid August to mid September. When ready there is a 5 to 10 day period for picking. Hops are picked when they are at about 75% moisture. Moisture is a very critical element in timing of harvest and in curing.

Rosalie recommends going to Google "UVM hops moisture calculator" for further information.

It is also recommended that hops be machine picked. One bine takes about one hour to pick by hand. Various machinery is being developed to assist with harvesting including a mobile hop picker. Mechanical pickers can harvest up to two bines per minute and eight acres per day.

Drying:

The drying process should bring the moisture content down to 8 to 12 percent. This is another costly aspect of hop production. There are industry standards established for alpha and beta acid levels in hops.

In ending Rosalie reminded participants that many good resources and information are available online particularly at the University of Vermont Extension Service.