

Workshop Title: Organic Table Grape Production

Speaker(s) & their titles: Claude Gélinau, Professor of Horticulture, Institut de technologie agroalimentaire Campus de la Pocatière

Executive Summary

This workshop explores the potential for table grapes as an emerging fruit crop in eastern Canada. It discusses various table grape varieties and their particular characteristics, ideal growing conditions, cultivation techniques, and market potential.

Detailed Notes

Claude began growing grapes in 2006. At the time, people were mostly growing grapes for wine production. There wasn't much in terms of table grapes. He then began researching different grape varieties. He considers that table grapes are an emerging fruit crop.

Claude argues that grapes are widely appreciated, and while grapes for wine production is fine, table grapes are even better since kids like them too.

Claude is based in St-Pacome about 90 minutes from Quebec City. The climate is drier there than in the Maritimes (875 day degrees base 10°C). He has trialed 80 cultivars so far.

Day degrees base 10°C: days in which the difference between the daytime high and nighttime low is above the base of 10°C.

He works with plastic mulches on 100 metre beds. Growing areas are sheltered from wind – this also brings more humidity. He has a northwest facing slope – obviously not ideal. Sandy soil.

One of Claude's favourite varieties is Swanson Red, a variety with seeds that is very good for storage. He stored 250kg from October to about February.

Grape vines are different than other fruit plants. Kiwis are the closest resemblance. Both are quite vigorous in their growth. There is lots to know and understand to obtain optimal results.

Production related considerations:

- How is a table grape different than wine grapes?
- Which varieties are best?
- Climate
- Training systems

- Fertilization
- Costs

What exactly is a table grape? How can we define it?

It is simply a grape that is eaten fresh, as is. It is nothing like what is found at the grocery store. These have no real personality flavor-wise.

With or without seeds? The seedless grape is great and is increasingly popular in the market, so it's good to look into seedless varieties. Seedless varieties will usually be smaller.

If the grape has seeds it should be bigger or have exceptional flavour.

Characteristics

Color, flavour, size, texture, thickness of skin.

Grapes with thicker skin tend to be less tasty, but if the skin is too thin it can easily split in the rain, especially if a period of drought is followed by sudden heavy rain.

Grapes can exhibit a wide variety of flavours and this is a big selling point for organic grapes. It becomes a specialty product. In shorter seasons, the late onset flavours will be affected; the grapes will not reach full maturity.

Over-ripened grapes may develop a "petroleum" like taste. This is variety dependent.

Target Market: Who will eat the grapes you produce?

- Retail or direct sale is generally more interesting than wholesale. Only one variety in Canada is widely available in stores.
- CSA is also recommended.
- U-pick is being tried by some producers, but best to do a first pick for yourself if you are also selling to stores. U-pick \$3 per pound; Stores \$4 per pound or a sale price of \$6 per pound.
- Some varieties may be stored for several weeks, thus extended the season.

It's one of the fastest producing fruit crops. You can get a first crop in the third year.

Storage

95% humidity and around 0°C. It can be stored with other fruit such as apples. It is not affected by ethylene off-gassing.

Choice of Varieties

Soil and climatic conditions will influence choice of varieties. Claude suggests growing 5 different varieties, to meet the needs and preferences of different clients and to assure constant production throughout the season. **Somerset** is a good variety to start with.

Claude has tried over 75 varieties. He has a list of 20 varieties. 5 of them are not ideal, but listed anyways as possible varieties to trial and perfect. A complete descriptive table of each variety can be found on slides 12-15.

Some of the first varieties listed are early producing, such as **Roland**, which is a green variety and has a decent taste for an early table grape. It can also serve as a wine grape. Its biggest flaw is that it has seeds. It will ripen every year, almost certainly.

The **Baltica** is a wine grape that can be considered a table grape in our short seasons and cold climate. It is a very hardy grape. Hardiness is an important consideration once temperatures drop below -20°C. So coastal areas are generally fine.

Bluebell has a mild “foxy” taste. Typical North American grape, like the Concord. It is thin skinned.

Canadice is one the most interesting after Somerset. It has a grape shape. Very productive. It can sometimes overproduce and drain the plants’ energy heading into winter, where it can succumb to winter conditions.

Edelweiss is a big juice grape, with nice looking clusters. Very hardy and disease resistant.

Tango is a green grape. Smaller. Stays healthy.

Kandiyohi is characterized by its huge clusters. Not the tastiest. Slow maturing.

Montreal Blue is a seedless grape. Slow maturing. Susceptible to some diseases, but winter hardy. Doesn't store well. Good for juice. Juice grapes need acidity.

Petite Jewel. Smaller than Somerset, but bigger clusters. Some varieties are less winter hardy especially when there is little snow.

Reliance. Non-uniform colour, but nice clusters. A light grapefruit flavour. Reliable production. Seedless.

Somerset would be the first grape you should try. A standard. Seedless.

Sovereign Coronation is a good storage grape. Fruit keeps well on the vine, but leaving too many fruit on the plants may slow ripening.

Swenson Red. Nice clusters. Good production. Beautiful colour.

Troll is an early variety of blue seedless. Increasingly popular in Quebec. Medium hardiness.

A few last varieties of seedless that haven't shown good yields or production:

- Skookum
- Himrod
- New York Muscat
- Vanessa
- Einset

Average yields: 3000 plants per hectare. 1-3 kilograms per plant. About 1/2 kg in first year. Optimal yields by fifth year. If the fruit load is too high it will affect maturation and colour.

Cuttings must be stored at 4°C in a sealed bag to keep in humidity. The angled end is planted in the ground. It is helpful to re-cut at same angle and soak for 24 hours prior to planting, since the cutting may have dried out. Cut your own from established plants in late fall.

Climate limitations: cold temperatures can affect grapevines in three ways

1. Temperatures under -26°C can lead to destruction of the fruiting buds and sometimes damage the trunks and root system. Snow cover or covering with a tarp are preventative measures.
2. Spring frost after first budding will affect yields. Second buds are less productive. Frost likelihood or snow cover will influence type of trellising. Low trellis systems will facilitate snow covers. In areas with less snow cover the tendency is to build higher trellising systems since the air is warmer higher up.
3. Lack of warmth during summer leads to slow maturation, little colour, and lack of flavour. Reducing fruit load is a way to counter a cooler summer. You'll get lesser yields, but at least the fruit will mature in time. Silica sprays improve light absorption in rainy and cloudy years.

Site Selection

Well-drained soil, full sun, warm. Avoid cold pockets (hill top vs valley). Not too rich or fertile, protected from wind.

Prepare the site one year in advance. Lay down plastic to suppress weeds, such as couch grass. No need to remove the plastic to fertilize or add compost, since the grapes root system can access nutrients from alleys. Apply compost in alleys.

Possible to keep plants temporarily up to 1 year in pots or in field at 35cm apart in rows.

Establishment

In row spacing: 1 to 1.4 metre, most often 1.2m

Between rows: 2.5-3m between rows (will depend on cultivation methods – tractor use)

Plant in June

Needs watering in first 2 years

No pruning in first year

First harvest in third year. Avoid harvest in 2nd year.

Trellising or support/training system

-choices based on varying circumstances

-vines must be kept off ground to avoid rot

-high (good in areas with little snow cover – temperatures dip lower near ground) or low trellis (good in areas with good snow cover – 20-25cm are needed to properly protect vines)

-some systems favour more sun exposure

-row covers may be used as added protection in low trellis systems

-there are many different training systems

-above ground height of trellis is important

-wire that supports main vine/cordon must be strong enough to support load

Pruning

Building the structure in the first 2-3 years. This is when we develop the cordon (main horizontal vine). The vines produce its fruit on the current year's buds. If you leave too many cluster buds, your clusters will be smaller. In late fall remove up to 90% of the preceding year's growth.

Keep buds going in desired direction. Tip prune if too vigorous. Thin foliage near foliage to improve colour and flavour.

Fertilization

Grapes have extensive root systems. If you start with an overly rich soil, you will have excessive plant vigour. Fruit set is affected by vigor. Ideal pH is 6-6.5.

Good results can be expected with application of 20-30 t/ha of compost before establishment and every 2 years after.

Magnesium and Boron deficiencies are common in light sandy soils. Dolomite lime will help correct for magnesium deficiencies.

Phytoprotection

Many predators will try to eat fruit: skunks, birds, raccoons, etc.

Certain early varieties are susceptible to wasp predations, especially when fruit split.

Electric fence or cage set up before small predators such as skunk or raccoons show up. Once they've had a taste it's hard to deter them. Fence must be well grounded.