

Workshop Title: Oilseed Production

Speaker(s) & their titles: Loic Dewavrin (QC)

Executive Summary

Loic Dewavrin owns and operates a 1500-acre farm in Quebec, approximately 35 minutes from Montreal. Loic's primary product is oil from his sunflower field crop, producing over 12,000 litres of oil per year. In this presentation Loic discusses the basics of oil production, differentiates between cold and hot pressed oils, and reviews his trials of various oil seeds. Over the years he has chosen to work primarily with sunflower seed for his oil products. The farm distributes throughout the Quebec region through grocery stores, reselling to other farms and through a cooperative (for more info on the co-op see the notes for *Agro-bio: Experiences in a Grain Cooperative*). This presentation does not go into the marketing of oilseed; rather it focuses on production and weighs pros and cons of various seeds types.

Detailed Notes

Oil Cold Pressing

Loic is using a German machine which he feels works wonderfully (there are presses manufactured in China but the presenter feels that while cheaper in price they are also of inferior quality and recommends going with a German press).

Cold pressing refers to crushing the grains, letting it settle, then possibly filtering. The best oils are cold pressed in Loic's opinion. Although pressing and grinding produces heat through friction, the temperature must not rise above 120°F (49°C) for any oil to be considered cold pressed. Cold pressed oils are produced at even lower temperatures. Cold pressed oils retain all of their flavour, aroma, and nutritional value. Olive, peanut and sunflower are among the oils that are obtained through cold pressing.

Keeping the temperature low is key. You have to run the machine slow and work in colder temps - can't go over 45°C. In summer it's harder to keep temperature lower while pressing in warm weather.

Industry wanted more efficiency for large scale oil production - small scale cold press production doesn't remove all the oil - extracting around 8 -10 %.

Cold pressing is not as efficient as the process known as expelling (aka hot press) because the oil doesn't flow in a cold press system. The expelling process is more efficient leaving less than one percent of oil in the mill.

However, the expelling process requires the use of solvents to get more oil, so it needs to be refined afterwards which leaves a chance of residue in product. Research also shows that it is not as good for you health. It costs much more to start up as the tools are more expensive, and finally, at least in the presenter's opinion, cold pressed tastes better.

Reviewing and trialing various seeds for oil production

SUNFLOWER

- Speaker regards it as the best and the cold press brings out the taste.
- Great crop, though it prefers a dry climate (some disease issues in colder wet climate but growing with a cover crop minimizes disease).
- Row crop - best weed control
- Variable yields
- Hybrid (certified organic)- there is a need for an open pollinated source and it is hard to find untreated seeds
- Oil production uses smaller seeds than eating varieties

Oil - Meal

- Variable oil content (25-45% protein)
- Lovely taste when properly transformed
- Keeps well
- Healthy local oil
- Good demand for meal for livestock production (goats particularly like it) - and it can raise milk protein percentage

Traditionally sunflowers are linoleic, more and more, however, are oleic, which is better for our health. It is compositionally closer to canola. Speaker personally likes the taste of sunflower over of canola, and notes that it is hard to keep canola certified due to the presence of GM canola.

SAFFLOWER

- Dry climate
- 15%-25% oil content, but cold press machine can only extract 10 percent so it is not as cost effective
- Low yields in Loic's farms experiments
- Nice color oil with red pigments
- Subtle taste
- Still need to find suitable varieties

CANOLA

- Adapted to cooler climate
- Heavy GMO contamination risk from seeds and cross pollination
- Volunteers are hard to control in the field
- Doesn't grow as well in warm weather
- High yielding crop and oil content
- Oil needs to be deodorized - complex process
- Meal is also not as good as a feed

FLAX/LINSEED

- Not as competitive with regards to weeds
- It's hard to cut and hard to clean seeds
- Oil needs to be refrigerated
- There is a good market for feed meal
- Very good taste
- Could need additional material to help pressing - Speaker has tried adding some corn seed (which has low oil extraction) which has more fibre and helps.

HEMP

- Speaker used variety fin314
- Health Canada burden
 - Risk of high THC levels - if it's too high you can have your crop destroyed by Health Canada
- Good yields
- Lots of volunteers, which can be another issue with Health Canada as they demand permits
- Also young people sometimes steal it - but it has the opposite effect to marijuana
- Oil has good taste and average yields (20%); needs to be refrigerated

CAMELINA

(grown more in western provinces)

- Low yields and doesn't compete well with weeds
- Lots of volunteers
- Small seeds which makes it hard to clean
- Good tasting oil, but low oil content means it is not exactly cost effective; also unknown to most consumers

SOYBEAN

- Great yields and easy to grow
- Consistent yields
- Lower risk of contamination
- Oil yield around 20% and has strong legume taste that requires deodorization

- Meal needs heat treatment to be able to sell to improve digestibility

PROCESSING SEEDS

Seeds need to be:

- Dry (8-10% moisture): mild dry air
- Clean (use cleaner- rotary cleaner with suction fan)
- Fresh
- Equipment needed
 - Seed bin
 - Seed dryer
 - Seed cleaner

Equipment needed for pressing and bottling

- Screw press (speaker uses barrel type)
- Settling tanks (could be a barrel- particles will separate)
- Filtering device - speaker uses small one micron filter
- Bottling/packing equipment - using different sizes- from small to bulk quantities

If you are interested in doing oilseed some things to consider:

- Crop yields are crucial
- Oil content
- Oil/seed conservation is important
- Market is driven by taste, price, packaging, advertising

May need other reason than financial to do it:

- Diversification
- Hobby
- Increase local production

There was no time left for a question and answer session but Loic had a second talk after the break focused on his work co-forming a grain cooperative in Quebec. Check out *Agro-bio: Experience in a Grain Co-op* notes for more information on Loic's experience growing organic grains.