

Quality Control of Field Crops



Homestead Organics

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Canada's Organic Farm Supplies

What is the big fuss?

- » If people knew what is in their food?
- » Organic: natural production AND high quality.
 - ✓ Let's put it into the standards.
- » Less processing => less compensation.
- » Dropping to feed grade is not good enough.
- » Increased production means more choice.

What have we today?

- » Define Organic versus Quality
- » What is too much dockage?
- » We don't buy nor store water.
- » Foreign grain - what a pain!
- » The Art of Thrashing.
- » Quality in soybeans and wheat.

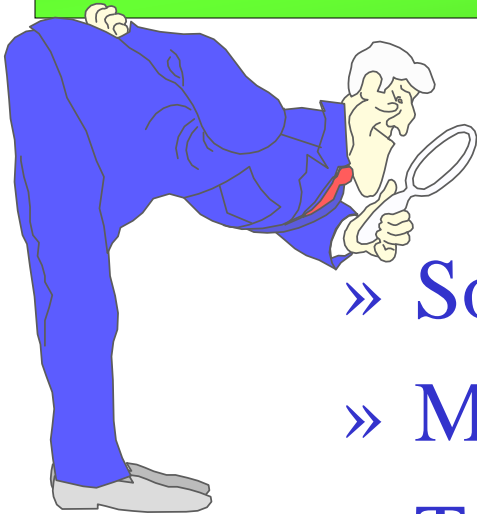


Nutritional Quality.

- » Specific weight & protein: depend on nitrogen.
- » Odour & taste.
- » Culinary characteristics (falling number, stability, soluble protein, moisture).
- » Trace minerals, vitamins, amino acids.
- » Germ quality, germination rate.
- » Molds, toxins.



Visual Quality & Other Issues.



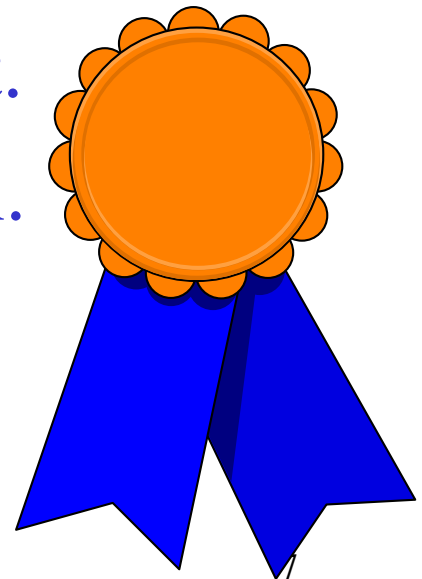
- » Some markets are very visual.
- » Mechanical damage.
- » Too many hulls or pods.
- » Shape and size, maturity, appearance.
- » Colour, weather damage, stains.
- » Effects of drying and storage.

Is Organic High Quality?

- » Answer: Not necessarily!!!
- » Organic only defines production methods.
- » Quality is assured by soil nutrition, crop management, handling, & the weather.
- » Two main obstacles to high quality:
 - ✓ insufficient nutrients. Especially nitrogen;
 - ✓ lack of knowledge and experience.
- » Are you organic by default or by design?

Organic by Design: A Good Farmer.

- » Attention to details, problem recognition.
- » Good understanding of soils, crops, animals.
- » Good planning and problem resolution.
- » Commitment to quality improvement.
- » Years of experience & desire to learn.
- » Wise selection of inputs and tools.
- » Time, timeliness, and dedication.



Dockage: highly overrated!

- » It is not a quality issue.
- » You are not asking the right questions.
- » Do not be disappointed
- » Do not try to impress me with low dockage.
- » Either you remove it or I will: same net value!
- » But who pays to remove it??? I do!
- » Mostly removed by the combine.

You Need an On-farm Cleaner if:

- » It is a problem over approximately 4%:
 - ✓ High moisture and risk of heating.
- » Facilitate aeration and drying.
- » Cost of trucking is high over a long distance.
- » Reduce on-farm storage space.
- » Feed directly to livestock.
- » Increase price/tonne, not to avoid dockage.

No Market for Organic Water.

- » Moisture limits for:
 - ✓ soybeans 11% to 14%; processed corn 16%
 - ✓ milling grains 12.5%; feed grains 15%
 - ✓ storage with aeration 19%, without 14%
- » Biggest problem is moisture in the dockage.
- » Moisture: heating, molds & toxins, rancidity.
- » Best quality is field or crib drying & aeration.
- » Mechanical drying must be low temperature.

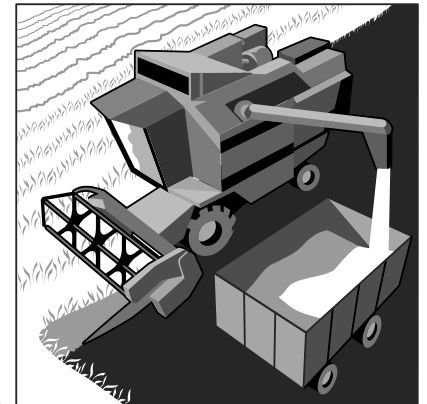
Foreign Grain - What a Pain!



- » I clean for food grade. I am not perfect.
- » No corn & few stones in the soybeans.
- » No nightshade berries in the soybeans.
- » No buckwheat nor vetch in milling grains.
- » No other cereals in the spelt.
- » Keep feed grains reasonably pure.

The Art of Thrashing.

- » The most critical mechanical operation.
- » Own it, even a small combine.
 - ✓ Experience, attention to detail.
 - ✓ time available for quality assurance.
- » Adjust speed and space of cylinders:
 - ✓ unthrashed wheat and barley count as dockage.
 - ✓ crushed buckwheat counts as dockage.
 - ✓ split soybeans cost \$350 per tonne.



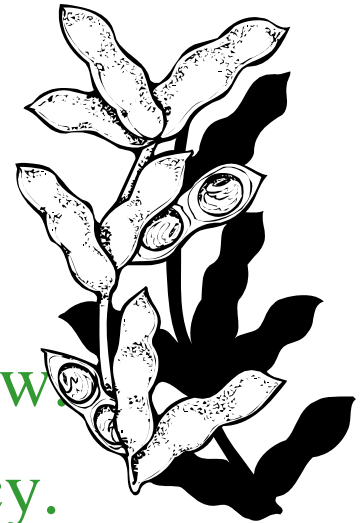
The Art of Thrashing.

- » Timeliness is critical, thus availability.
 - ✓ Weather, moisture, maturity, shelling.
- » Adjust your ground speed:
 - ✓ Avoid shelling to the ground.
 - ✓ Stop to remove mud and stones.
- » Swathing is important:
 - ✓ Buckwheat, to avoid shelling to the ground.
 - ✓ Cereals, for natural dry down of grain & weeds.

Quality in Soybeans

» Variety selection:

- ✓ High protein (>40%).
- ✓ Select for split resistance.
- ✓ True yellow hylum, no imperfect yellow.
- ✓ Renew your seed source for consistency.
- ✓ Review your seed selection with your customer.
- ✓ Multiple varieties? Ask customer about purity.



» No mud stains, no grass stains, no green.

Quality in Wheat.

» Bread quality:

- ✓ hard red spring, 13.5% protein, good stability.
- ✓ 12.5% moisture, 350 seconds falling number.

» Pastry quality:

- ✓ soft white or red winter, 9% to 11% protein.

» Kosher bread: hard red winter 12% protein.

» Feed grade: maybe 10%, usually 12% protein.

Managing the Falling Number

- » Indication of how the bread will hold together instead of making air pockets.
- » Partly managed by variety selection.
- » Usually decreased by sprouting which converts the starch to sugar.
- » To keep it high - reduce moisture:
 - ✓ Harvest when ripe, even damp to avoid rains.
 - ✓ Immediate aeration and drying.

Homestead Organics

- » Organic grain elevator:
 - ✓ Receiving, storage, drying, cleaning.
 - ✓ Marketing for food and feed grains.
 - ✓ Markets in Canada, USA and overseas.
- » Organic feed mill:
 - ✓ mixed feeds for all farm livestock.
 - ✓ Customers & dealers: east Canada, New England.
- » Organic food store; wholesale prices.