Agronomy of Industrial Hemp

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formerly Alberta Innovates – Technology Futures
formerly Alberta Research Council
• Innotech Alberta operates a 600 acre research farm at Vegreville
  • Conducts research on:
    • Plant diseases especially of main commercial cash crops grown in Alberta
    • Herbicide and Fungicide Efficacy
    • New agronomy products
    • Native Plants
    • Agronomy of fibre crops (hemp and flax)
Seed to Final Product

- Varietal development, breeding and genetics
- Agronomy
- Harvesting techniques
- Fibre Utilization
Varietal development, breeding and genetics

• 99% of hemp grown in western Canada is for seed production
• Varieties must have high seed yield potential
• Has led to the development of short hemp varieties such as Finola
• Innotech Alberta working with dual purpose varieties
Flower structure

Hemp plants can either be:
• **male** – staminate flowers (pollen sacks)
• **female** – pistillate flowers (ovary)
• **hermaphroditic** - male and female

Hemp cultivars can be:
• **Dioecious** – separate male and female plants
• **Monoecious** - hermaphroditic
How to Grow Industrial Hemp
Seedbed preparation

- Hemp is very sensitive to soil structure; yield penalty on compacted soils
- Does not tolerate soils with poor drainage
Water logging - 2016 Falher
Water logging - 2016 Falher
Water logging – 2016 Vegreville
ABDC Decortication Plant

• AITF operates a 1 ton/hr decortication facility
  • Decortication is the process of separating the short fiber (known as hurd, core, or shiv) from the long fibre (known as bast) in bast fibre crops
  • Only two bast fiber crops grown in Canada – hemp and flax. Others grown around the world are canaf, jute, and sisal
  • The products of this decortication process are then used to make a variety of bioproducts
Biocomposites

• Biocomposites made from the hurd of industrial hemp straw
  • Hempcrete
    • Replacement for concrete
    • Has insulation properties
    • Light
    • Breathable
    • Different forms – blocks, poured slabs, or poured in place
    • Ties up carbon long term
• Other uses of hurd
  • Can be burned for energy source
  • Plasters
  • Animal bedding
  • Absorbants
  • Building products (particle boards)
Biocomposites

• The bast fiber of hemp and flax can be used to make many types of biocomposites that can be used for
  • Interior car parts
  • Exterior panels for cars, boats, tractors
  • Many types of plastic mouldings
  • Can be used as a fiberglass replacement in things like skateboards
• Properties of biocomposites made with natural fibers
  • More resiliency
  • Lighter
  • Renewable
  • Often biodegradable
• Other products made with bast fibers of Industrial Hemp include
  • Papers
  • Textiles (clothing)
  • Absorbents
  • Insulation
Resources

• Industrial Hemp Enterprise – found on the Alberta Agriculture website

• Canadian Hemp Trade Alliance eguide – found on the CHTA website