Green Building

Market Insights

STRATEGIES

WHEN GREEN IS NOT ENOUGH

Alberta Agriculture & Rural Development/SAIT Polytechnic

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With the onset of the green building movement there was a flurry of patchwork solutions and floppy legislation.

Greenwashing

Many construction related companies saw the immediate commercial benefit of being a ‘environmentally conscious company’ and headed straight for voluntary compliance.

Paint & Carpet

In areas where a green solution was not technically possible or economically viable they turned a blind eye.

Organic Food

Health Pressures

Fair Trade Coffee

Social Pressures

Ethanol

Legislated Pressures

Non-GMO Foods

Technological Pressures

Centre for Disease Control
'Formaldehyde Declared Cancer Causing'

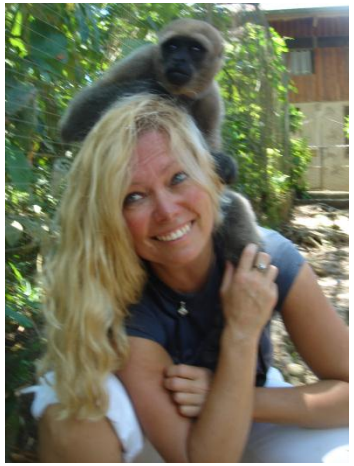
Environmental Protection Agency
'Leukemia/Nasal Cancer from Formaldehyde'

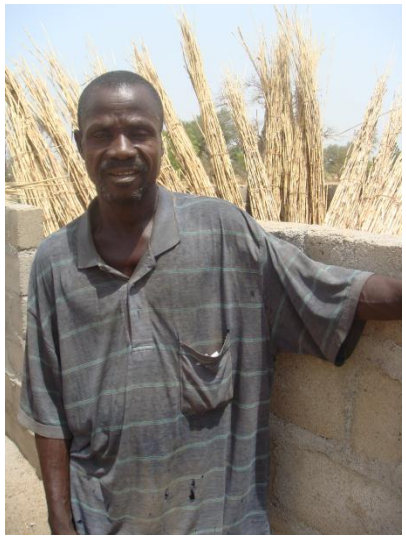
United Nations/World Health Organization/International Labour Union
'Formaldehyde devastating to house inhabitants and factory workers.'

With all of the devastating news why no change?

Money!

My Personal Story





Think small.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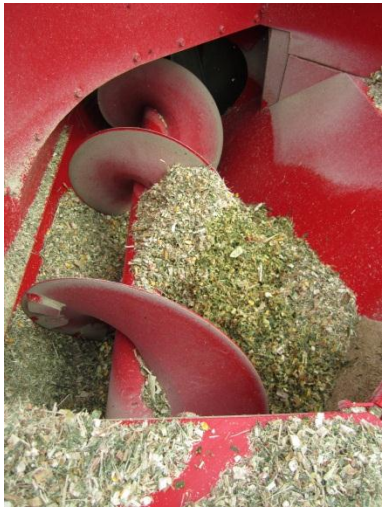
PLANT GENETICS

Plant material grown for both crop and forage yield should consider non-traditional seed sources. Many countries are firm on non-GMO product so regulations in distribution markets must be confirmed.







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Geography

We must participate in the environments where we want to gather fibre. There are bio-mapping tools, contracts, round-table discussions and academic theories, but one must get out. Walk the land, talk to the people that own it. Look at a map! Does it fit for your business model?






'The development of the bio-economy will require accurate and reliable information on biomass feedstock supply, production and harvesting costs, and environmental impacts. In order for the bio-economy to be successful, bio-energy and bio-based production systems require a reliable biomass supply. However, it is not enough to know what type and how much biomass is available; it is also crucial to understand where it is available.'

Agriculture Canada

Climate

Understand the climate of your fibre basket. A general corporate strategy will not cut it. Climate changes will be noticed even over small distance and plant performance will change accordingly. No one understands the innuendos of this better than a farmer.

Environmental Farm Plans (EFP) are assessments voluntarily prepared by farm families to increase their environmental awareness in up to 23 different areas on their farm. Through the EFP local workshop process, farmers will highlight their farm's environmental strengths identify areas of environmental concern, and set realistic action plans with time tables to improve environmental conditions. Environmental cost-share programs are available to assist in implementing projects.

We are participants in a sophisticated and delicate system and must participate accordingly.

- Water Wells
- Pesticide Handling and Storage
- Fertilizer Handling and Storage
- Storage of Petroleum Products
- Treatment of Household Waste
- On-Farm Storage of Livestock Manure and Other Prescribed Materials
- Livestock Yards and Outdoor Confinement Areas (OCAs)
- Silage Storage
- Milking Centre Washwater
- Nuisances under the *Farming and Food Production Protection Act, 1998*
- Water Efficiency
- Energy Efficiency
- Soil Management
- Nutrient Management in Growing Crops
- Manure Use and Management
- Horticultural Production
- Field Crop Management
- Pest Management
- Stream, Ditch and Floodplain Management
- Wetlands and Wildlife Ponds
- Woodlands and Wildlife

Harvest Practices

Each crop has unique standards for biomass removal. Some benefit from the harvest of a portion of residues. Time of year will play into standards as well.

‘The removal of crop residues can have a serious impact on the quality and productivity of the soil. Long-term studies have shown that only about 20% of the nitrogen in the residues, and even less carbon enters the soil from residues left on the soil surface in reduced or conservation tillage systems. Most of the improvement in soil quality is from reduced decomposition of the below-ground crop residues (roots).

However, the removal of too much residue can leave the soil vulnerable to erosion, which depletes the nutrient and organic matter rich upper soil horizons. The upper soil horizons are crucial for plant growth; as such sufficient residue must be left behind to prevent this soil degradation.’

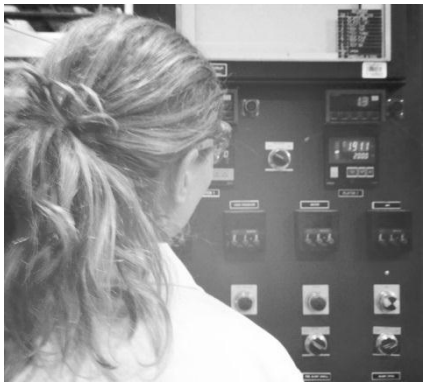
Agriculture Canada

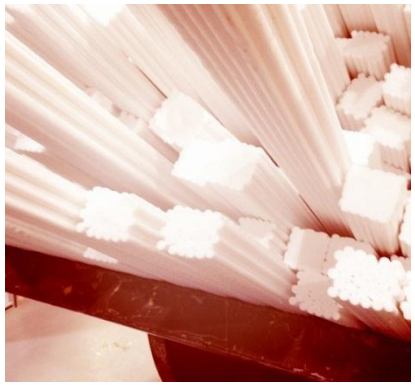
Mechanical Characteristics

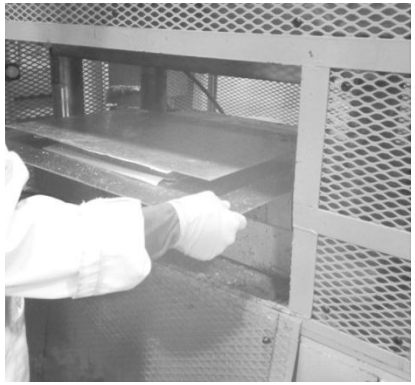
North America has the opportunity to be a world leader in the understanding of a wide range of fibre mechanics for composite technologies. WhiteCloud has set a standard for the evaluation of mechanics intended to delineate the marketability and range of options.

Viability Checklist *How is it grown and stored?*

- Typical water content at harvest.
- Typical water content under storage.
- Typical water content after 24 hour submersion.
- Sugar content
- Relative density
- Availability
- Cost
- Growth risk analysis.
- Genetic opportunities
- Equipment considerations
- Joint development opportunities.
- Scalability
- Carbon footprint
- Rotation opportunities
- Healthy farm practice (green manure/soil mitigation)
- Establishment/maintenance costs.





Physical Properties

Milling and processing are the root. Some fibres are flammable, some are light, some biodegrade quickly, some suck water and chemical in the manufacturing process. Which ones are your friends?

Physical Checklist *How is it milled and processed?*

- Amount of degradation through 6,12,18, 24 month periods mechanical.
- Amount of degradation through 6,12,18, 24 month periods visual.
- Flammability
- Modulus of Elasticity
- Modulus of Rupture
- Flow ability
- Processing restrictions
- Chemical compatibility to other fibres.
- Chemical compatibility to chemical additives
- Joint development opportunities.
- Visual appeal
- Cutting characteristics
- Odour





Transport

Circumference of the fibre basket from manufacturing must be considered when locating facilities. Rural and city locations offer different options and limitations.

Culture

Support for this type of innovation varies from community to community. It is important to build trust supported by known professionals, solid information and face-to-face relationships.

Density

Agriculture fibre comes in all forms and densities. Each requires unique consideration.




Risk Anaylsis

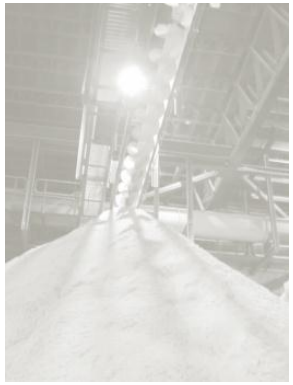
Risk include natural disasters, climate, storage and price. A fibre strategy should include a full understanding of ‘the downside’.

- Local weather patterns (longterm).
- Seed change and genetics.
- Alternative fibre baskets.
- Vulnerability to commodity trends.
- Competition
- Fire and Vandalism
- IP

Cost

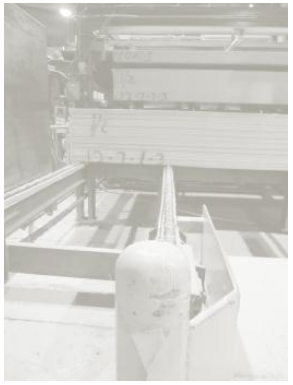
Fibre costs vary from location to location. Yields/acre have a direct bearing on price. Some fibres are in the current commodity market and may see fluctuations from year-to-year. Industrial by-product is often a steady supply source.











GLOBE


West Fra
MDF

Formaldehyde Free, Antimicrobial, Flame/Smoke Retardant

Same Price as Regular Panels!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