

BioPlastic Focus Group

November 7, 2003 © ACIDF 2003



This focus group is the result of partnership between Alberta Agriculture Food & Rural Development – Centre for Agri-Industrial Technology (CAIT), Canadian Plastics Industry Association (CPIA), the Alberta Agricultural Research Institute (AARI) and the Alberta Crop Industry Development Fund Ltd. (ACIDF). The steering group for the activity included Connie Phillips, Shawna Feradi, Doug Walkey, Alan Hall and Cindy Bishop.

The focus activity took place in concert with a plastics industry meeting organized by CPIA and held during Farm Fair at the Westerner in Red Deer, November 7 2003. Attendance came from Alberta manufacturers using plastics, agriculture industry, universities, research groups and the provincial government.

The focus group was challenged with identifying prospects for both bioplastics in the world market, and plastics used within the agriculture industries. They were also asked to speculate on how future interaction between the two industries might be facilitated. The *Summary of Discussion* below contains the combined results of the two opportunities questions, and separate commentary on the network question.

Summary of Discussion

A number of principals and value statements came from the discussions and notes:

1. Currently plastic materials are sourced outside of Canada for much of our industry. There is a clear opportunity for Alberta-based sources of plastic suited to typical commercial scale fabrication.
2. Much of the industry produces a service, they don't foresee new trends well.
3. The group didn't see need virtual networks as much as a need industry & research exchanges.
4. There has been little if any communication between the plastics industry and bioplastics research.
5. Priority should be given to composite or bio-fibre impregnated plastics development.
6. Environmental issues are important to both industries.

Plastic industry could use raw agricultural material to produce finished products for agricultural use.

We do not have enough information on value chains to judge.

Focus Group Notes & Methodology

The meeting was structured in two parts. The first was a seminar format with speakers from agriculture and plastic sectors. There was a strong focus on bio-based plastics with presentations from Dr. Suresh Narine from the University of Alberta and Dr. Remy ? from the Netherlands.

The focus group portion of the meeting began later in the afternoon and had some attrition from the whole group during the seminar. Approximately 20 people from both industries, government and the research sector took part.

The participants were divided into working groups and posed a series of questions to initiate discussion. Below are summarized notes from the discussions.

Interesting and Exciting Ideas.

- 1) Feedstocks are a significant issue for today's plastic industry, and the possibility of renewable plastic resources from plants is very exciting.
- 2) Metal replacement is an opportunity in the plastic field, which can be enhanced with the addition of biological fibres.
- 3) It is very important to be able to get together with other industries to explore product and market possibilities.
- 4) The development of the Alberta Bioproducts Network should be valuable to both industries.
- 5) Surprised and impressed by the coordination and amount of funding available for development.
- 6) Would be exciting to be able to use current petrochemical infrastructure for bio-based products.

Common Ground

- 1) There is a need to develop and use research and development funding.
- 2) We need to share the knowledge of each industry. Both need to understand the ability of each resin to work in specific uses.
- 3) Both industries need to encourage environmental responsibility.
- 4) Both need to address the gap between research advances and commercialized products.

The Scope of Products in the Plastics / Agriculture Interface

Existing Products

- Garbage bags, waste containers, biodegradables
- Dissolving laundry bags, (dissolve in wash)
- Flexible film, Modified atmospheric packaging
- Food containers, food processing equipment, conveyors
- Cattle feeders, troughs, buckets
- Tanks – fuel, fertilizer, waste, storage
- Insulation
- Starch based products (loose fills)
- Structural products, hog barn flooring

- Silage bags, hay bale covers
- PVC pipes
- Polylactic acids, PHA, PHB, Polyurethanes
- Metal replacement products, tractor parts, plastic shielding on machinery
- Chute liners
- Composites

Emerging Products or New Opportunities

- “smart” plastics
- Structural materials, decking
- bioplastic products, controlled degradation of plastic
- Oil based resin and agricultural fibre to possibly make wallboard, organic source poltusion with tree fibres
- Food packaging
- Medical, medical waste (colostomy etc.)
- Tanks, irrigation piping
- Vehicle parts, machinery parts, some metal replacement that is light and strong, machinery and containment parts, custom fabrication
- Marketing products/displays
- Innovative plastics – lemon impregnation
- Biodegradable pin flags
- Inulin, based plastics (Jerusalem artichokes) (a fibre usage)
- Modified fatty acids (fish oils) functional red

Existing Conditions to Support Development & Commercialization

- Networks (bionetworks) starting
- Funding sources, government grants- agriculture industry has to be the driver.
- Changing opinions about using renewable resources
- Health and environmental concerns
- International examples of successful ventures
- Decreasing competition for competing technologies
- Resin suppliers improving services in product development
- Partnerships
- Kyoto

Detrimental Conditions to Development

- Need big dollar or time to access existing facilities
- Industry doesn't have the manpower to access programs
- Structures are not for common product development
- Process is too slow to get to market competitively
- Product from company focus rather than company development
- Plastic sources outside Canada

- Very few help common products get to market
- The road to commercialization is too long to help the common visionary

Resources Needed to Build Value-Chain Capacity

- Forums, networking, technology exchange, marketing program to share information
- Product Development done internally
- Trade missions to Europe
- Financial resources supporting development
- ISO certification, QS 9000
- Need a commercialization process
 - access to funds based on performance
 - projects with gated development designs (go/no go points)
- Need easy access to provincial expertise, pool of money/people/expertise-affordable, reduction of red tape
- Industry organization reps with extension duties
- Database of activities, R&D, participants, new developments
- Within Alberta
 - expertise
 - infrastructure
 - develop diversified feedstock (byproducts waste streams)
 - economics not favorable
 - establish niche markets(and grow them)
- “+” Factors Knowledge base
- Alberta Advantage
 - Petroleum Industry
 - Forest product industry
 - Agricultural industry
 - Entrepreneurial spirit
 - Skilled labor force

The Value of This Event

- Better understanding of common market related problems
- More insight into respective industries
- Introduction to research in future plastics, bioplastics, biofibres
- Natural/synthetic fibre mixtures
- Understanding of funding possibilities
- Networking
- Identification of market opportunities

Practical Ways to Exchange Information

- Use 24-7 training solutions adaptive learning technology to educate the various levels of people from product developer to production process.

- Forums, additional sessions, yearly meeting (alternate by focus), presentations general by nature, need time to talk in small numbers because of proprietary nature of business.
- Newsletter, e-mail list
- Trade missions, sabbatical-research-exchange program (visiting exchanges Netherlands)
- Trade of technological information (International), Internet “Webinars”, set up directory
- Web-based information distribution (i.e.: www.ibaw.org)
- expand Alberta Bioproducts Network to larger association with conferences
- Need expert opinions on opportunities (drive through window)

Activities to Support Inter-Industry Communication

Individual

- See more future customers with specific concerns or problem
- See more Ag manufacturers
- Social aspect (golf tournament baseball, curling)
- Projects directed at process
- Sharing ideas and making them available

Organizational

- Social aspect
- Must prove property specs (of plastic feedstock?) before release
- Involve industry (small commercial scale) to evaluate specs on plastic stocks (40,000 types approximately 900 new each year).
- Rotate location of meetings
- Sponsor activities, give away award
- Support existing groups (CPIA) or is this a role of existing groups?
- Need activities on Alberta scale- not open internationally

Actions

- 1) Agriculture should bring feedstocks to the plastics industry for trial use or testing.
- 2) People that need access to strategic priorities are not getting information

Appendix C: Participants and Reviewers

Steering Committee: Doug Walkey (ACIDF), Connie Phillips (CAIT), Shawna Feradi (CPIA), Alan Hall (AARI) and Cindy Bishop (AARD)

Facilitation: Connie Phillips