Minutes of Research and Development Focus Group Discussion
Technology Transfer/Commercial/Industry Representatives
June 13, 2002

Those organizations and individuals that deliver technology transfer and commercial efforts within the Research and Development system and industry representatives met on June 13, 2002, in Nisku to give valuable input into the development of a Strategic Research Business plan for Alberta's Agriculture and Food research, technology and commercialization system. As well as completing an analysis of the present system and their vision of a successful system in the future, participants outlined strategies to deal with the present issues that need to be addressed before reaching the desired outcomes. Here are the results of this focus group.

I. What part of the system do we need to: Keep, Discard or drop or Create

A. KEEP

Innovation

- Interest in innovation; keep innovativeness

Capacity – People and Facilities

- Interest to invest in R and D; interest in venture creation; existing research personnel and facilities – Leduc, CDC's; outstanding facilities; qualified staff; unique expertise; existing infrastructure and researchers; funders and industries; capacity for food processing R and D; knowledge and experience base.

Collaboration

- Momentum to collaborate among government; information flow; networks; cooperation

Human Resources

- Critical peer review of R and D; programs aimed at training in industry setting; focus on R and D training at Universities; Ag Educational systems;

Funding

- Keep public funding support for research; government support; consolidated fund approach; coordinated diversified funding; keep dollars increasing; funding support; funding sources and selection process; consortium funding for R and D; coordinate federal, provincial, associations

Research Continuum

- Technology transfer – better system for transferring information or knowledge rather than data; applied research; basic research; R and D transfer and places to do or develop products

Focus

- Larger projects – multi year; multi researchers; more direct link to commercialization; market driven, value added, quality research; focus on excellent science – peer reviewed, externally aware, new knowledge/discovery oriented; emphasis on ag based research – products inputs and outputs; value added to outputs.

B. DISCARD OR DROP

Fragmentation

- Institutional competition; short term licensing; instilling competition; get rid of silos – move to "functions"; attitude that TT/Research are separate – they are part of a process; fragmented approach to research; research that likely has no commercialization potential; barriers to cooperation and collaboration; performance standard – 1% scientific paper generation; belonging to an area; parochial outlook (silo's)

Priorities

- No Canadian benefit; emphasis on production oriented research i.e. yields, disease resistance, etc.; Alberta government stand on innovation – "we don't pick winners; research for self interests – how will it contribute to advancement of the industry; research for the sake of research and commercialize what is discovered; the current Faculty Evaluation Questionnaire at U of A.

Funding

- Labor intensive writing to fund a proposal that wastes researchers valuable time; instability in funding; focus on short term TT revenues e.g. license technology quickly vs. longer term company creation; funding small $20,000 research projects

Duplication

- Avoid duplication (3); overlapping mandates and duplication of capacity; duplication of effort;

Name

- Discard "R" from R and D and replace it with "D" for Discovery so we have D and D

C. CREATE

Human Resources

- Reward researchers who bring private sector to R and D that have capacity to commercialize; opportunity for appropriate succession planning; secondments; better incentive systems that encourage behavior desired

System

- Creation of an agri model loosely based on AHT Medical model; system to assist funders or organization and commercialization process; make it easy – need to facilitate; a system which facilitates focus and collaboration; start in January knowing the vision; create clear and predictable guidelines for intellectual property; one stop application process; new FEQ that changes the incentives for researchers to pursue non-published research; align R and D with relevant goals; align performance measures; a way to metamorphosis of companies or individuals who have potential – raw material to value added; incubator system; consistent IP policy; uniform paths to commercialization; better industry academic discussion; align R and D with relevant goals and performance measures

Infrastructure

- Create common multi-user research and manufacturing facilities; commercial infrastructure facilities; new template for facility use – multi user commercial; common lab facilities to allow multiple industry access

Funding

- Create incentives funding/performance evaluation; renewable long-term funding opportunities; create funding opportunities for tech transfer; avenue to coordinate funding to eliminate duplication and support collaboration; focused funding on 2-3 strategic areas of R and D; awareness of resources; industry support; labour funds

Capacity

- New capacity for both people and capital in areas where we think Alberta can lead

Evaluation

- TT measurement – market survey – success/modify strategy

Focus

- Change R and D focus from production to processing; to become net importers of primary commodities for further processing; strategic plan focus on 2 or 3 areas where Alberta has the resources etc. to become world leaders; strengthen R and D collaboration by focusing on priorities; create industry focus groups; strategic platform – Agriculture/Food, Agriculture/Health, Agriculture/Environment, Agriculture/Energy; Agriculture/Life Sciences; a business focus; a coordinated approach but business focus for nutraceuticals/functional foods; provincial focus; better linkages to larger corporations capable of commercialization; systematic means for monitoring and tracking commercial/market opportunities; look at investment highest returns; systematic way of accessing market information – incubate production/company; vertically integrated initiatives with overall vision; support community based research initiatives

Collaboration

- Encourage partnerships; integration approach between Feds and province; convergence and integration; collaborative teams; networks based on Agrifood, Agri-fibre, bioplastics and Agri-health; strong connection with research results, TT network; a marketing team to extol the virtues of this new technology or product; strategic alliances; collaboration; commercial network; mentorship; novel network loop focused on the information delivery-feedback to research; collaborative teams;

Continuum

- New framework to appreciate basic research; superior incubation and commercialization support; balance among all the parts of the R and D continuum – eliminate the gaps

II. Participants were asked to write down three words to describe the **characteristics that they believed described a successful R and D system for the province.** The following characteristics were suggested:

- **Focused** –focused on what industry, producers and consumers want; market focus needs; prioritization – high value investment; market focus; clear/focused process; focused on outcomes; science based (10 people)
- **Collaborative** – R and D works with D to lead to a goal of "connected"; R and D teams; collaboration between Agriculture and Health - (7 people)
- **Commercialization** – new product development; commercialization strategies in place (capital, human resources, incentives); both pre-commercialization and commercialization is in place; commercial successes and public good benefits (6)
- **Responsive** – to both short and long term issues; timely (4)
- **Excellence** - strong primary research sector; technology transfer system in place; significant areas of expertise that parallel the capability and strengths of Alberta; excellence in education (4)
- **Integrated** – one stop shop for discovery commercialization to be created and promoted to all scientists (3 people)
- **Innovative** – firms created; (2 people)
- **Well funded** – funded; attracts private dollars – seed capital, venture capital, corporate industry investment (2 people)
- **Managed** – facilitation; good R and D management sector (2)
- **World Recognized** – international reputation (2)
- **Harmony** – IP issues get resolved and harmonized so that researchers are motivated to take their discoveries to the marketplace; good IP transfer and commercialization sector (2 people)
- **Accessible** – via tech transfer to stakeholders (2)
- **Sustainable** (1)
- **Balanced** – through R and D continuum (1)
- **Applicable –** (1)
- **Accountable** (1)

- **Aligned** – research aligned with desired outcomes (1)

III. **Vision –** Participants spent time thinking about a successful R and D system for 2010. What does success mean to you? What specific outcomes are we working towards? In groups, describe the most desirable future for the R and D system in 2010.

Common themes that came out of the discussion to describe a successful Alberta R and D system include:

- System organized and focused on targeted priorities
- Measurable progress towards goals
- Excellence in leadership
- Human resources developed and system attracting new, young scientists
- Partnerships with AB Energy, Health and Environment
- Ag industry benefiting from new R and D system
- New ideas come from researchers and industry creating ideas together
- Good connections between all players

Individual group reports included:

Group A – Scott Wright, Facilitator, AARI

- Strengths – science, oil sands grow/graze country, starter companies – good today, beef pork chicken – primary; oils seed crops add value
- Resource based, self sufficient system
- Focus, focus, focus and organized
- Action oriented
- Profitable
- Strengths – direct seed agronomics – resource core
- Manage science – commercial value
- GAP – applying management direction –champion marketed products
- System to address scientist entitlement – leadership competencies, to commercialization, commercial sense – keep the end in mind
- Learn how to partner to commercialize
- Needs to organize to achieve
- Tactical – Strategies – Ag-Food, Ag-Health, Ag-Environment, Ag- Energy, Ag-Life Sciences – pull these by priority (leverage) – opportunities to 20 billion
- Measured progress – profit, employment, net income for people in Ag – Provincial profit
- Policy to support gaps, people, organization, what's in it for investors
- Investment – jointly with industry
- Environment for business – policy, labour, venture capital, investment process/attraction, process for collecting good venture capital opportunities, enthusiasm/focus on resource capacity, attract the HR
- Industry benefits to new R and D system; world class science/development; capital available; workforce (includes management); risk sharing/tax incentive;

profitability – short 1-2 year term and profit protection; need for political environment – province to influence

- Needed
  - Partnerships – industry/government (unwilling to be a focused partner/research performers
  - New Partnership structures – encouraged by political environment e.g. branded Colby Med Centre; WIFM – profitable business growth
  - Attitude change with government/industry
  - Note immediate profit for shareholders
  - Branding – include branding government involvement in private industry/sound, credible, objective – valued by client
- Dual strategy – multi nationals – big/huge, big hairy bodacious; one product/focused product, limit market – growing strategy

Group B – Maureen Bolen, Facilitator, AAFRD

- System has measurable outcomes
- New industries – biodegradable to bio fuels – expansion of these new industries
- Everyone is on side – public and industry – credible information flows so there is increased consumer confidence in what we are doing
- Focused – targeted priorities in multiple areas from new crops to existing products
- Flexible enough to take on new opportunities – malleable
- Leadership – not any one group taking the leadership – a form of consensus leadership
- Market pulls innovation so it starts farther down the chain
- Good communication between researchers and innovation occurring
- Networks bring people together to discuss new ideas – products of collaboration need to be accepted by the consumer
- A web of information rather than a linear process – needs some direction but capitalizes on new opportunities
- One stream focuses on the 20/10 and getting us there; the other stream focuses on discovery research
- Think tank process – system you can go to access new ideas where researchers and industry come together to talk about new ideas e.g. X grain you want to research – all parts of the chain come together to discuss the new ideas and it's importance
- Someone needs to keep these good ideas rolling so infrastructure and funding supports this process – need a champion – once you have a champion then system is in place to facilitate this
- A look at the present system is important in order to decide where we are going – presently the system is: Core R and D to R and D suppliers to processor (R and D takes place here as well) to distributor of product to consumer. In future more of a balance between all parts.
- Peer review to ensure excellence – discretionary pool of resources
- Future $ - balance between industry/government/private funds
- Always doing competitive analysis and looking outside ourselves

- More proactive on competitive intelligence – networks, strategic information delivered to those who need it
- What can we do well in the province – give people options
- Funding – one stop shopping; consortium of funders; who says no?
- Goal in mind – 20/10 - Screening process to get us there the fastest – criteria developed to do this
- Investment in incubation facilities - $ for commercialization
- Flexible but steadfast
- Priority setting – need a good team for decision making – a core group, rotating membership – like a Board of Directors
- Reward system based on cooperation – public participates in rewards

Group C – Susan Meyer, Facilitator, AAFRD

- Bright young grads from around the world are clamoring to work in Alberta Agriculture
- Demonstrates at all levels that it's a knowledge based industry – the knowledge is "quick" linked between levels; the economic benefit is useful at all levels; all parts of all levels are "engaged"
- 250 new companies in AB based on the intellectual property in the tech transfer Ag sector – these companies have an international market – market testing done here
- By 2004, there are four major winners who are related to the nutraceutical or environment. Our system helped provide management, R and D, market financing. Growth issues were dealt with. They became the models and the success stories – incubators (including wet labs) helped and they were mentored in the other areas in addition to processing e.g. best practices in HR. We learned from the successful operations
- Human resources are developed and the Ed institutions have programs which contribute to the Centers of Expertise that complement Alberta's identified strengths. Human resources is strong – it has expertise in solid science, communication, engineering, business and marketing
- Balance of the components includes: entrepreneurial mindset to business planning and follow through
- There is a successful risk capital system
- AB Ag and AB Health are major players and also AB Energy. We've attracted them by selling ourselves and by being successful.
- Marketing ourselves became useful by collaborating sitting on economic development boards, working with investors, the message said "we are a sustainable source of high value nutrients"
- Our industry is tuned into the market systems and consumers. Resources were spent to make connections and to keep learning – including our buyers use our commodities and other products.
- Farmers are benefiting from these "250 companies" by getting on the "value added" bandwagon. In some cases the new products are adding value and

lowering costs and protecting the environment – e.g. fuel additives and new lubricants
- Commercialization is tech transfer at one level
- Potential players know how to connect – we have a network, the players are known. We are not fragmented.

IV. Issues/Strategies

In the past stakeholders have identified several key issues that are getting in the way of the desired future for the Research and Development system. A list was presented to the participants and they were also asked whether there were other issues standing in their way of success. Participants were given 4 votes and with these four votes asked to place them on the top four issues that they believed were critical to the future success of the R and D system.

Issues Identified Previously:

- Lack of a good process to align market responsive and outcomes focused research priorities to resources – **8 checks***
- System lacks leadership and direction to achieve performance – **6 checks***
- System fragmentation – each player has separate and an independent strategy with most R and D/TT activity conducted in independently and without adequate collaboration – **9 checks***
- Inadequate, misaligned and fragmented funding system – 3 checks
- Lack of capital investment in R and D from inside and outside Canada – **5 checks***
- Lack of commercialization funding **– 5 checks***
- Lack of skilled researchers/labor shortages when scientists retire – 2 checks
- Lack of accountability – 2 checks

Other Issues identified at meeting:
- Discomfort with connecting profit with Research and Development – 2 checks

Participants were divided into groups and asked to develop strategies around two issues of their choice.

1. System lacks leadership and direction to achieve performance

Issue – lack of political will; short term thinking/surviving the vote and beyond; lack of private sector buy in; lack of passion and vision; lack of access to funds dilemma; longer term commitment to discovery research and a lack of economic development objective (government plays a key role because medium/short term – need to increase industry buy in.

Strategies

- Understand and match the political objective – make a fit – convince them we are worth the effort; cease the opportunity; Shirley's footprint; demonstrate decrease in tax base as a result; demonstrate the benefit to Alberta/government
- Identify the medium and short term success stories of international renown companies
- Make a case that healthy viable companies are a significant documentable outcomes
- Rebuild/Build linkage with Health, Energy, Economic development
- Build on success – exponential growth – success builds on success
- A committee to finish the Plan
- Commercialization equal to Tech transfer – knowledge is exportable – get started on the profit motive.

2. Inadequate/Misaligned and fragmented funding system (2 groups)

A. **Issue** – funding systems work independently; not much collaboration between funding partners; all have limited dollars; need to work together more.

Strategies

- Secure better defined IP agreements
- More collaboration between funders
- More funding needs to be available
- More flexibility in the system

B. Issue – Universities have differing rules and policies regarding IP; inhibits researcher cooperative research institutions – e.g. ARC, AG CAN, Universities; many researchers working on similar projects without knowing about the other; crop development seem to be exceptional; multiple agencies who profess assistance to commercialize new discoveries but have all the tools and all seem to be reluctant to share or cooperate; competition for limited research dollars results in building walls between researchers at an institution – no reward to collaborate.

Strategies

- Big pot of money for those who can demonstrate collaborative research among Albertans
- Funding agency bring similar research projects together
- Develop uniform rules for I.P. among government and academic research institutions
- Build incentive systems to encourage spin-off companies to do more proprietary research – where does university based research move to corporate environment

3. Discomfort connecting profit with Research and Development

Issue – Traditional R and D community may not be comfortable working towards or considering commercial outcomes; we need to start describing the challenge as Research, Development and Commercialization – not just R and D

Strategies

- Clearly define the roles for public funding and private funding in different aspects of R, D and C and communicate this.
- Researchers understand the need to find commercial partners to move their research to the marketplace
- Bring in/facilitate private sector participants to profile commercial opportunities and research areas they'd like to invest in
- Simplify IP policies so that researchers can share/own in the IP they create

Who

- Universities – start establishing incentives based on commercialization, rather than just publication
- Funders – expect reporting on commercialization opportunities arising from a research projects; establish programs, which connect private companies to researchers via funding, connections (e.g. NRC's IRAP program)
- Industry Associations – provide enhanced assistance to access integrated funding to pursue promising commercial opportunities
- Public $----------Private $
  Research------Development--------Commercialization
  (Above model indicates that funding with more public dollars going to research to more private dollars going to commercial side)

4. Lack of Capital Investment (venture capital)

Issue – how do you find the dollars; inventor – out of their own pocket – brave ones. 18 billion venture capital – 2$ invested in Alberta.

Strategies

- Political system more encouraging of venture capital investment – tax breaks, venture capital, labor pension funds
- Government dollars available for any value added activities – e.g. technology
- Need to provide some grant assistance to move industry forward
- Don't need to invent it but can perfect it – "Harvest the World"
- Lobby MLA's/government – show advantages of government providing leading edge program and services

Who

- Elected officials
- Lobby –create a coordinated lobby e.g. HACCP, environmental issues, education and information flow – ground swell of support
- AFPA – voice important part of the picture
- Consumers – voice is also an important part
- Major commodity and industry organizations have a role

5. Lack of commercialization funding

Issue – There is no funding

Strategies:

- Need venture capital source so that for a company to grow they do not need to leave Alberta
- Alberta does not fare well with comparison to other provinces from a tax incentive perspective
- While the investor community in Alberta is not exhausted, these companies are and there is no mechanism to assist the company in accessing the money

V. Communication Plan - Maureen Bolen, Communication coordinator and Organization development specialist for the project highlighted the communication strategies for the process. They include**:**

- Through Website and communiqués
- Use the terms – Discovery and Development and Commercialization rather than just Research and Development

VI. Stakeholder Task Team

- Joe Boothe (SymBioSys) and Robert Rogers (Alberta New Crops Network) volunteered to sit on committee
- Keith Jones (AVAC) volunteered to assist if required
- Stakeholder team role is to put together Strategic business plan from input received from focus groups as well as represent this group at the meetings

Participants: Ted Johnston, Denise Maurice, Marilynn Boehm, Randy Niven, Rand Harrison, Jackie Shan, Trace Johnston, Stuart Cameron, Dan Fullerton, Peter Woloshyn, Joseph Boothe, Don Morberg, Les Fuller, David Andersen, Robert Rogers, Donna Day, Ron Pettit, David Samm, Keith Jones, Greg Wilkes, Neil Oberg, Mark Redmond, Tom Ferguson, Don Macyk, Alan Hall, Brent McEwan

Meeting process developed by: Maureen Bolen, Barb Vanden Bosch, Susan Meyer and Cindy Bishop - Organization Development Specialists, Ag-Entrepreneurship Division, Industry Development Sector, AAFRD.

Meeting facilitated by: Maureen Bolen and Susan Meyer, Organization Development Specialists and Scott Wright, Leader-Network Development, AARI - July 2, 2002.