Provincial Agricultural R&D Strategic Business Plan Communiqué - August, 2002

Over the past several years, considerable time and attention has been dedicated to reviewing the agricultural research and development system. As a result of these reviews, it is apparent that there are several key issues that need to be addressed including fragmentation in the system, the need for innovation, clear direction and focus, and the need for the system to be well-funded and efficient.

In an effort to address the issues in the current R&D system, a Provincial Agricultural R&D Strategic Business Plan is being developed by multiple stakeholders. This plan will be developed by December 2002 and will include the following:

- Strategic research and development priorities with specific outcome measures
- Strategies to develop a research and development system in which the entire system works together to achieve a shared vision and that values collaboration, alignment and joint ventures
- An implementation plan that outlines strategies, actions, resources, outputs and measures

Some of the benefits of developing a Provincial Agricultural R&D Strategic Business Plan include:

- A shared vision for the Provincial agricultural industry
- Enhanced positioning of Alberta as a national/global leader in specific agricultural and related sciences
- A focal point for public policy
- Increased accountability and alignment in the agricultural R&D System
- Clearly identified direction for private and public investment in high quality, strategically aligned R&D

The Provincial Agricultural R&D Strategic Business Plan will include: **Preface** (Environmental Scan and Benefits of having a Business Plan), **Who** (all stakeholders, funders and performers), **Vision**, **Key Operational Issues, Strategic Priorities** (under development—driven by the Network process), **Goals, Strategies, Actions, Resources, Budget, Outputs/Outcomes, Accountability processes** (under development).

Where is the Process at today?

Since the development of the Business Plan includes many stakeholders, three Focus Groups were held in June 2002 to capture input and suggestions. Each Focus Group resulted in an eager readiness and enthusiasm to build a collaborative, integrated, well-funded and innovative R&D system in Alberta. From focus group participants, several people volunteered to build the first draft of the Business Plan. This team of volunteers is called the R & D Strategy Team.

The Team includes David Andersen, Joe Booth, Peter Burnett, Darcy Fitzgerald, Clif Foster, Les Fuller, Keith Jones, Dick Peter, Neal Oberg, Myka Osinchuk and Robert Rogers. They will complete the first draft of the Business Plan in August/02.

There is also a six-member support team working with the R&D Strategy Team consisting of Maureen Bolen, Alan Hall, Don Macyk, Brent McEwan, Freda Molenkamp, and Scott Wright.
For further information about the R & D strategy and summaries of the Focus Group discussions go to the team website at www.agric.gov.ab.ca/rds

The Provincial Agricultural Research, Development and Commercialization System: Perspectives from Stakeholders
August, 2002

I. INTRODUCTION

A significant amount of time has been spent over the past few years analyzing the current state of the agricultural R&D system in Alberta. As a result of this analysis, it is clear that specific changes are required in the system in order to build the agricultural industry in Alberta in a sustainable manner.

With this in mind, a strategic business plan for Alberta's Agriculture and Food research, technology and commercialization system is being developed by the industry to address some of the issues and concerns related to this system. This plan will be presented to the Ministers of Innovation and Science and Agriculture in December of 2002 with the hopes that more funding will go into the R&D system as a result of a well thought out, outcome focused stakeholder plan. The private sector may also be more attracted to fund a more aligned system. The suggested process to develop this Business Plan is outlined in Appendix A.

Three focus groups held on June 12th (funders and industry), 13th (technology transfer, commercialization and industry), and 14th (researchers and industry) launched the first stage of business plan development. Approximately sixty stakeholders provided input to questions regarding the current research, development and commercialization system in Alberta. They also provided their vision of the system and discussed issues and strategies needed to move the industry closer to the desired outcomes. These focus groups provided valuable input for developing the plan. As well, stakeholders came forward to represent all aspects of the system on a stakeholder team that is charged with developing a draft strategic business plan.

II. VISION OF SUCCESS

Focus group participants were asked to identify the qualities that would best characterize a successful R&D System for Alberta in the future. Four key words were identified by all the stakeholders:

- Collaborative
- Focused
- Well-funded
- Innovative

Other consistent qualities/features that were identified by most of the stakeholders included:

- Accountability within the system
- One-stop secure funding
- Benefits the Alberta Agricultural Industry – developing a viable, profitable industry
- Strategic approach with targeted priorities
- Integration with different sectors – life sciences

- Creativity/innovation
- Alignment among stakeholders
- Strong leadership
- Information system – very effective CI system
- Good communication along the continuum
- System recognizes sustainability: economically, socially, environmentally
- Spans the research continuum
- Scientific excellence
- Think tanks to generate new ideas and identify opportunities
- Consumer confidence
- Successful commercialization
- Well managed system
- Outcome focused
- Sustainable

Key Qualities/Features identified by only the Funders:

- Reduced administration (20:1—researchers: management)
- Measurable results
- Effective due-diligence process
- Politicians and leaders are actively supportive by attracting investment
- Funding for research projects and for infrastructure
- Entrepreneurs input into the system
- Clearing house is part of the system
- Funding gap filled from pre-commercial to active commercialization

Key Qualities/Features identified by only TT/Industry:

- Short term & Long Term focus
- One-stop shop for discovery commercialization to be created and promoted to all scientists
- Balanced system (no weak links in the continuum)
- Good IP Transfer and commercialization sector
- Policy and R&D System aligned
- Strengths of AB, also livestock and crop research areas
- Attitude change in government/industry
- Branding – branding gov't involvement in private industry
- Web of information rather than a linear process
- Think tanks to generate futuristic agenda
- Peer review to ensure excellence
- Need a good team for decision making
- Young scientists—school/education program
- 250 new companies created

Key Qualities/Features identified by only Researchers:

- Some funding available without a review process
- Mature sector--can compete with all areas in Life Sciences

- Recognition of efforts
- No more commodity focus—rather have an industry and platform focus
- Agriculture is recognized as an integral part of society
- Researchers still have the freedom to do what they want to
- Adoption of ag science to move technology forward
- Researchers have business acumen—also noted that 'researchers are not
- managers'
- Increase percentage of GDP dedicated to R&D
- More effectively harness and engage scientific knowledge and skills we already have
- Shared vision that everyone understands
- Social indicators of enhanced R&D system

III. SYSTEM ANALYSIS

A. Aspects of the System that should be Kept – System Strengths

Common to all:

- **People**—excellent researchers, unique expertise
- **Research Continuum** – Operates as system from Basic Research through to Commercialization and Technology Transfer
- **Innovation/Creativity**—idea generation
- **Funding** – diversity, cooperative/collaboration, additional funding support
- **Capacity (people and facilities)** – diversity in location and focus, outstanding facilities
- **Collaboration** needs to be expanded

Funders/Industry & Researchers only

- **Value in Primary Production and Sustainability research**—variety development

TT& Researchers only:

- **Focus/Vision** – market driven, focus on scientific excellence, connected to industry, long-term focus

Researchers only

- **Rewards**—for being connected to industry

B. Aspects of the System that should be Discarded – System Weaknesses

Common to All

- **Fragmentation**–building of silos among institutions, funders, stove pipes, turf wars

- **Duplication**—of effort, of ideas, overlapping mandates, of capacity, of research management
- **Low priority R&D work** – resulting from a lack of focus regarding priorities, demonstration work, limited industry benefit

TT& Researchers only:

- **Funding Process—**too much cost in writing numerous proposals for funding, need consolidation of funding bodies, don't export research funding, need year round process

TT only:

- **Name—**Change to Discovery and Development (instead of Research and Development)

Researchers only:

- **Research Continuum—**notion that basic research is a luxury
- **System –** Get rid of matching dollar requirements—too much red tape, get rid of notion that only consumer or only industry should drive research
- **Evaluation—**critical review process within certain areas of the system, reduce the amount of reporting, too much info requested (i.e., Pre-Proposal)

C. Aspects of the System that Need to be Created – System Opportunities

Common to All:

- **New Human Resources**, reverse the brain drain, enhance training capacity, draw young students, into agriculture, better alignment with R&D areas, expand intellectual capacity
- **Increased funding**—secure long term funding support, funding opportunities for
- TT, coordination of funding to avoid duplication and encourage collaboration, industry support, higher investments/more adequate and in line with research costs
- **New Structure/Process**—'single-window' funding process, quicker research decisions, collaboration among all partners, transparency
- **Continuum/System** -- everyone knows who the client is, increased awareness of the system as a whole, align R&D with relevant goals, system integrated from Basic to Commercialization, accountability

TT & Researchers only:

- **Infrastructure**—funding for infrastructure capital, creation of multi-user research and pilot facilities
- **Focus**—strategic plan to focus on 2 or 3 areas where Alberta can lead, create platforms (life sciences, energy, health, food, environ), provincial focus, vision, integrated initiatives with overall vision
- **Continuum**—build a stronger continuum, balance, build commercialization streams, better linkages to larger corporations capable of commercialization

Funders only:

- **Funding Guidelines**—overhead, IP Policies (TT noted this as well)

- **Low Cost Research Routes**
- Increased **competitive intelligence** to identify what competing jurisdictions are upto

Researchers only:

- **Linkages**—linkage of research and education
- **Evaluation**—External peer review, effective review process, useful system of benchmarking
- **Economics**—better tax credits, climate for risk capital to thrive

TT only:

- **Evaluation**—TT Measurement, market survey, success/modify strategy (ties with collaboration among all stakeholders)
- **Focus**—Support community-based initiatives—regional (same as Research), incubator opportunities

IV. CRITICAL ISSUES

During previous stakeholder discussions, several key issues were identified that stakeholders felt were barriers to the system achieving success. These issues along with other issues were identified at these focus groups. Participants then chose their top four issues overall. (# identifies rank order of issues for each group, i.e., 1=most important):

Issue	Funders	TT	Researchers
- Lack of Leadership & direction to achieve performance		3	1
- System Fragmentation	1	1	2
- Lack of Skilled Researchers/Labor Shortages When Scientists Retire			3
- Lack of Capital investment (Venture Capital) in R&D from inside and outside Canada	3 (tied)	4 (tied)	4
- Lack of Commercialization funding	3 (tied)	4 (tied)	
- Lack of Process for Alignment of market responsive and outcome R&D priorities to resources	2	2	5
- Lack of Long term funding	3 (tied)		

Overall, system fragmentation rated either 1 or 2 by all three groups. All the groups saw a lack of capital investment in R&D as a relatively important issue. There was some difference in how groups perceived the lack of leadership and direction within the system. The funders did not see this as one of the top issues, while the researchers identified it as their top issue. Commercialization funding was perceived to be one of the top issues among the funders and the TT groups but not by the researchers.
Provided below are the 16 issues in the current R&D System that were identified in the focus groups. Suggested strategies for addressing the issues are also provided.

Issue A: Political Image of Agriculture—better communication is needed regarding the importance and opportunities for politicians who need to be reminded of the true productivity and opportunity in agriculture

> **Strategy:** Bring Agriculture groups together as one voice to deliver a communication plan to MLAs and MPs.

Issue B: Lack of a Good Process to Align Market Responsive and Outcomes Focused Research Priorities to Resources—lack of sound direction in public and market-driven policy development in issues regarding agri-food

> **Strategy**: Bring world-renowned thinkers together in one room to seek input and direction with a longer-term view.

Issue C: Lack of Commercialization Funding—Problem of Start-Ups Accessing Funding, Money is Present from Basic Research to Pre-Commercialization- funding is available when a product is commercialized but there is little funding in between

> **Strategies:**
>
> - Industrial Development Bonds
> - Phase 3 at Leduc Food Processing Center--Infrastructure
> - Preferred tax treatment
> - AFSC Commercial fund take more risks on these types of products
> - Need venture capital source so that a company does not need to leave AB
> - AB needs better tax incentives for investors
> - Need mechanisms to assist companies in accessing money
> - Prove we are progressive with strong financial results in new technologies
> - Entry barriers have to be overcome/lowered
> - Improve both the quality and quantity of submissions--mentoring
> - Consortium approach to gov't/industry funds

Issue D: Lack of Accountability—Lack of Measurable Outcomes and Non-Strategic Research on the Part of Researchers (responsive to market needs). Funders need to do their due diligence to ensure this occurs. Everyone is responsible for accountability.

> **Strategies:**
>
> - Clear criteria for accountability
> - Gating process
> - Funders look at renewals and priorities of the day

- Linked to economic, environmental and social goals of the industry and Province
- Outcomes/Outputs

Issue E: Lack of Technology Commercialization—barrier of good ideas to commercialization; have good ideas but no receptor capacity

Strategies:

- Has to be something in it for everyone
- Need to work together to attract $
- Have an incubator forum for people to hear ideas (annually/semi-annually)
- Lack of infrastructure for delivery—targeted delivery

Issue F: Lack of Long-Term Funding—implies a long-term vision but some funding bodies only fund for a 3 year term

Strategies:

- Greater partnership with long-term vision
- System for renewal from public funders
- Value-based accountability system
- Need to specify what research needs to be done and what the outcomes/outputs may be (PRIORITIES)

Issue G: System Fragmentation—poor communication between research institutions (self-protect and empire building)

Strategies:

- Encourage optimum teams for projects through funding organizations' cooperation
- Identification of strategic areas for research –requires a mix of market and science driven areas (PRIORITIES)
- Funding along the value chain and continuum
- Need to bring private funders to round table process

Issue H: System Lacks Leadership and Direction to Achieve Performance—short-term thinking/survival, lack of private sector buy-in, lack of vision

Strategies:

- Understand and match the political objective
- ID short and medium success stories (international renown companies)
- Build/rebuild linkage with Life Sciences, Energy, Economic Development
- Build on successes
- Committee to finish the Plan

- Commercialization=Technology Transfer—knowledge is exportable, get started on the profit motive
- Attract best qualified people/credible leaders in Canada – Research chairs
- Need strong focus—accountability
- Strong dialogue between scientist and system
- Get away from democratic principle and select the best leaders across the disciplines
- Let go of an "AB vision" only
- Empower a Board with vision/money—empower with the goal of Provincial Research Strategy
- Communicate the value of research
- Tax Credits
- Roll all $ into one pot and coordinate

Issue I: Inadequate/Misaligned and Fragmented Funding System—funding systems work independently, not much collaboration among funding partners, all have limited $, need to work together more

Strategies:

- Secure better defined IP agreements
- More collaboration among funders
- More funding needs to be available
- More flexibility in the system
- Clearing house for funding –AARI
- Improved tax credits for research
- Move away from commodity focus
- Communication to public and kids—school
- Go to gov't with organized, systematic ag. Research
- Improved communication among funding agencies
- Increase efficiency in working together
- Strength in diversity of mandates
- Not everything is fragmented
- Some pieces (areas of research) fall between the cracks
- Communication with decision makers
- Consideration of actual source of $
- Differential tax benefits for shared research investment
- New better linkages
- Create a better interface between funders and researchers
- Streamlining/blending
- Provide vehicle for collaboration
- Inducements from government

Issue J: IP Issues Stand in the Way of Collaboration

Strategies:

- Big pot of $ for those who collaborate
- Funding agencies bring similar projects together
- Uniform IP rules
- Incentive systems to encourage spin-off companies for more proprietary research

Issue K: Discomfort Connecting Profit with R&D—traditional R&D community may not be comfortable working towards commercial outcomes

Strategies:

- Clearly define public and private funding roles and communicate clearly
- Researchers understand the need to find commercial partners to move their research into the marketplace
- Bring in/facilitate private sector participation to profile commercial opportunities and research areas they would like to invest in
- Simplify IP issues so researchers can share/own IP

Issue L: Lack of Capital Investment (Venture Capital) in R&D--$18B in Venture Capital—only $2 M in AB

Strategies:

- Political system more encouraging of VC—tax breaks, labor pension funds
- Gov't dollars more available for technology investments
- Need to provide grant assistance to move industry forward
- "Harvest the World"
- Lobby gov't

Issue M: Lack of Sustainable Development of Agriculture

Strategies:

- Must be embedded in policy and regulation
- Must be visible and demonstrated
- Reward positive steps in sustainability
- Must be supported by R&D
- Need to communicate

Issue N: Poor Tax Structure Related to Investment—time and effort required to utilize federal research tax credits far too excessive and not worth the effort

Strategies:

- Simpler federal system—competitive provincial system ideal
- Have assistance available—infrastructure in place
- Help with the forms
- Increase understanding
- New incentives (tax and related)

Issue O: System Adverse to Taking Risks or System Does Not Promote or Reward Risk-Taking —not making decisions, some duplication of research is okay

Strategies:

- Force system to make decisions
- Justification/logical soundness of idea should be the criteria for funding rather than certainty of outcomes
- Negative results are just as favorable as positive results

Issue P: Lack of Skilled Researchers/Labor Shortage When Scientists Retire

Strategies:

- Fund to establish grants (with criteria for success)
- Career awards—Ag Chair
- Studentships
- Infrastructure
- The Alberta Advantage

Appendix A

The Agricultural Research and Development Strategic Business Plan

1. **PURPOSE:** For industry stakeholders and government to collaboratively design an integrated Provincial Agriculture and Food Research and Development Strategic Business Plan.

2. **DELIVERABLES**: A Provincial Research and Development Strategic Business Plan containing:
   - Priority research and development areas outlining specific outcomes
   - Strategies suggesting ways to develop a research and development provincial system where basic research, applied research, technology transfer and commercialization are working together in order to achieve a collective industry vision and where there can be better alignment of outcomes and resources
   - An implementation plan that outlines strategies, measures, actions, and resources

3. PROCESS AND TIMELINES

a. Overall process organized into four major stages:

Stage 1 – June/2002

Meet with stakeholders in three focus groups. Discuss R & D situation in the province, discuss their vision of a successful R & D research system, identify gaps or issues between present and future vision and develop strategies to address issues.

Desired Outcomes of the Three Meetings: Individual stakeholders express their own personal vision of the future; opportunity to test assumptions about the present system; identify issues and suggest strategies for those issues that need to be addressed; ask for a couple of representatives from each group (funders, tech transfer/commercial and performers to sit on a team to develop first draft of the R&D Strategic Business Plan document.

Stage 2 – July – September/2002

Develop first draft of an R & D Strategic Business Plan Document – Team made up of representatives from all stakeholders and networks. This team reviews what they heard at first meetings and drafts present situation; vision for the system outlining the characteristics of a successful Alberta R & D system; identifies broad outcomes, gaps/issues and new areas where information is required. An Advisory team made up of government staff work on the sidelines to assist team where necessary. Network teams developing draft research priorities in parallel process with business planning process.

Desired Outcomes: Stakeholders collaborate on important issues and draft document is developed that will go out to industry in fall.

Stage 3 – Fall/2002

This stage brings all stakeholders together at one meeting. A review of the draft R and D Strategic Business Plan document takes place. Areas of agreement are found and differences are highlighted. Groups also learn about R and D systems in other parts of Canada and the world.

Desired Outcomes: Consensus building on first draft document; stakeholders hear how other systems work and visualize what is and what could be.

Stage 4 – November & December/2002

Team meets to synthesize what they have heard at the meeting and come to consensus on a final draft document with specific outcomes and strategies to reach priority areas. An implementation plan is developed with ideas of ways to change the system, if necessary, to help reach the desired outcomes given.

Desired Outcomes: Stakeholder R & D Strategic Business Plan developed.