

**Minutes of Research and Development Focus Group Discussion
Researcher Performers and Industry Representatives
June 14, 2002**

Research performers of the research and development/technology transfer/commercialization system and industry representatives met on June 14th, 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

- Room for individual impact – some freedom; diversity and creativity; support for new ideas/innovation

Facilities

- Leduc Food Processing Center and expand it's reach; infrastructure (2); research centers distributed in various climatic zones; infrastructure for R and D and tech transfer; diverse locations to address agriculture diversity

Funding

- Current dollars and increase; funding levels; keep a source of production research funding; provincial/federal/private resource streams; public funding in R and D for Public good benefit; strong funding to public research; ACIDF funding; AARI funding; the dollars that are currently in R and D

System

- Excellence criteria; long term public good perspective; sustainable development of agriculture; sustainability interest; connectedness in agriculture and throughout industry; core capability to deal with emerging issues; basics in place; will to improve research system; accessibility; a direct link from the producer to the consumer; industry driven research and development

Collaboration

- Small research teams; local committees gather ideas/approve funding; moving toward a collaborative integrated system; stakeholder input into opportunities; cooperation, communication and respect; collaboration among research, tech transfer, and industry partners; approachability

Human Resources

- Preserve expertise already developed – harness it; excellent scientific capacity; core competencies; excellence in teaching

Vision

- Recognition within governments of importance of R and D to countries prosperity; keep striving for the results and look to the future

Rewards

- Good industry links rewarded

Continuum

- Basic research, applied research, tech transfer and commercialization

B. DISCARD OR DROP**Fragmentation/Protectionism**

- Stovepipes; lack of cooperation between res. institutions; institutional barriers to collaboration – unnecessary institutional competition for limited research; protectionism; fragmentation in funding; protective/competitive nature of research; need to breakdown silos; get rid of comfort zone, apathy; stovepipes and turf wars

Priorities

- Lower priority R and D; lower priority work; “we don’t pick winners” – attitude of provincial government; single focus; short term project commitment; pick a focus

Funding/Grant process

- High requirement for matching dollars; the large number of funding bodies – one or two super funding agencies needed with emphasis on key areas; grant proposal process simplify and consolidate; consolidate dollars into main themes for Alberta’s benefit; continual grant writing; AARI – funding outside proposals – or just buying results, build in Alberta; discard notion of exporting funding to make gains; lack of investment by industry; discount research; fragmented funding

Duplication

- Areas where private industry could look after; duplication of effort; excess and duplication of research management – process of picking winners and losers; duplication – if can pick up off the shelf why are we doing it; unproductive competition and duplication

Continuum

- The notion that fundamental research is a luxury

System

- Matching program requirements and the multiple hoops; old models of agriculture systems; notions of funders only; providers only; geographical networks; unnecessary red tape; provinciality; discard the notion that only the consumer drives research; discard notion that only industry should drive research

Evaluation

- Critical review process within certain areas of the system

C. CREATE**System**

- Better delivery of technologies; a system where everyone knows who the customer is; a longer term commitment and direction; increased awareness of the system as a whole - political to product; system for entrepreneurs to go to research facilities for ideas and information as well as more business know-how; a mechanism to determine needs/gaps; policies that promote an arena for development; reduce the degree of reporting; pre-proposal is like a proposal; studentship program; rural incubator links; a client driven extension system

Infrastructure

- Proper infrastructure for research; an infrastructure for centers of excellence; facilities needed

Funding

- Better support \$; build tech transfer component in research funding; full funding of projects; higher levels of investment; timely funding application process; production research funding source; single funding gate; adequate core program support with secure funding over 10-20 year horizons; core funding complete with matching requirement to maintain staff and facilities - more realistic funding for research; much bigger pool of public investment dollars; blue sky fund; realistic budgets; realistic funding relative to strategic goals; secure long term funding

Economics

- Better tax credits; community based investments; climate for risk capital to thrive; tax environment motivating R and D; a good understanding from an economic standpoint

Human Resources

- Expand intellectual capacity; better vehicles for both importing expertise and growing our own; jobs

Evaluation

- External peer review; effective review process; adequate, useful system of benchmarking

Focus

- Recognition of Alberta as having three world centers of excellence in agri-food science and technology; increase interest in Ag Science in youth; a streamlined way to encourage commercial research; Alberta as a leader in agriculture and agri-biotech product utilization; more benefits to farmers

Collaboration/Communication

- Need to engage with bigger corporate players; create integrated relational pictures; dialogue between all participants within the R and D system e.g. funders, researchers, tech transfer, business development; communication system that fosters collaboration, tech transfer and information transfer; communication method/avenues; celebrate our success; mechanism to communicate with consumers; better chain communication; better collaboration

Linkages

- Better linkages; strong linkages between research and education for the purpose of training qualified personnel; clear relationships between funders and deliverers; improved TT network; closer linkages among performers, funders and users; more connection of researchers/funders/users (consumers, stakeholders, clients); network opportunities; when establishing a network look for management leadership – do not make science leaders managers; integration of research effort; if networks are productive, need a new way of recognizing people; integrated research networks which are multi-dimensional that have an accountability system; set up one or two networks first and see how well they work; integrated and collaborative research network; integrated system

Continuum

- A stronger continuum – basic to application/commercialization; “research parks” which include the continuum for research, development, commercialization, tech transfer for four or five key areas; balance across continuum; commercialization streams for technologies created in Alberta; more effective commercialization’s here in Alberta; more value added

Innovation

- Ability to facilitate scientific creativity and imagination – discovery of new knowledge; take risks

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:

- **Collaborative** – coordinated, connected from producer to retail, teams communication, linked, networked (9)
- **Well funded** – stable, dollars, coordination of funding, secure core funding (9)
- **Expertise** – critical mass of researchers, excellent science researchers (5)
- **Focused** – selective, targets, productive, high percent of commercial outputs (4)
- **Integrated** – an integrated system of R and D and T and T (4)
- **Innovative** – (4 people)
- **Responsive** – robust (3); **Leadership** (3); **Balanced** (3); **Motivating** – exciting, nimble (3)
- **Accountable** (2); **Sustainable** (2); **Efficient** (2); **Good Infrastructure** (2); **Beneficial** (2) **Excellence** – meets highest standards of excellence (2); **Flexible** (2)
- **Diverse** (1); **Commercialization** – successful (1); **Competitive** (1); Fair (1); Encompassing (1) **Industry Support** (1); **Global Recognition** (1); **Aligned** – common goals/results (1) **Commitment** (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:

- Profitability throughout the system
- Science Excellence
- Coordinated and integrated system
- Well funded
- Good communication and leadership
- Excellence in teaching
- Move towards common technologies/platforms
- Development of people and infrastructure throughout the system
- High positive profile of agriculture
- Impact measurement system in place

Individual group reports included:

Group A – Maureen Bolen, Facilitator, AAFRD

- System serves profitable farmers – a viable profitable industry – profitability flows down to producer – let’s do R and D for profit
- Commitment to long term support – clear focus and committed to deliver
- Secure core funding relieves researchers from filling out forms
- Flexible to address large and small research needs
- Dollars for new ideas available e.g. \$5-10,000 – wouldn’t have to go through current review process
- Efficient – moves ideas to the final stage – input of ideas flows through to results
- Recognition of efforts through measurement system that is quantified

- Mature stage – we can't compete with Energy/Oil at the present time – in year 2010 we should be able to
- Integrated – people from many locations working towards a common goal; also integration within the funding system
- Accessible – ideas approved quickly – board advises on dollars
- Balance – between little pot of money and large pot
- Projects – tied to the big picture
- No longer Commodity thinking – need to break it down – need broad themes using platform technologies e.g. genomics or proteomics – applies to many similar commodities and so if we are doing “theme” research no longer have to have “commodity thinking” but what is common to similar commodities we can work on and various commodities can put their dollars into this rather than simply focused on one commodity – infrastructure around these platforms – look at the platform technologies applicable across the board – a lot of similarities between commodities eg. pulses, other crops. If we do the basic work this way we can deliver a lot.
- Freedom – researchers still have the ability to do what they want to do
- Sense of community – we are all tied together towards the same outcomes
- Image of Agriculture – agriculture is recognized as an integral part of society
- Leadership – work as a team – everyone has a role
- Funding – has guidelines
- Critical mass of researchers
- Attracts industry from other locations

Group B – Facilitator – Scott Wright, AARI

- Other sectors adopt Agriculture science to move technology forward
- System of – Product Areas, Expertise, Infrastructure (Fundamentals through to outcomes with evaluation on going in system)
- Built on fundamental strengths
- Companies good at Research areas, applied/commercial market
- Model of the system includes: Development in the center; inputs – market signals, feasibility assessment, consumer and industry input; outputs are products, commercial products, knowledge – public good and science and technology and safe sustainable agri products
- Must sell to public the value of science – car salesman, communicate the benefits – Peter has Globe and Mail column
- Ag Resources – Social Science side important; communication with the public – two way communication/web of communication – does R and D/Ag have a spokesperson like David Suzuki
- Researchers have business acumen
- System is impactful economically, socially and environmentally
- Science excellence
- Clarity of roles in the system
- Commercialization support – entrepreneurial development/BHB economic impact

- Communication with public – understand client; engage public; outcomes within research connect
- Scientist trust a credible communication and commercialization
- Cooperation between Federal/Provincial... - alignment of mandates – synergistic mandates
- Strong Development of people – human capacity
- Support Government – people capacity investment is or scientific achievement (outcomes)
- Can't make people work together however, create the environment – starting with elementary school, create energy and enthusiasm, entrepreneurial development, stream/mentor/hands on from schools

Group C – Facilitator - Cindy Bishop, AAFRD

- More companies based on Alberta technologies.
- 1000 % (Ten-fold) increase in public dollars invested in R & D.
- Increase in corporate sector dollars.
- Increase percentage of GDP to 2.2 from ~1.1 (Canada); ~.8 (Alberta).
- Creation of two new industries that we don't currently have.
- Alberta technology is sought after.
- Knowledgeable leadership.
- We have expanded people/intellectual capacity,
 - Diversity of training for students in the post secondary system.
 - Attract and retain researchers in Alberta; researchers want to stay here.
 - Research environment exists. Clusters of scientific expertise.
 - “Agricultural studentships”. Build the *Alberta Ingenuity Fund* with a bigger portfolio; agricultural component.
- Universities as a whole earn \$100M/year in royalties from spin-off companies (total University system incl. agriculture).
- Competitive Intelligence One Alberta researcher in every research association in the world, i.e. secondments. (like Australia)
- Stable and profitable farm income,
 - Measurable impact on the majority of acres farmed; clear correlation between research and a positive impact.
- Agriculture A-base for maintaining, equipment, technology, etc.,
 - Expand A-base back ¼ tech staff, equipment, and facilities.
- Diversity. Develop value-added and bio-products research capability. (Non-food applications such as agri-fibres.)
- “Growth” is defined appropriately (e.g. dollars, physical research facilities),
 - Based on capacity to sustain growth; Return on Investment.
 - Identify and overcome limitations to growth. (e.g. land base, water)
- More effectively harness and engage agricultural scientific knowledge and skills that we already have,
 - Tap available skills.
 - Realign forces.
 - First right of refusal given to individuals identified.
 - Repeat AARI's ~'98 survey inventory of researchers.

- Level/constant human resource capacity that meets the needs of the day.
- Ability to attract out of province, dis-proportionate federal competitive funding; peer adjudicated.
- Ability to attract more global companies.
- Demonstrated integrated delivery across sectors - Innovation and Science, AAFRD, Sustainable Resource Development., etc. agriculture, forestry, etc. Joint planning and delivery.
 - Consortium that takes industry and government dollars and focuses on research needs. There are a number of successful models.
- Coordinated, collaborative, integrated system with research capacity.
 - Provide an incentive/reward for collaboration (tie to grant).
- Shared vision that we all understand.
- Social indicators of enhanced R & D system: decreased healthcare expenditures; increased standard of education; well managed environmental factors that contribute to this success.
- Multi-institutions able to effectively work together, i.e. working within institutions.
- “10% Rule” – Institution’s collaborative work with outside groups.
- Accountability structures for shared vision in place. (e.g. Peer review beyond the initial stage; during and after completion of the research project.)

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. Top four or five issues that group thought are standing in the way of a successful R and D system are noted by an *

- Lack of a good process to align market responsive and outcomes focused research priorities to resources – **6 checks***
- System lacks leadership and direction to achieve performance – **13 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 – **11 checks***
- Inadequate, misaligned and fragmented funding system – 2 checks
- Lack of capital investment in R and D from inside and outside Canada – **9 checks***
- Lack of commercialization funding – 5 checks
- Lack of skilled researchers/labor shortages when scientists retire – **10 checks***
- Lack of accountability – 1 check

Other Issues identified at meeting:

- Lack of sustainable development of agriculture – 2 checks

- Lack of ability to take technologies from other areas – 0 checks
- Lack of focus in areas where are strengths are – 3 checks
- All chasing the same “bull” – 1 check
- System adverse to taking risks – 0 checks
- Poor tax structure related to investment – 3 checks

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

A. Lack of sustainable development of agriculture

Issue – sustainable activities that support the environment as efficiently as possible; include society as a component.

Strategies

- Must be embedded in policy and regulation
- Must be visible and demonstrated
- Reward positive steps in sustainability re. produce the product with low energy
- Must be supported by R and D (selective technologies)
- Need to communicate

Who – for ARC, AAFRD, AAFC, AARI, Universities, Industry and Ministers

B. Lack of Commercialization funding

Issue – taking ideas from concept to market; lack of dollars – IP ownership; lacking entrepreneurial skills; agriculture image of the old economy

Strategies

- Need to remove the image – prove we are progressive
- Entry barriers have to be overcome/lowered
- Improve both the quantity and quality of submissions
- Need the infrastructure to commercialize the technology
- Consortium approach to industry/government funds
- Mentoring approach to improve the quality of submissions

Who – Alberta Economic Development, Western Economic Diversification, Tech Transfer offices, Private Sector, Universities.

C. System lacks leadership/direction to achieve performance (two groups)

1. Issue – No specific direction/focus; fragmented R and D; lost collaboration; duplication; issues which require collaboration aren't happening – everyone going different directions or not aware of what others are doing; poor link with other sectors; admin leaders have no vested interest in the field; decision makers/funders distant from

the actual system/no vested interest; poor communication between levels of decision makers

Strategies

- Attract best qualified people/credible leaders in positions like Canadian Research chairs
- Need good financing and support system in place for them to attract key people to conduct valuable programs – include physical resources, facilities, support staff
- For these positions and/or institutions - strong focus, understand goals – narrow focus – what really needs to be delivered on, what can be bought elsewhere
- Strong dialogue between scientist and system – clear understanding of all sides.

Who – Coordinated effort:

- Ag policy framework – all 10 provincial government and feds and industry
- 3 ways – fed, prov, private industry – from producers to consumer
- Entire system need to make effort be involved and aware – good followership as important as good leadership

2. Issue – is potential leadership but they do not empower; that means money and long term commitment; all levels of leadership – provincial/Canadian/program level and project basis

Strategies

- Get away from democratic principle and select best leaders from across disciplines
- Let go of an only “Alberta vision”
- Empower a board of directors with vision/money – empower a CEO and empower with goal of Provincial Research Strategies
- Communicate the value of research
- Foster taxation system that gives tax credits for research
- Roll all money into one pot and coordinate

Who – Producer/scientist/private advisor – balance among AAFC, Universities, AAFRD

D. Poor tax structure related to investment

Issue – time and effort required to utilize federal research tax credit far too excessive – not worth the effort – opposing objectives between

Strategies

- Simpler federal system – competitive provincial system – Ideal
- Have assistance available – infrastructure in place to more easily obtain credits
- Help with the forms
- Increase understanding

Who – Economic Development can provide incentives; provincial finance – create policies more in line with other provinces.

F. Inadequate, misaligned funding system (2 groups)

1. Issue – real cost of research – AAFRD does not fully understand the cost of research; image of agriculture in the public/government; multiple funding agencies, different mandate

Strategies

- Clearing house for funding – i.e. AARI
- Improved tax credits for research
- Move away from commodity focus, toward tech that works across technology
- Communication to public and to your industry and in elementary schools
- Level of recognition of Agriculture in public and government – go to government with organized, systematic ag research

Who – AARI, Provincial/Fed governments, AAFC, University

2. Issue – not integrated; does not work smoothly; inefficiencies – researchers have to prepare too many proposals; there is lack of communication.

Strategies

- Improved communication between funding agencies
- Increase efficiency by working together
- Strength in diversity of the mandates of different funding agencies
- Not everything is fragmented
- Force to make decisions
- Many people with an interest in cropping systems but no one is taking responsibility for the whole system – falls between the cracks
- Consideration of actual source of funding – public dollars
- Communication with decision makers
- Differential tax benefits for shared research investment

Who – funders include universities, AAFRD, AAFC, Producer organizations, industry in terms of salaries of researchers/operation of facilities; should be a unified, well-connected system; cannot consult to “death” – efficient decision making

G. System adverse to taking risk

Issue- not making decisions; expecting certainty in results but that is not the case for research; some duplication of research is okay –validation of other peoples results are valuable

Strategies

- Force the system to make decisions
- Logical soundness/justification of idea should be the criteria for funding of projects/programs rather than certainty of outcome
- Negative results are just as valuable as positive results

Who – all research funding agencies and researchers

H. Lack of skilled researchers/labor shortages when scientists retire (and now)

Issue – we need skilled researchers for the future, but we need state of the art facilities and support funding for operating; need to provide appropriate salary levels to hire world leaders in the field

Strategies

- A special fund to establishment grants – establish grant with a criteria for success
- Career awards – e.g. Agriculture chair – modeled after Canada Research chairs – Alberta Heritage For Medical research
- Studentships
- Infrastructure – materials, supplies, services, technicians (A – based)
- Advertise our existing capabilities as a recruitment mechanism – Alberta Advantage

Who – Alberta Ingenuity fund – expand; AARI, ACIDF, ALIDF, AVAC – shared responsibility

I. System fragmentation

Issue – perception of duplication – could be more streamlined (network – people have to fit together); multiple agencies involved

Strategies

- New better linkages
- Create a better interface between funders and providers
- Streamlining/blending
- Inducements from government
- Provide a vehicle for collaboration

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

- Communiqués – send out to all stakeholders on a regular basis to keep everyone up to date regarding the progress of the R and D strategy
- Web site dedicated to this strategy – linked to other websites (suggested)

VI. Representatives for Stakeholder Task Team

Les Fuller (Environmental Sustainability Chair, U of A) and Dick Peter (Dean, Faculty of Science, U of A) volunteered to be part of the Stakeholder Task Team that will put together the first draft of the Strategic Business Plan.

Dennis Fitzpatrick, (U of Lethbridge), Linda Jabs (AgriVantage), and Donna Day (ARC) also came forward afterwards to volunteer where needed.

Participants: Scott Acker, Henry Vos, Bob Hudson, Alvin Eyolfson, Don Hundeby, Dianne Westerlund, Surindar Singh, Dick Peter, Rick Tofani, Marshall Eliason, Linda Jabs, John Basarab, Peter Burnett, Ian Morrison, Randy Weselake, Freda Molenkamp, Les Fuller, Doug Penney, John Brown, David Bailey, Feral Temelli, Dennis Fitzpatrick, John Webb, Yilma Teklemarian, Donna Day, Neil Oberg, Alan Hall, Brent McEwan, Scott Wright, Don Macyk.

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 Cindy Bishop, Organization Development Specialists and Scott Wright, Leader – Network Development, AARI - July 2, 2002.