Protein Industries Canada

Unleashing the Potential of Canadian Crops

PIC Consultations – June 2018

Introduction

Protein Industries Canada (PIC)

- A non-profit company to lead and administer the Supercluster program
- Borne from the merger of three groups:
  Pulse Regina, EMILI (digital ag Manitoba) and Protein Innovations
- Awarded $153 MM federal dollars
  Industry, Science and Economic Development Supercluster Initiative
- Additional $260 MM from industry, $150 MM in venture funding and $70MM of in-kind support
- Currently hiring staff and completing the contribution agreement.
- Operational start-up in Q3/2018.

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Introduction

PIC Interim Board Members

Frank Hart (Chair) Greystone Management Investments Inc.
Murad Al-Katib, AGT Food and Ingredients
Robynne Anderson, Emerging Ag Inc.
Wade Barnes, Farmers Edge
Ray Bouchard, Enns Brothers and EMILI
JoAnne Buth, Canadian International Grains Institute
David Dzisiak, Dow AgroSciences
Wilf Keller, Ag-West Bio Inc.
Annette Revet, Conexus Credit Union

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Anticipated outcomes of the consultations

- Understanding PIC objectives and traits of a successful supercluster
- Clear message that PIC is pan-prairie
- Discussion, engagement around opportunities in PIC's pillars
- Stakeholder engagement and willingness to promote and expand PIC
- Stakeholder input and insight on challenges and opportunities for plant protein industry and PIC objectives
- Guidance and foundation to design the Great Protein Challenge
- facilitate relationships with various provincial groups

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Superclusters

Why are they important to local economic development?

Technology:
Think Silicon Valley

Money:
Think Bay Street/ Wall Street

Agri-Food:
Think Canadian Prairies

A **supercluster** is an interconnected group of businesses, academic institutions and organizations concentrated in a geographic region.

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Superclusters

- increase productivity
- energize the economy and act as engines of growth
- facilitate strong connections, long-term competitive advantage, global brand recognition

The goal is to accelerate economic development and advance Canada's position in Agri-Food through the creation of a value-added plant protein industry.

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The Barton Report

The Federal Government's Advisory Council on Economic Growth (ACEG)

- ideas to improve Canada's economic growth
- chaired by Dominic Barton
- developed a set of recommendations

- Agriculture and agri-food was identified as a key sector with high growth potential and increasing export demand.

- The Barton Report and Superclusters program are closely aligned:

Economic growth through innovation

The Barton Report
says Canada has the potential
to become the second largest
agricultural exporter in the world.

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Canada's Problem:

Lack of Innovation

After a decade of *innovation agendas* and *prosperity reports:*

- Canada remains near the bottom of its peer group on innovation
- Innovation strategy in agriculture has lacked industry leadership
  = dependence on public funding
- Many academic partnerships and research papers, but little enduring IP
- Lack of mentorship and capital
  = promising companies typically sell to foreign interests early
- More effective ecosystems are required to seize the opportunities
- Available in plant proteins and co-products
- Prairie ag industry is based on commodity export model
- Underinvestment in commercial innovation.

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Supercluster model, desired outcomes

Components of a successful Supercluster:

- Specialization
- Business collaboration: co-opetition and co-specialization
- Demand-driven business support
- Industry, academia and government engagement and support (triple-helix engagement)
- A supercluster that is sustainable over the long-term

Federal Government's desired outcomes for Supercluster Program:

- Change business culture around innovation
- Effective collaboration spurring innovation
- Build a sustainable ecosystem beyond the supercluster initiative

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Elements of Supercluster Execution

- Trust, cohesion and collaboration
- Environment of co-opetition
- Strong cluster leadership

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Five key activity themes

1. Technology leadership
2. Partnerships for creating scale
3. Diverse and skilled talent pool
4. Access to innovation
5. Global advantage

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Vision

To position Canada globally as a leading source of high-quality plant protein and plant based co-products, developed in a carbon neutral production environment, while substantially contributing to Canada's economic growth and international trade balance.

Mission

To mobilize Canada's innovation and commercial cluster to collaborate in support of industry driven market priorities and needs.

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Governing principles

- Economic prosperity
- Access to capital (venture capital fund)
- Human capital initiatives
- Innovation and commercialization
- Industry collaboration, networking, branding and public policy

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Our ambition

- Pan-prairie initiative with national spokes
- Industry designed and led; building a lasting ecosystem
- Drive innovation in plant protein
- High-value growth in food/feed industry; value-added diversification
- World class food and feed ingredient/protein science research capacity and commercial industry
- Accelerate digital ag, artificial intelligence, machine learning
- Recognize and build on commercial benefit across the value chain and new public/private collaborations
- Align agriculture as a growth industry in our strategic national interest

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Global market opportunities

1. Animal protein feed market to expand by 88 MM mt
   - growing at 3.3% CAGR globally
2. US, Brazil and Argentine soy protein content is in steady decline
3. 2.5 MM mt of new demand in aquaculture valued at $3B
4. Fish meal supply in decline, unable to supply growth
5. Alternative dairy drink category has doubled in value to $16B in 2018
6. Pulse has refined protein new market opportunity of $3B
7. Companion animal feed market is growing at 5% CAGR, $10B market
8. Plant protein isolates and concentrates for human food is a $7.7B industry is seeking soy alternatives

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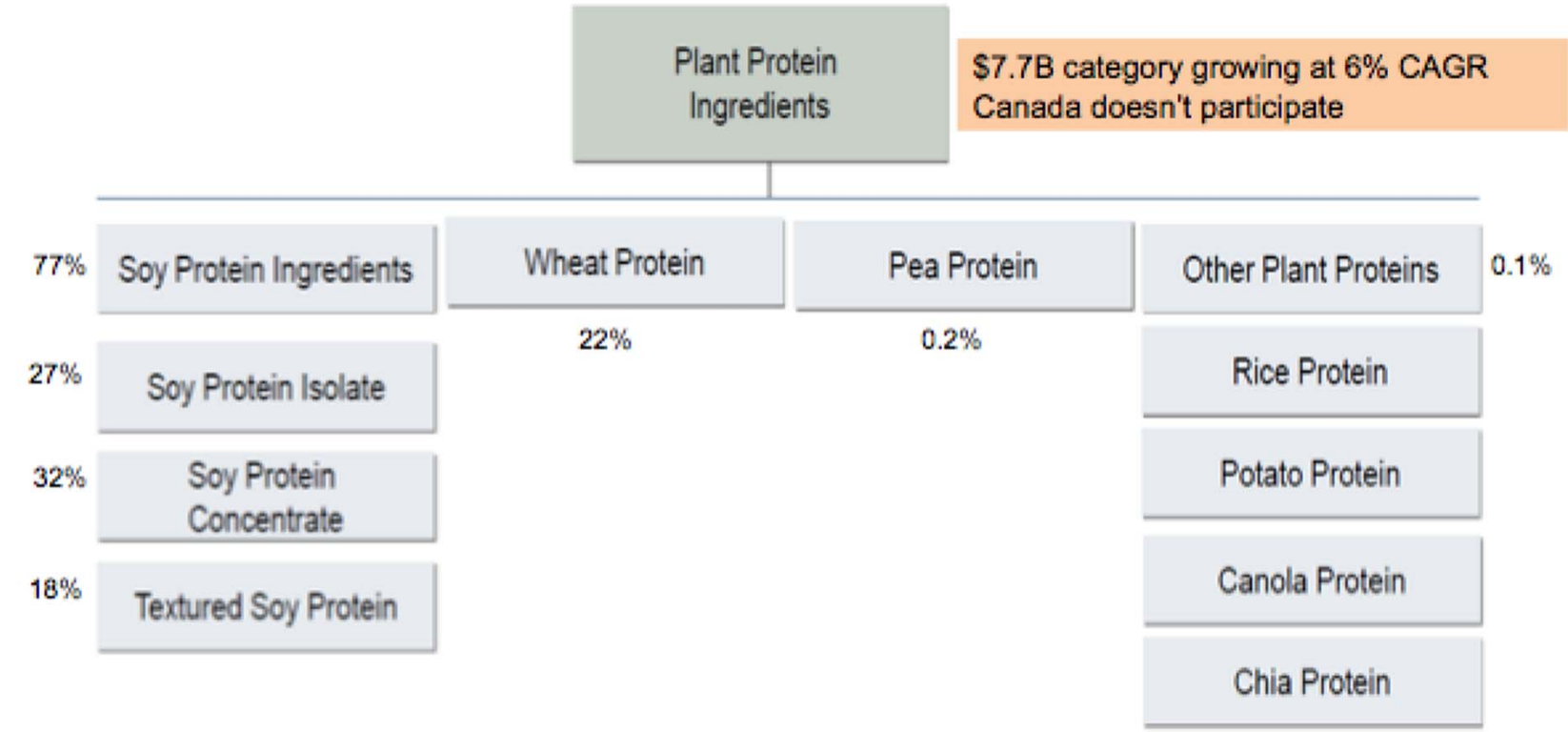
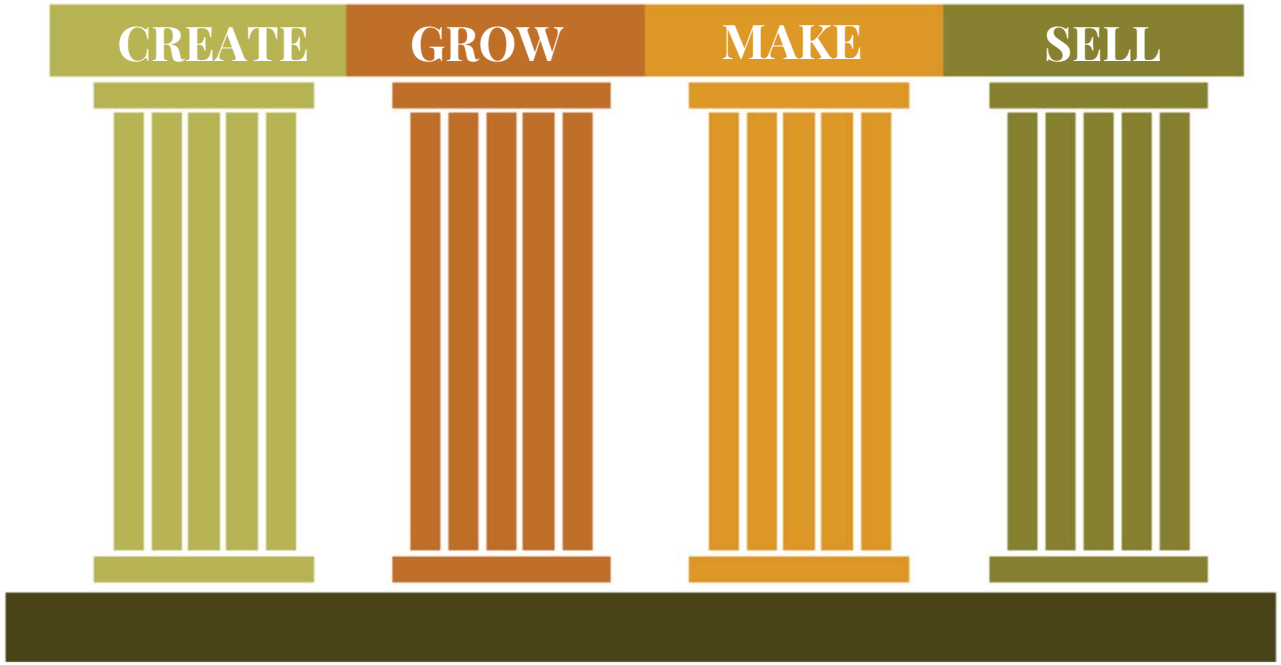
Plant-based protein market structure



- Plant protein ingredients for food use dominated by soy
- Industry is intent on finding alternatives for new functionality
- Opportunity to create new canola and pulse crop protein supply

PIC Pillars



1. **Create** High Quality Protein
2. **Grow** with Smart Production
3. **Make** with Novel Processing and Formulation
4. **Sell** by Developing and Serving New Markets

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Policy framework

Membership Model

PIC's membership model designed to facilitate growth and attract new members is as follows:

Class 1:

Founding, Industry and Investor/Project Members
Industry Member = Class 1

Category A: 500+ employees
Category B: 100-499 employees
Category C: 1-99 employees

Affiliate Members:

Class 2: Capacity Building Entities - Governments, Associations, Incubators/Accelerators

Class 3: Research/Academia, Training Institutions

Class 4: Services - Legal/Accounting Firms, Banks, Consultants, etc.

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Value for membership

- Driving the plant protein agenda
- Defining the PIC work plan
- Partnering in projects and cluster-building activities
- Access to capital, IP generation, market intelligence and strategy
- Connect with potential partners across value-chain
- Networking, representation in Federal discussions
- Leveraging regional connections
- Membership rates for PIC events
- Stay connected

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Supercluster ecosystem & innovation

$153M used to build an ecosystem, drive innovation in and across the sector

Ecosystem components; capacity-building:

- Investment in skills & training tools
- Shared data platforms
- PIC identified/initiated project opportunities
- VC fund

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Policy framework

Project Selection Process

- Proposal calls TWICE a year
  - Short applications followed by long applications
- A highly-qualified selection committee to review applications and make recommendations to the PIC Project Management Team (PMT)

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Policy framework

Areas that will be evaluated against the five themes:

1. Relevance – strategic fit and impact
2. Intellectual property, technology advancement, and novelty
3. Risk management – technology leadership
4. The plan
5. Resources and budget
6. Industry capacity and cluster collaboration
7. Education and training to create a diverse and skilled talent pool
8. Commercialization – access to innovation and global advantage
9. Economic and other benefits

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Policy framework

Intellectual Property Strategy

- Maximize benefit for Canada
- Enablement of commercialization
- Provide IP tools and guidance for SMEs
- Project ownership of IP

Data Release and Resource Policy

- Shared open source data
- Access to research publications online

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Great Protein Challenge

The **Key Activity Themes** will be present in all of the projects undertaken in each of PIC's four pillars:

Technology Leadership - Partnerships for Creating Scale -
Diverse and Skilled Talent Pools - Access to Innovation – Global Advantage

1. **Create** high quality protein
   e.g. Technology Leadership, Global Advantage
2. **Grow** with smart production
   e.g. Technology Leadership, Access to Innovation
3. **Make** with novel processing and formulation
   e.g. Partnerships for Creating Scale, Access to Innovation
4. **Sell** by developing and serving new markets
   e.g. Global Advantage, Diverse and Skilled Talent Pools

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Protein Industries Cluster Strategy

Create High Quality Protein

Align with industry plans and objectives. Add in quality improvement research strategies. Leverage existing plant science expertise to accelerate outcomes.

Grow High Quality Protein

Improve farm production data collection and producer skills with data and knowledge management. Opportunity to ally with IT. Create leading production skill set.

Novel Processing & Formulation

Public/private investment in process & applications research. Functional characterization through to prototype development. Attract leading tech suppliers.

Develop & Serve New Markets

Human resource development. Skills and knowledge acquisition to effectively access new market opportunities. Build market/sell capabilities.

IMPROVE SEED PROTEIN QUALITY AND YIELD

- Advanced plant sciences, genomic technologies, plant breeding
- Seed company investments in breeding & trait conversion
- Increase canola and pulse protein content and quality

SUSTAINABLE PRODUCTION AND AG INFORMATION TECHNOLOGY

- Advance regional agronomic & management practices
- Crop sensing, informatics, software, application validation, advanced weather data
- Sustainable production tech to adapt to climate change

PROCESS TECHNOLOGY INNOVATION FOR PROTEIN ISOLATES & CONCENTRATES

- Novel process technology application
- Separation, purification, isolation technologies and equipment, pilot plant capability
- Characterization, food and feed applications development and prototyping

GO TO MARKET & COMMERCIALIZE

- Build and scale-up new production capabilities, re-tool existing plants
- Customer engagement resources and consumer testing
- Market Insights & Intelligence, demand creation and commercialization

Output Measures

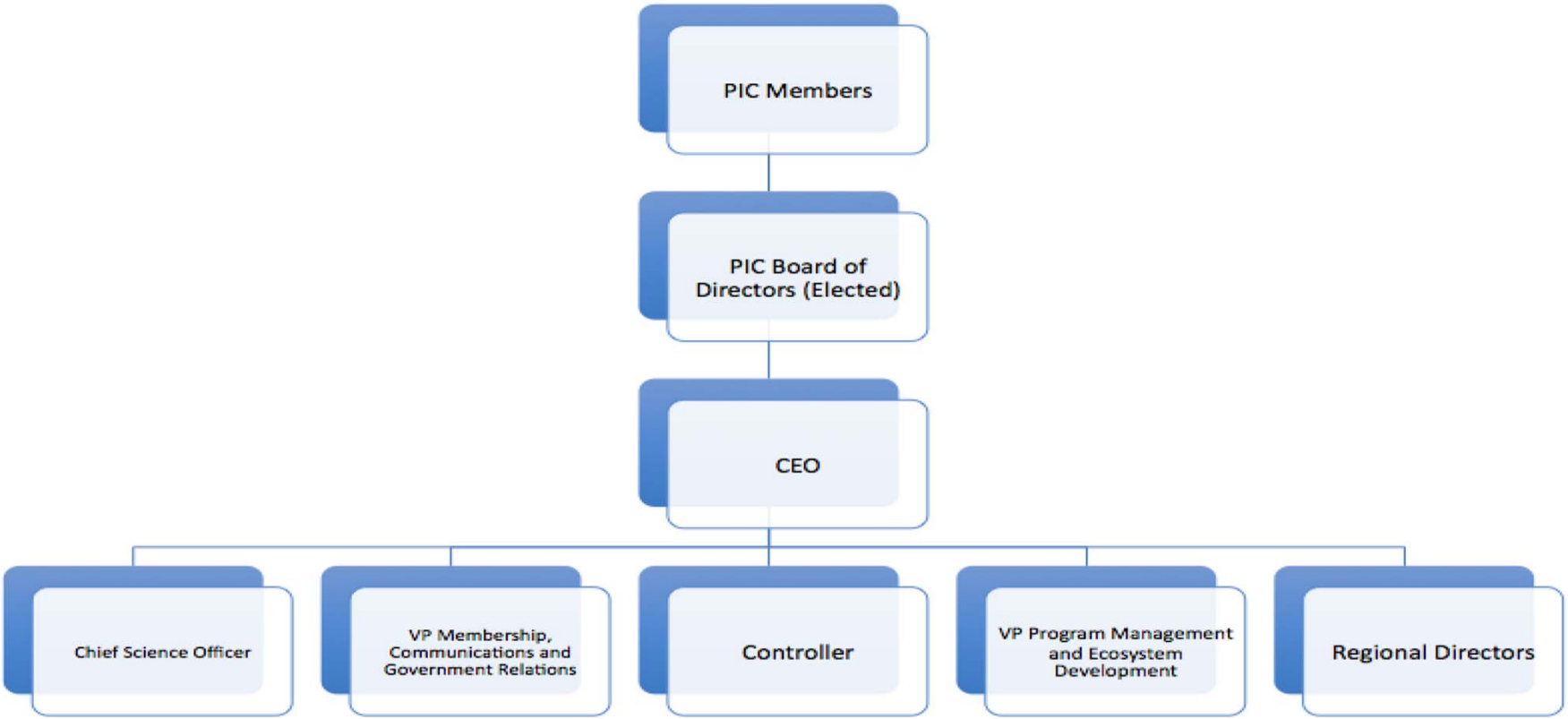
LONG-TERM SUCCESS MEASURES

1. Canada's global ranking of Agri-food exports
2. Agri-food Sector GDP Growth
3. Agri-food Sector Employment Growth

CLUSTER OPERATIONAL SUCCESS MEASURES

1. Direct Investment $ generated through Cluster
2. Direct Employment generated through Cluster
3. Number of patents
4. Number of businesses created

Organizational Structure



Informed by advice from Technical Advisory Committee and Regional Association Advisory Committee

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Discussion:
Opportunity for Agriculture

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Questions?

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Supercluster Announcements

Thought Leaders Summit:
October 3-4, 2018
Winnipeg, Manitoba

Day 1: Supercluster Launch
Day 2: Industry/Academia Collaboration Day

Supercluster progress update, next steps

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