Agriculture and Agri-Food Canada (AAFC) Science, Innovation and Partnerships

G20 MACS –Xi'an, China, 2016

Brian T. Gray Ph.D.
Assistant Deputy Minister
Science and Technology Branch

Outline

- Canada's new federal government: focus on science
- AAFC innovation model: focus on partnerships
- AAFC and international partnerships
- Role for MACS

Government of Canada:
Increased Focus on Science

- Canada's new federal government was sworn in on November 4th, 2015
- Increased emphasis on scientific research

Government of Canada

Key Focus Areas for Canada

- Climate Change
- Openness and Transparency
- Results and Outcomes (Deliverology)

Climate Change

- Canada now has a Minister of Environment and Climate Change
- Addressing climate change is also a priority identified in the mandate letter of the Minister of Agriculture and Agri-food
- Canada's commitment to combat climate change was evident at the 21st Conference of the Parties (COP21), where a commitment was undertaken to deliver concrete actions to address climate change
- Going forward, Canada will work with the provinces and territories to establish a pan-Canadian framework on clean growth and climate change

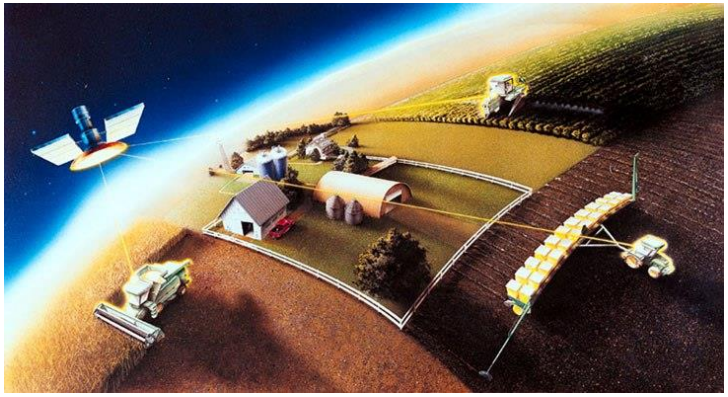
Openness and Transparency

- Government of Canada is committed to openness, transparency and collaboration
- To achieve these commitments, it will focus on:
  - Enhancing Access to Information
  - Expanding Open Data Initiatives
  - Electoral Reform
  - Parliamentary Approval of Government Borrowing

- Global Open Data on Agriculture and Nutrition (GODAN) is a key initiative supporting proactive sharing of data

Achieving Results and Outcomes

- To deliver on commitments, the Government will use a new approach to deliver results – **Deliverology**
- Deliverology will allow AAFC to continue modernizing its delivery of science and technology



- Metrics and clear communications are key:
- Canada's experience:
  - Focus on outcomes versus outputs
  - Case studies are an effective communication tool
  - Demonstrating return on investment is useful when possible
  - Multiple lines of evidence are most effective

Canada's 2016 Federal Budget: Strong Emphasis on Science and Innovation

Almost CAD $8.0 B of investments in key science activities:

- Innovation Clusters, Clean Tech, Environment and Climate Change Science, Green Infrastructure, Genome Canada, Federal granting councils

Key investments in Agricultural Science:

- Infrastructure (CAD $ 41 M), genomics research (CAD$ 30M)

Review of federal support for fundamental science to be undertaken by the Minister of Science

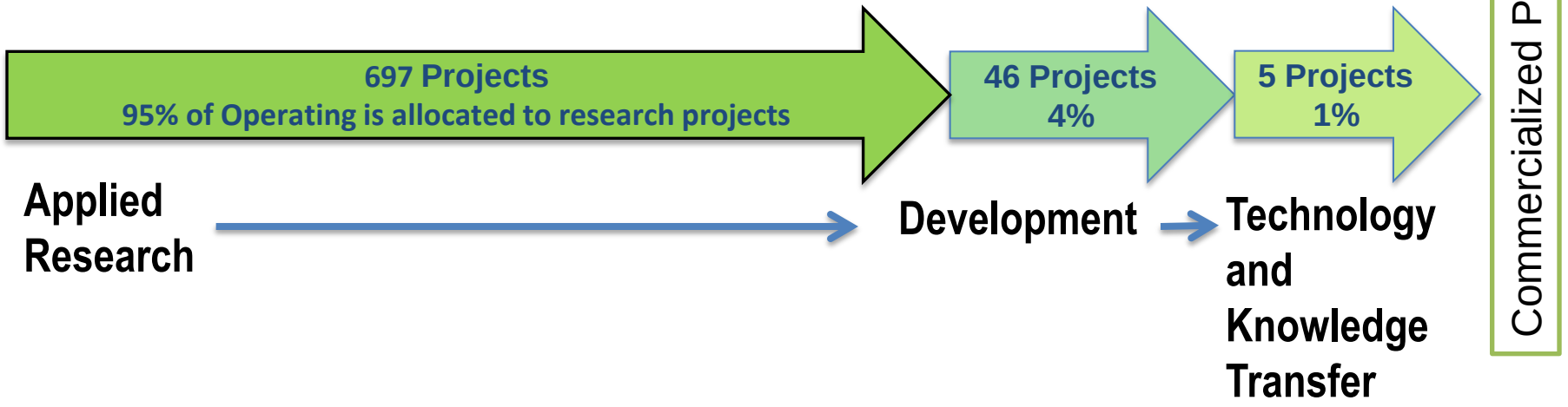
This will inform the development of an approach for **additional investments in agricultural science and research**

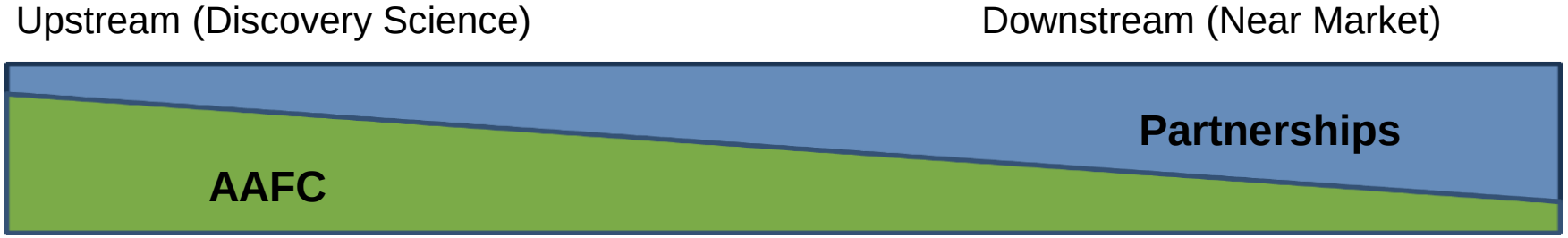
In turn, this will help inform next five-year agriculture policy framework's innovation programming to start in 2018

AAFC's Role in the Innovation Continuum

Science and Technology Branch Budget 2016-17: $235.4M including:

- Salary: $164.4 M
- Operating: $71.0 M



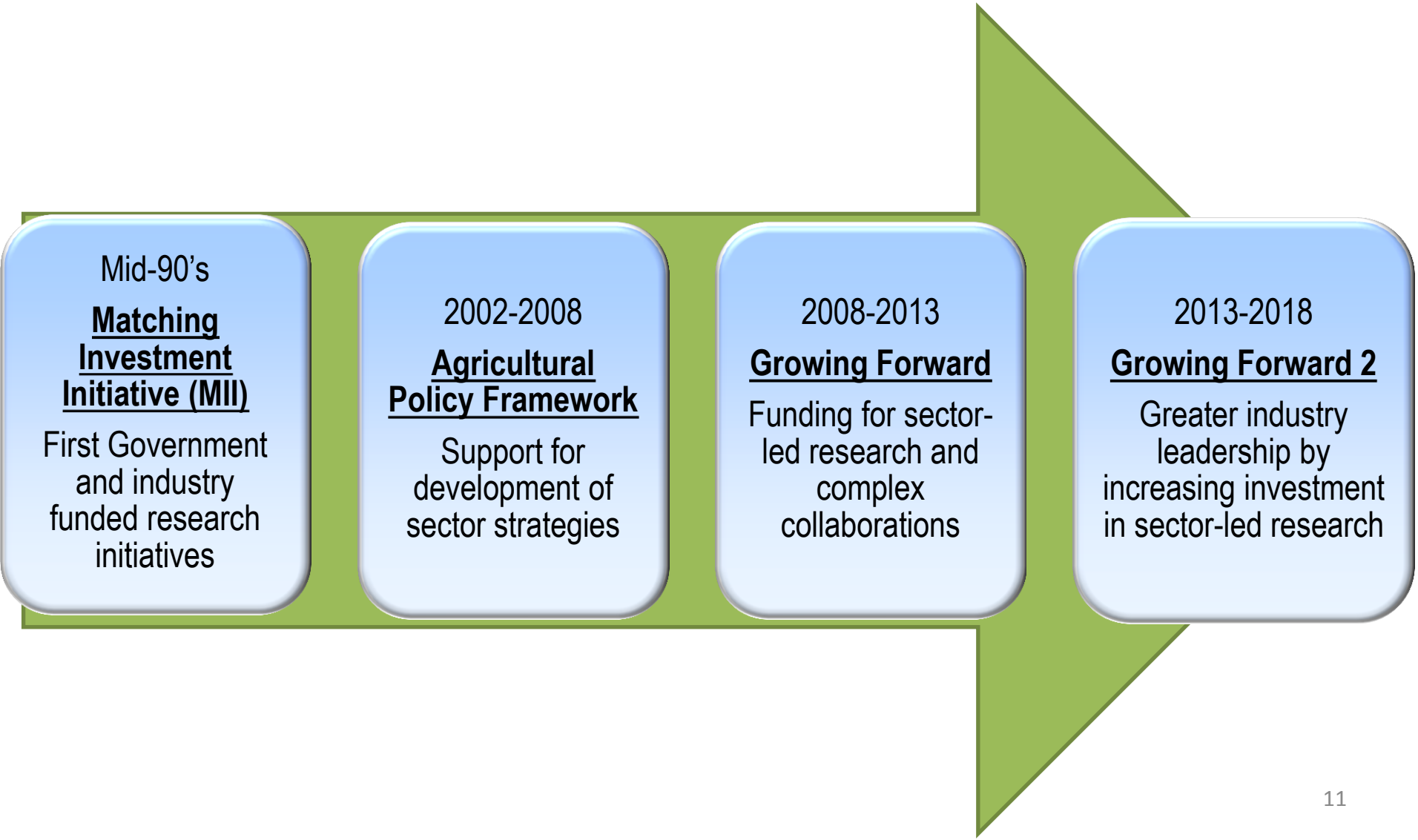


AAFC Approach to Innovation: Focus on Partnerships

- Objective is to improve the agricultural sector's access to knowledge and technology
- AAFC focuses on:
  - spanning the innovation continuum to provide services from R&D to technology transfer
  - maintaining capacity to address challenges and opportunities of producers and processors
  - **stakeholder engagement**: continue building on local/regional relationships with science, academic and business communities

Sector is organized along commodity lines…		
Forage and Beef	Cereals and Pulses	Oilseeds
Horticulture	Agri-Food	Bioproducts
Dairy, Swine, Poultry and Alternative Livestock	Agro-Ecosystem Productivity and Health	Biodiversity and Bioresources

Innovation programming is evolving to foster collaboration and enable greater industry leadership



Growing Forward 2: Agri-Innovation Program

Agri-Innovation Program has 3 streams:

- Stream A: AAFC-led Research and Development
- Stream B: Industry-led Research and Development
  - Agri-Science Clusters
  - Agri-Science Projects
- Stream C: Enabling Commercialization and Adoption

- Goal is to accelerate the pace of innovation by supporting R&D activities and facilitating demonstration, commercialization and/or adoption down the road

Agri-Science Projects

- Fund projects based on applications from industry
- A single research project or smaller set of projects that may be national, regional or local in scope
- Applications accepted at any time throughout the year

Agri-Science Projects Examples	Research Activities
British Columbia Tree Fruit Industry	Development of new apple and sweet cherry varieties, as well as improving disease and pest management practices
Eastern Canada Oilseeds Development Alliance	Further enhancing the competitiveness of the canola and soybean industries in Eastern Canada
SaskCanola	Blackleg and sclerotinia disease resistance
Mazza Innovation Ltd.	Development and commercialization of innovative extraction technologies that recover high value molecular components from plants

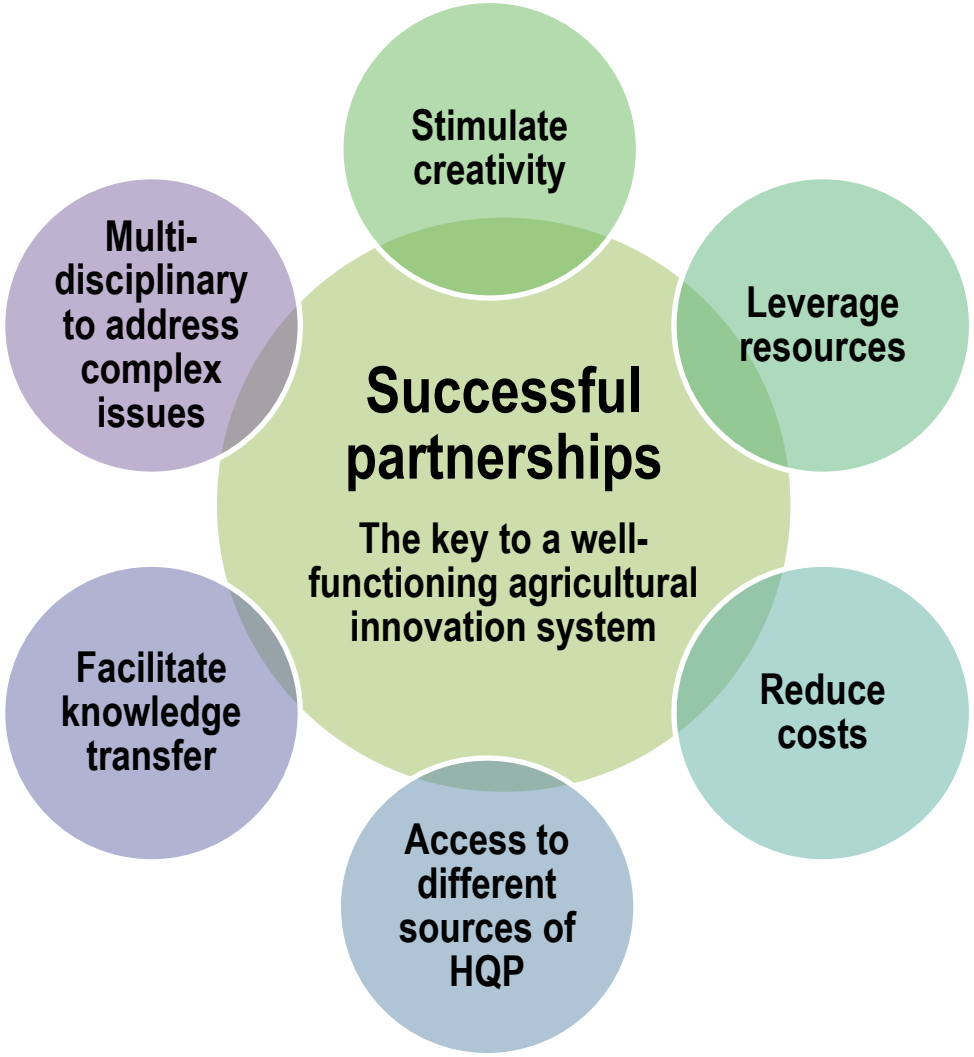
Agri-Science Clusters

- Investments that enable key industry-led agricultural organizations to mobilize a critical mass of scientific and technical resources in industry, academia and government
- National in scope and address several themes that are priorities to the industry under single application
- Commodity based, or may be horizontal where it addresses cross-cutting issues that are of interest to more than one commodity
- Review process includes: application by national organization; technical reviews by AAFC and other experts; Minister concurrence; signed agreements and work begins

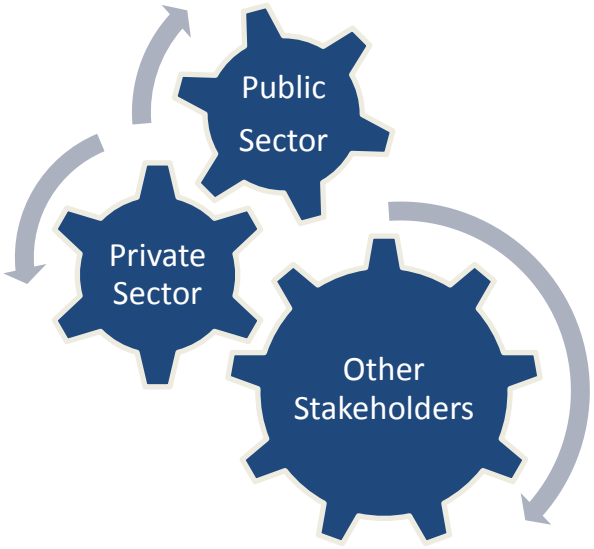
Agri-Science Cluster Example: Pulses

- Co-Recipient Names: Pulse Canada and Saskatchewan Pulse Growers
- 19 Research Activities
- Research Objectives:
  - Genetic Improvement
  - Improved Agronomic Practice
  - Pulse Processing Knowledge Building
  - Pulse Consumption Effects on Human Health
- Research Participants:
  - 4 university labs in Saskatchewan, Manitoba and Ontario
  - 1 provincial research facility in Alberta
  - AAFC research labs in Alberta, Saskatchewan, Manitoba and Ontario

Role of Partnerships in Innovation



A strong innovation agenda must involve all players



AAFC and International Partnerships

- Canada recognizes the importance of international partnerships to support agricultural innovation, research and development
- International partnerships can:
  - build common understanding of issues and solutions
  - bring more expertise and resources to address complex problems
  - Strengthen country to country relations
- Several types of international partnerships operating on various scales:
  - Bilateral science cooperation
  - Regional science cooperation
  - Global multilateral cooperation
    - Complex issues
    - Commodity-based initiatives
    - Conserving agro-biodiversity and sharing genetic resources
- Important to get the governance right for efficiency and effectiveness

AAFC and International Partnerships (cont'd)

Bilateral science cooperation:

- **We use a variety of mechanisms including:**
  - Exchange of research personnel
  - Exchange of genetic materials – in particular between breeding programs
  - Project twinning
  - Research networks (e.g., Canada – China Science Network)
- **Governance of bilateral cooperation** – Important, but keep it as simple and as light as possible (e.g., overarching treaty, non-binding memorandums of understanding, when necessary)

AAFC and International Partnerships (cont'd)

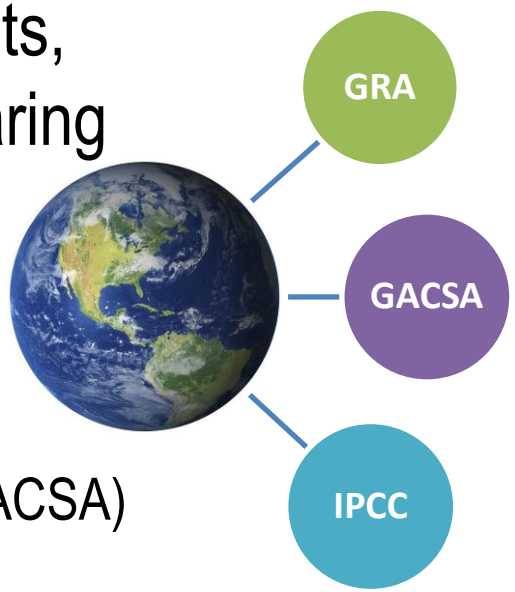
Regional science cooperation:

- **Regional networks for regional issues**
  - PROCINORTE
    - North American agricultural research network – Canada – Mexico – U.S
    - 4 Task Forces supported by the Inter-American Institute on Cooperation in Agriculture (IICA) – plant health; animal health; genetic resources and tree fruits
  - North American Drought Monitor

AAFC and International Partnerships(cont'd)

Global multilateral cooperation:

- **Complex issues:** require multiple participants, sharing of infrastructure, conserving and sharing resources:
  - Climate change:
    - Global Research Alliance on Agricultural GHGs
    - Global Alliance for Climate-Smart Agriculture (GACSA) - Knowledge Action Group
    - Intergovernmental Panel on Climate Change (IPCC)
  - Earth observation, crop monitoring:
    - Group on Earth Observations Global Agricultural Monitoring (GEOGLAM) – access to data, shared use of space assets



AAFC and International Partnerships (cont'd)

Global multilateral cooperation:

- **Commodity-based initiatives:**

- G20 Wheat Initiative
  - enhanced focus and mobilization of priority issues
  - sharing of data and knowledge
  - genomic sequencing
    - coordinated efforts to accelerate progress
  - strong CGIAR role

- UN International Year of Pulses
  - Raises profile of commodity attributes and benefits
  - Promotes science cooperation

AAFC and International Partnerships (cont'd)

Global multilateral cooperation:

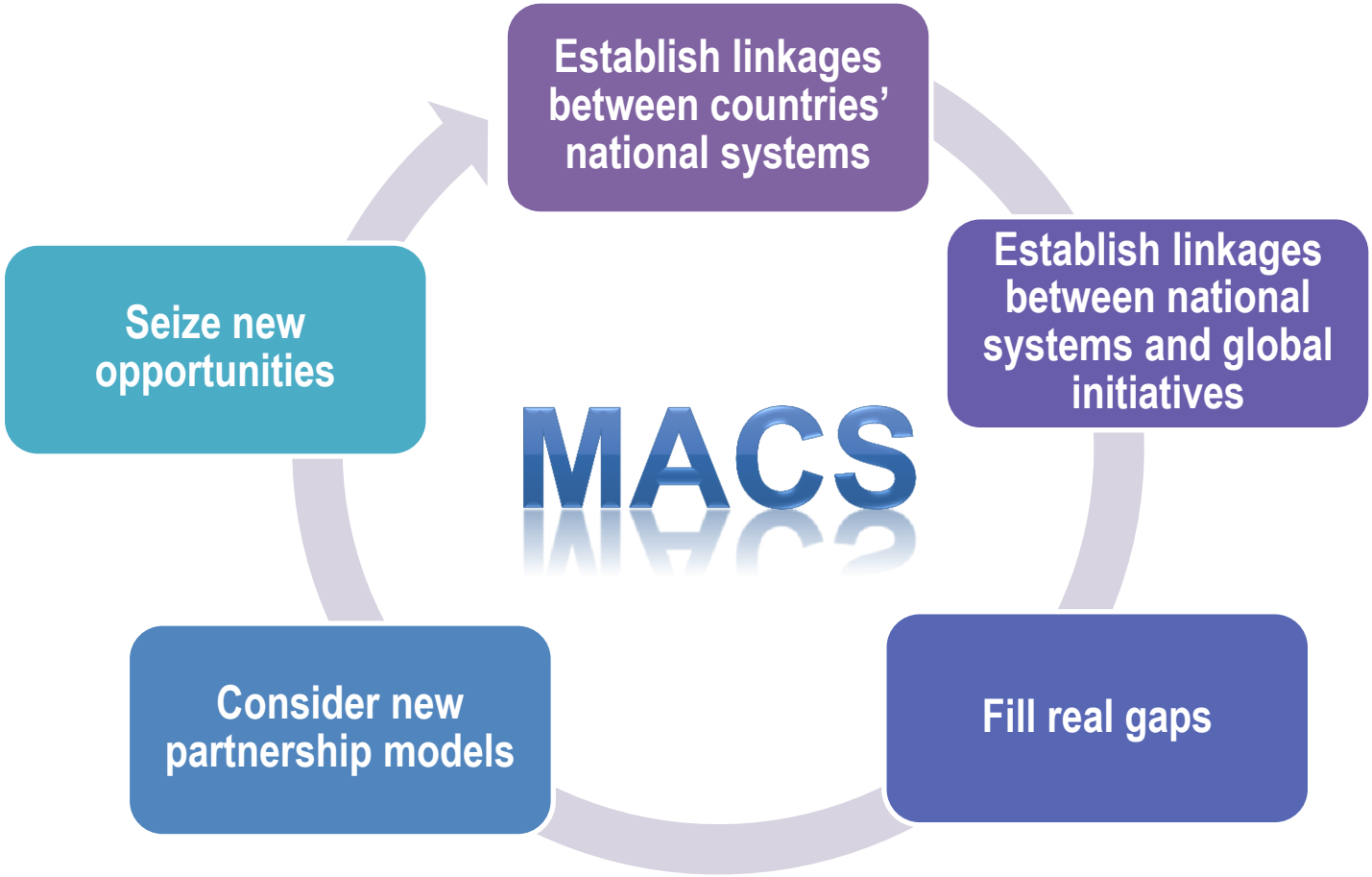
- **Conserving agro-biodiversity and sharing genetic resources:**
  - International Treaty on Plant Genetic Resource for Food and Agriculture (ITPGR) – legal framework for sharing crop germplasm
  - FAO Commission on Genetic Resources – forum on all genetic resources for food and agriculture
  - Convention on Biological Diversity – addresses key issues for agriculture (e.g., pollinators, soil biodiversity, invasive alien species)
  - DivSeek Initiative – links genebank curators, plant breeders and upstream biological researchers

AAFC and International Partnerships (cont'd)

Getting the governance right in a multilateral context:

- **Mandate**
  New initiatives must fill a real gap
  Charter document needs to be simple and streamlined
- **Flexibility**
  Priority setting needed to focus limited resources but flexible to allow engagement of all players and interests
- **Financial Resources**
  Membership fees (even small amounts) can be a serious barrier to participation
  Easier to pool activities than to pool money
- **Data and knowledge sharing**
  Need efficient and effective mechanisms
  challenges related to different formats, standards

Enhancing International Partnerships: Role for MACS



Thank you