



Food and Agriculture  
Organization of the  
United Nations



**The International Treaty**  
ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE

**Views, Experiences and Best Practices as an example of possible options for  
the national implementation of Article 9 of the International Treaty**

*Note by the Secretary*

*At its [second meeting](#) of the Ad hoc Technical Expert Group on Farmers' Rights (AHTEG), the Expert Group agreed on a revised version of the [template](#) for collecting information on examples of national measures, best practices and lessons learned from the realization of Farmers' Rights*

*This document presents the updated information on best practices and measures of implementing Article 9 of the International Treaty submitted by Canada 31 July 2019.*

*The submission is presented in the form and language in which it was received.*



**Title of measure/practice :** Plant Breeders' Rights Advisory Committee

**Date of submission :** July 31<sup>st</sup>, 2019

**Name(s) of country/countries in which the measure/practice is taking place:** Canada

**Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person):**

Canadian Food Inspection Agency, Plant Breeders' Rights Office, 59-2E-119 – 59 Camelot Drive, Ottawa, ON, K1A 0Y9. Contact person: Anthony Parker, [Anthony.Parker@Canada.ca](mailto:Anthony.Parker@Canada.ca); phone : 613-773-7188

Canadian Food Inspection Agency, Plant Breeders' Rights Office, 59-2E-122 – 59 Camelot Drive, Ottawa, ON, K1A 0Y9. Contact person: Marc de Wit, [Marc.deWit@Canada.ca](mailto:Marc.deWit@Canada.ca); phone : 613-773-7198

**Type of institution/organization (categories):**

Agency of the Federal Government of Canada.

**Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s))**

The membership on the Plant Breeders' Rights Advisory Committee is based on representation of an organization. Appointment to the Committee is based on employment or interest in the representative organization. These organizations represent different parts of the value chain in the Canadian agriculture, horticulture and ornamental sectors and help direct policy, legislative initiatives, and the administration of the *Plant Breeders' Rights Act* and *Regulations*.

1. Canadian Federation of Agriculture – national farmer led organization to promote the interests of Canadian agriculture farmers ([www.cfa-fca.ca](http://www.cfa-fca.ca))
2. Canadian Horticulture Council – national farmer led organization to promote the interests of fruit and vegetable farmers ([www.hortcouncil.ca](http://www.hortcouncil.ca))
3. Canadian Organic Trade Association – national organic farmer organization to promote and protect the growth of organic trade to benefit the environment, farmers, the public and the economy ([www.canada-organic.ca](http://www.canada-organic.ca))
4. Canadian Ornamental Horticulture Alliance – national ornamental alliance which represents farmers and various stakeholders in the ornamental value chain ([www.coha-acho.ca](http://www.coha-acho.ca))
5. Canadian Potato Council – as part of the Canadian Horticulture Council it represents and promotes the interests of potato farmers ([www.hortcouncil.ca/en/about-us/canadian-potato-council](http://www.hortcouncil.ca/en/about-us/canadian-potato-council))



6. Canadian Seed Growers Association- made up of grain farmers and members of the grains value chain representing and promoting the interests of the agriculture grains sector ([www.seedgrowers.ca](http://www.seedgrowers.ca))
7. Canadian Seed Trade Association - is a national trade association that brings together more than 130 members engaged in all aspects of seed research, production, and marketing and trade ([www.seedinnovation.ca](http://www.seedinnovation.ca))
8. Canterra Seeds – Canadian plant breeding company that produce varieties of cereals, pulses, oilseeds, corn, soybeans and specialty crops ([www.canterra.com](http://www.canterra.com))
9. Grain Growers of Canada – Farmer led organization that promotes the interests of Canadian grain farmers ([www.ggc-pgc.ca](http://www.ggc-pgc.ca))
10. Producteurs de Grains du Quebec – A provincial farmer led organization that promotes the interests of Quebec grain farmers ([www.pgq.ca](http://www.pgq.ca))
11. Syngenta Canada – Seed production company that produces varieties of corn, soybeans, potatoes and supporting production products ([www.syngenta.ca](http://www.syngenta.ca))
12. University of Saskatchewan, Crop Development Centre – field crop research organization within the University of Saskatchewan ([www.agbio.usask.ca/research/centres-and-facilities/crop-development-centre.php](http://www.agbio.usask.ca/research/centres-and-facilities/crop-development-centre.php))
13. Agriculture and Agri-Food Canada – Canadian governmental department ([www.agr.gc.ca](http://www.agr.gc.ca))

## Description of the example

### Mandatory information:

See notes below <sup>1</sup> <sup>2</sup> <sup>3</sup>

### Short summary to be put in the inventory (max. 200 words) including:

The Canadian *Plant Breeders' Rights Act* (<https://laws-lois.justice.gc.ca/eng/acts/P-14.6/index.html>), which was enacted in 1991, specifically section 73, requires that the Minister of Agriculture and Agri-Food form an Advisory Committee consisting of representatives of various associations and enterprises involved in the value chain (e.g. plant breeders, horticulturists, seed dealers, farmers, and other persons the Minister considers appropriate). The measure is intended to involve the farming community, as well as other representatives, in the administration of the Canadian intellectual property regime for the protection of new plant varieties. It thus ensures that legislative, policy, and procedural decisions surrounding the administration of the *Plant Breeders' Rights Act*, are made respecting interests of all value chain members, including farmers, and benefits the value chain as a whole. The advice comes in various forms; it could be communicated to the Plant Breeders' Rights Commissioner via an annual face-to-face meeting or in written format. The outcomes of this measure/practice are reflected in the impacts of the decisions taken by the Advisory Committee, or the policies implemented; for example, improved access to new plant varieties for Canadian farmers.

(200 words)

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<sup>1</sup>This mandatory information is required in order for the measure/practice to be included in the Inventory.

<sup>2</sup> Please select only one category that is most relevant, under which the measure will be listed.

<sup>3</sup> Please select one or several categories that may also be relevant (if applicable).



## Implementing entity and partners

### Implementing entity:

- Government of Canada

### Implementing partner:

- Canadian Federation of Agriculture
- Canadian Horticulture Council
- Canadian Organic Trade Association
- Canadian Ornamental Horticulture Alliance
- Canadian Potato Council
- Canadian Seed Growers Association
- Canadian Seed Trade Association
- Canterra Seeds
- Grain Growers of Canada
- Producteurs de Grains du Quebec
- Syngenta Canada
- University of Saskatchewan, Crop Development Centre
- Agriculture and Agri-Food Canada

### ○ **Start year**

1991

### ○ **Objective(s)**

The measure is intended to involve the farming community, as well as other representatives in the different crop specific value chains, in the administration of the Canadian PBR intellectual property regime. By involving farmers in the decision making process, it ensures their views and interests are taken into consideration with respect to plant genetic resources. The effectiveness of the Advisory Committee is assessed by the impact/outcomes of the decisions taken, or policies implemented, that improve farmers access to innovative new plant varieties.

### ○ **Summary of core components**

The core component of the measure was to enshrine, in PBR legislation, a voice for farmers and public and private breeders to advise government on how to best administer the intellectual property regime that benefits the value chain as a whole. Inclusion of members of the value chain facilitates consensus based recommendations and advice to government. The role of each committee member is to represent their respective organizations interests on the Advisory Committee. In many cases, information must first be disseminated through the various organizations prior to consensus based advice being given to the Minister of Agriculture and Agri-Food.

### ○ **Key outcomes**



Various initiatives developed in cooperation with PBR – Advisory Committee have had a positive impact on the accessibility and sustainable use of plant genetic resources for Canadian farmers. Since its inception, the PBR Advisory Committee, in cooperation with government, have developed and successfully implemented the following projects:

1) *Acceptance of foreign “Distinctness, Uniformity, and Stability” Test Reports for filing PBR applications in Canada*

Recognizing that Canadian horticulture and ornamental farmers are highly dependent on accessing varieties from other countries, the Advisory Committee recommended that government broaden a policy to accept international “Distinctness, Uniformity, and Stability” (DUS) Test Reports from UPOV member countries. Implementation of this policy resulted in a 128% increase in the number of foreign DUS Test Reports used to support PBR protection in Canada. This measure has facilitated access to plant genetic resources while reducing administrative and monetary burden.

2) *Ratification of the 1991 Act of the International Convention for the Protection of New Varieties of Plants (UPOV’91)*

The implementation of UPOV’91 has had a positive impact on the Canadian agricultural sector. Over a five year period from 2012 to 2017 there has been a 56% increase in private sector investment in research and breeding for agricultural crops, largely attributed to the ratification of UPOV’91. Canadian farmers are highly dependent on foreign breeders to access new varieties. Over 80% of all new potato varieties entering the Canadian marketplace come from other countries. Since the ratification of UPOV’91, the annual average number of potato applications seeking PBR protection has increased by 68%. In the horticultural sector, the number of fruit and vegetable applications seeking PBR protection in Canada has increased by 130%.

o **Lessons learned (if applicable)**

The purpose of PBR is to encourage investment and innovation in varietal development which benefits both farmers and breeders. Consequently, it is important that farmers and breeders are collaboratively involved in decision making to maximize the benefits of the PBR intellectual property framework. From Canada’s perspective, the inclusion of farmers, breeders (public and private), and other entities in the value chain such as seed growers, ensures the proper balance of views and interests.

**Brief history (including starting year), as appropriate**

In 1991 Canada enacted (PBR) legislation based on the *1978 Act of the International Convention for the Protection of New Varieties of Plants* (UPOV). The Canadian government recognized the



importance of having farmer representation in decisions made related to the administration of the PBR Act. This ensures that farmers views are heard and that the intellectual property regime is advanced in a way that it benefits their interests (e.g. stimulate greater investment in breeding, access to more crop kinds and varieties, production efficiencies through improved genetics, such as; early maturity, higher yields, improved quality characteristics, and disease/pest resistance).

**Core components of the measure/practice (max 200 words)**

The core component of the measure was to enshrine, in PBR legislation, a voice for farmers and public and private breeders to advise government on how to best administer the intellectual property regime that benefits the value chain as a whole. Inclusion of members of the value chain facilitates consensus based recommendations and advice to government. The role of each committee member is to represent their respective organizations interests on the Advisory Committee. In many cases, information must first be disseminated through the various organizations prior to consensus based advice being given to the Minister of Agriculture and Agri-Food.

**Description of the context and the history of the measure/practice is taking place (political, legal and economic framework conditions for the measure/practice) (max 200 words)**

In the late 1980’s, when Canada decided to become a signatory to UPOV and enacted a domestic plant breeders’ rights law, the government recognized the need to provide a mechanism for farmers (and other members of the value chain) to be part of the decision making process. When the *Plant Breeders’ Rights Act* was enacted (1990), it contained legal provisions for stakeholder representation in the administration of the legislation. Section 73 of the Act states:

*Constitution*

73 (1) The Minister shall constitute an advisory committee on any terms and conditions determined by the Minister.

*Composition*

(2) The advisory committee shall be composed of persons appointed by the Minister from among representatives of organizations of breeders of plant varieties, dealers in seeds, growers of seeds, farmers, horticulturists and of any other interested persons considered appropriate by the Minister.

*Function*

(3) The function of the advisory committee is to assist the Commissioner in the application of this Act

**To which provision(s) of Article 9 of the International Treaty does this measure relate**

Article 9.1	
Article 9.2 a	



Article 9.2 b	
Article 9.2 c	<b>X</b>
Article 9.3	

**Other information, if applicable**

Please indicate which category of the Inventory is most relevant for the proposed measure, and which other categories are also relevant (if any):

No.	Category	Most relevant	Also relevant
1	Recognition of local and indigenous communities', farmers' contributions to conservation and sustainable use of PGRFA, such as awards and recognition of custodian/guardian farmers		
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA		<b>X</b>
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		
5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks <sup>4</sup> , seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.		<b>X</b>
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection		<b>X</b>
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels	<b>X</b>	
9	Training, capacity development and public awareness creation		
10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.		<b>X</b>
11	Other measures / practices		

- **In case you selected 'other measures', would you like to suggest a description of this measure, e.g. as a possible new category?**

<sup>4</sup> Including seed houses



NA

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- **Objective(s)**

See above Objective(s)

- **Target group(s) and numbers of involved and affected farmers<sup>5</sup>**

Canadian Farmers

- **Location(s) and geographical outreach**

Canada

- **Resources used for implementation of the measure/practice**

*Canadian Plant Breeders' Rights Act*

- **How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture?**

The measure is intended to involve the farming community, as well as other representatives in the different crop specific value chains, in the administration of the Canadian PBR intellectual property regime. By involving farmers in the decision making process, it ensures their views and interests are taken into consideration with respect to plant genetic resources. The effectiveness of the Advisory Committee is assessed by the impact/outcomes of the decisions taken, or policies implemented, that improve farmers access to innovative new plant varieties.

In 2002, an Impact Study on PBR in Canada was tabled in Parliament. This impact study articulated: 1) increased investment in domestic plant breeding; 2) greater access for farmers to foreign crop kinds and varieties; 3) increased range and diversity of plant varieties available in the marketplace, and 4) facilitated access for Canadian breeders to foreign markets

- **Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)**

Refer to section "key outcomes" listed above

- **Other national level instruments that are linked to the measure/practice**

NA

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<sup>5</sup> Any classification, e.g. of the types of farmer addressed, may be country-specific.





- **Are you aware of any other international agreements or programs that are relevant for this measure/practice?**

The United States Plant Variety Protection Act, Section 2327, provides a legal mechanism for the establishment of a Plant Variety Protection Board that must have farmer representation.

- **Other issues you wish to address, that have not yet been covered, to describe the measure/practice**

NA

#### **Lessons learned**

- **Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).**

The purpose of PBR is to encourage investment and innovation in varietal development which benefits both farmers and breeders. Consequently, it is important that farmers and breeders are collaboratively involved in decision making to maximize the benefits of the PBR intellectual property framework. From Canada's perspective, the inclusion of farmers, breeders (public and private), and other entities in the value chain such as seed growers, ensures the proper balance of views and interests.

- **What challenges encountered along the way (if applicable) (max 200 words)**

NA

- **What would you consider conditions for success, if others should seek to carry out such a measure or organize such an activity? (max 100 words)**

It is important that the PBR legislation include legal provisions for the establishment of an Advisory Committee or board. It is also useful if the legislation defines specifically who can be appointed to such a committee or board (i.e. farmers, breeders, seed growers, etc.) to ensure the balanced representation from the value chain.

#### **Further information**

- **Link(s) to further information about the measure/practice**

<https://laws-lois.justice.gc.ca/eng/acts/P-14.6/page-10.html#h-23>

<http://publications.gc.ca/site/eng/9.805528/publication.html>



**Title of measure/practice:** Potato Accelerated Release Program

**Date of submission:** July 31, 2019

**Name(s) of country/countries in which the measure/practice is taking place:** Canada

**Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person)**

Agriculture and Agri-Food Canada, Fredericton Research and Development Centre, 850  
Lincoln Road, P.O. Box 20280, Fredericton, New Brunswick, E3B 4Z7.  
Contact person: Andrea Dilworth

**Type of institution/organization (categories):** Department of the Federal Government of  
Canada

**Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s)):**

Seed potato producers and potato processors from across Canada, Provincial grower associations

### **Description of the examples**

#### **Mandatory information:**

See notes below <sup>1</sup> <sup>2</sup> <sup>3</sup>

#### **Short summary to be put in the inventory (max. 200 words):**

Agriculture and Agri-Food Canada's (AAFC) Potato Accelerated Release Program began in 1998. It is a two-phase process to fast track the release of promising potato selections developed at the Fredericton and Lethbridge Research and Development Centres of AAFC to the producers. In phase one, 10-15 new selections are offered to potato producers each February for two years of non-exclusive field testing. These early favorites are typically at year six of a testing and selection program that traditionally took about twelve years. For a fee of \$100 per selection, plus applicable taxes, growers receive a limited quantity of breeder's selection seed and non-exclusive rights to conduct their own field performance and quality evaluation trials for two years. In phase two, following the non-exclusive testing, AAFC invites potato producers to submit cash bids to procure a further three-year period of exclusive testing. At the end of this testing, or sooner at the request of the producer and farmers, an eight-year, renewable license to commercialize a selection may be negotiated. In 2018, in consultation with growers representatives, AAFC began the process of modernizing its potato breeding and commercialization programs. This process is currently still in progress.

(193 words)

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<sup>1</sup>This mandatory information is required in order for the measure/practice to be included in the Inventory.

<sup>2</sup> Please select only one category that is most relevant, under which the measure will be listed.

<sup>3</sup> Please select one or several categories that may also be relevant (if applicable).



**Brief history (including starting year), as appropriate**

Agriculture and Agri-Food Canada’s Potato Accelerated Release Program began in 1998. Selections released under the Accelerated Release Program have cleared six years of field and laboratory selection and are backed by data from preliminary disease and performance evaluation trials. The AAFC research team, representing a variety of scientific disciplines, works closely with farmers, packers, French fry and chip processors and exporters to develop potato varieties that are better suited to Canadian production and which meet farmers and consumer requirements for quality and flavour. Using a combination of traditional breeding techniques and new and emerging technologies, the team releases 10 to 15 new selections annually that have been selected from among 120,000.

**Description of the context and the history of the measure/practice is taking place (political, legal and economic framework conditions for the measure/practice) (max 200 words)**

The Accelerated Release Program was designed to speed up the release of cultivars to the growers after the fifth field generation rather than after the traditional 10-12 years with traditional breeding programs. This program was created because the growers requested earlier participation in the selection process. Initially, the Program focused on french fry selections, but by the tenth year, had expanded to include fresh market, chip, and pigmented flesh selections. Information provided to the sector about the selections has evolved throughout the program and now includes disease reaction information, notes on defects, photographs and data tables that are available online.

**To which provision(s) of Article 9 of the International Treaty does this measure relate**

Article 9.1	
Article 9.2 a	
Article 9.2 b	<b>X</b>
Article 9.2 c	<b>X</b>
Article 9.3	



**Other information, if applicable**

- Please indicate which category of the Inventory is most relevant for the proposed measure, and which other categories are also relevant (if any):

No.	Category	Most relevant	Also relevant
1	Recognition of local and indigenous communities', farmers' contributions to conservation and sustainable use of PGRFA, such as awards and recognition of custodian/guardian farmers		
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA		
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		
5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks <sup>4</sup> , seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.		
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection	<b>X</b>	
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels		<b>X</b>
9	Training, capacity development and public awareness creation		<b>X</b>
10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.		
11	Other measures / practices		

- **In case you selected 'other measures', would you like to suggest a description of this measure, e.g. as a possible new category?**

NA

<sup>4</sup> Including seed houses



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- **Objective(s)**

Develop better potato varieties for the Canadian potato growers and make them available as soon as possible for testing and capacity development.

- **Target group(s) and numbers of involved and affected farmers<sup>5</sup>**

Seed potato producers and potato processors across Canada. Approximately seventy stakeholders have participated in the program since 1998.

- **Location(s) and geographical outreach**

Open House events are held in New Brunswick, Ontario and Alberta to showcase the new selections being released. Farmers and processors are also invited to participate in field days.

- **Resources used for implementation of the measure/practice**

A team of scientists, technicians, field crews, administrative staff and commercialization officers work together to make this program successful.

- **How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture?**

The Program allows potato growers to trial new potato selections earlier in their development and in their own fields under their own growing conditions. All licensed varieties are protected by Plant Breeders' Rights in Canada and may be protected by equivalent rights in other countries if licensees wish to commercialize a variety in other countries as well.

- **Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)**

This program has resulted in over 60 license agreements with collaborators for AAFC potato varieties.

- **Other national level instruments that are linked to the measure/practice. NA**

- **Are you aware of any other international agreements or programs that are relevant for this measure/practice? No**

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<sup>5</sup> Any classification, e.g. of the types of farmer addressed, may be country-specific.



- **Other issues you wish to address, that have not yet been covered, to describe the measure/practice**

#### **Lessons learned**

- **Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).**

Commercialization rights are currently awarded solely based on a cash bid process, rather than on a full proposal. This means that a bidder could submit the highest bid, but may not be the best candidate to commercialize a variety due to a lack of business experience, industry connections, or local markets. This is currently being reviewed as part of the program modernization.

- **What challenges encountered along the way (if applicable) (max 200 words):**

A “one size fits all” program does not always work for all major sectors of the potato sector (fresh market, chipping, French fry). It can be challenging to gather grower feedback regarding the performance of varieties in field trials. Not all selections are well suited to the different growing conditions in all regions of Canada, so a large number of provincial trial sites across Canada are required to adequately evaluate new potato selections.

- **What would you consider conditions for success, if others should seek to carry out such a measure or organize such an activity? (max 100 words):**

Growers participation and feedback is key for the successful uptake of varieties.

#### **Further information**

- **Link(s) to further information about the measure/practice**  
[www.agr.gc.ca/potato-cultivars](http://www.agr.gc.ca/potato-cultivars) (English)  
[www.agr.gc.ca/cultivars-pommesdeterre](http://www.agr.gc.ca/cultivars-pommesdeterre) (French)



**Title of measure/practice :** The Three Sisters Project

**Date of submission :** July 31<sup>st</sup>, 2019

**Name(s) of country/countries in which the measure/practice is taking place:** Canada

**Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person):**

Agriculture and Agri-Food Canada, 2560 Hochelaga Blvd, Quebec City, Quebec, Canada, G1V 2J3. Contact person: Stéphane Gariépy, [stephane.gariepy@canada.ca](mailto:stephane.gariepy@canada.ca); phone : 418-210-5030

**Type of institution/organization (categories):**

Department of the federal Government of Canada.

**Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s))**

Agricultural Society for Indigenous Food Products, 380, rue Chef Max Gros-Louis, Wendake (Québec), Canada, G0A 4V0; Email: [info@asifp.ca](mailto:info@asifp.ca) ; Telephone: +1-418-843-2733; Fax: +1-418-843-9074

**Description of the example**

**Mandatory information:**

See notes below <sup>1</sup> <sup>2</sup> <sup>3</sup>

**Short summary to be put in the inventory (max. 200 words) including:**

The “Three Sisters” is an agricultural system in which corn, squash and beans are grown together. This type of system is very old and continues to be used in some communities and family gardens. From 2015 to 2018, Agriculture and Agri-Food Canada, which is a Department of the Federal Government, in collaboration with the Agricultural Society for Indigenous Food Products, implemented the Three Sisters project. Its main purpose was to study characteristics of varieties of corn, squash and beans and the products derived from them in order to develop added value for indigenous stakeholders, while also studying health benefits. Research activities included studies of traditional knowledge, e.g. on ancestral lineages of the Three Sister crops and their respective seed keepers, combined with studies relating to production, processing and use. Existing instruments identified in Canada were used in the project to select good practices. The project looked for principles, rules and mechanisms that enable Indigenous people to control the circulation of their resources and knowledge at each step of the research project (access,

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<sup>2</sup> Please select only one category that is most relevant, under which the measure will be listed.

<sup>3</sup> Please select one or several categories that may also be relevant (if applicable).



utilization and valorization), and also resulted in new knowledge on health and nutritional benefits and possible ways to protect and preserve genetic material of ancestral crop genetic resources.

(200 words)

- **Implementing entity and partners**

- Implementing entity:

- Government of Canada

- **Start year**

- 2015

- **Objective(s)**

- Agriculture and Agri-Food Canada decided to develop the Three Sisters project with the goal of gathering knowledge about this method, preserving the seeds, improving cultivation methods and using them post-harvest.

- **Summary of core components**

- The main purpose of the Three Sisters project was to study characteristics of varieties of corn, squash and beans and the products derived from them in order to develop added value for Indigenous stakeholders, while studying their health benefits. The general objectives of the project were to improve production methods, increase awareness of the importance of preserving ancestral values, develop new products from these crops and support the people interested in reviving them.

- Knowledge came from scientific and historical literature, interviews and conversations with Indigenous producers and gardeners. With respect to knowledge transfer, Indigenous partners were involved to ensure a good balance between proposed practices and processes and needs. The knowledge obtained on ancestral lineages and their seed keepers helped identify possible ways to protect and preserve the genetic material of these lineages.

- Analysis of the bioactive components of fresh Three Sisters products was conducted by AAFC. Many varieties of squash (including pumpkins) and beans were tested to analyze the carotenoid and antioxidant content. Ingredients were also produced from ancestral varieties, and were characterized for their composition and functionality. Principles of the farming systems of the Three Sisters were explored and potential garden models were proposed; feasibility was established from the perspective of the value chain and to guide the subsequent development and transfer phase.

- **Key outcomes**

- Existing instruments identified in Canada were used in the project to select good practices. The project looked for principles, rules and mechanisms that enable





Indigenous people to control the circulation of their resources and knowledge. Such elements can be identified at each step of the research project (access, utilization and valorization).

Analysis of the bioactive components of Three Sister products was conducted by AAFC. A number of varieties of pumpkins and beans were tested to analyze their carotenoid and polyphenol content and to assess the antioxidant capacity of these crops. Ways of developing Indigenous products were then considered. For example, many types of bread were prepared from pumpkin, bean and corn flour. Bread was particularly judged in terms of its industrial potential. Methods were studied to determine whether all the parts of a pumpkin can be used (skin, flesh and seeds as well as the leaves and stem). Each part had some promising properties. The juice extracted was rich in Vitamins A and C and antioxidants, while the skin was rich in pectin and carotenoids, and the pulp can be used as flour. The antioxidant potential of ancestral lineages was promising. Some commercial ancestral lineages of maize, beans and pumpkin have demonstrated potential to be processed into ingredients in certain recipes.

A consent form was developed, which can be amended based on comments from local players. The form would be signed by the participants in the project to ensure they were informed about the project's goals and their rights. The form provided information about the Three Sisters project (team, methods, goals, benefits, potential risks, etc.). It also specified participants' rights. For example, they have a right to withdraw from the project at any time and without any consequences if they were not comfortable with the goals of the research or any other aspect of the research. Their anonymity would be protected if they request it. No intellectual property application would be considered or made without participants' prior informed consent. The seeds shared by the participants were entrusted to Agriculture and Agri-Food Canada for the purpose of the Three Sisters project, but participants retained ownership over the seeds. As a result, they cannot be shared with any third party without the prior informed consent of the participants.

○ **Lessons learned (if applicable)**

Numerous research projects focus on traditional knowledge which is developed to identify resources and uses. The Three Sisters project is only one example. What all these projects show is that the integration or use of traditional knowledge is significantly increasing the chances of finding promising resources and uses. That is not surprising considering the years of experience of Indigenous people.

Because of their properties, products made from different parts of the pumpkin are already on the market. Pumpkin oil, powder and seeds, which can be eaten, are already on the market, as well as masks and other beauty products.



**Brief history (including starting year), as appropriate**

Long title: “Three Sisters value-chain: characterization of attributes and functionalities of aboriginal corn, squash and bean varieties, preservation of genetic material and prefeasibility of new culture models”

The Three Sisters project is a multidisciplinary initiative that brought together participants from different backgrounds, including scientists and Indigenous people. A number of Agriculture and Agri-Food Canada (AAFC) scientists worked to improve agri-food production resulting from the Three Sisters system. The project started in 2015 and ended in 2018.

The project began to take shape in the summer of 2015 with the planting in cultivated parcels of ancestral varieties of beans, corn and squash. The germplasm was purchased from artisanal seed growers and one sample was provided by the Plant Gene Resources of Canada, the Canadian national genebank. During the winter of 2015, analysis protocols were developed, fresh products were characterized and the production of ingredients was analyzed. At the same time as these analyses were being performed, AAFC staff began meeting with seed keepers in the following indigenous communities: Akwesasne, Kahnawake, Tyendinaga and Six Nations of the Grand River.

In May 2016, as part of the “Three Sisters Project”, the United States, Mexico and Canada /participated in a collaborative workshop on the “Conservation and Development of Ancestral/Indigenous Plant Genetic Resources: Challenges, Tools and Perspectives Sharing the Canadian, Mexican and American Experiences”. Agriculture and Agri-Food Canada, the University of Laval and the PROCINORTE/NORGEN Taskforce on Genetic Resources organized this workshop. At this workshop best practices were shared on the preservation of indigenous traditional knowledge in agriculture. The report can be found at: [www.procinorte.net/Documents/Workshop\\_Report\\_Conservation\\_Plant\\_Genetic\\_Resources\\_May\\_10-11\\_2016.pdf](http://www.procinorte.net/Documents/Workshop_Report_Conservation_Plant_Genetic_Resources_May_10-11_2016.pdf).

**Core components of the measure/practice (max 200 words)**

The core component of the measure was to enshrine, in PBR legislation, a voice for farmers and public and private breeders to advise government on how to best administer the intellectual property regime that benefits the value chain as a whole. Inclusion of members of the value chain facilitates consensus based recommendations and advice to government. The role of each committee member is to represent their respective organizations interests on the Advisory Committee. In many cases, information must first be disseminated through the various organizations prior to consensus based advice being given to the Minister of Agriculture and Agri-Food.

**Description of the context and the history of the measure/practice is taking place (political, legal and economic framework conditions for the measure/practice) (max 200 words)**

Refer to “Brief history” above



**To which provision(s) of Article 9 of the International Treaty does this measure relate**

Article 9.1	<b>X</b>
Article 9.2 a	<b>X</b>
Article 9.2 b	
Article 9.2 c	
Article 9.3	

**Other information, if applicable**

Please indicate which category of the Inventory is most relevant for the proposed measure, and which other categories are also relevant (if any):

No.	Category	Most relevant	Also relevant
1	Recognition of local and indigenous communities', farmers' contributions to conservation and sustainable use of PGRFA, such as awards and recognition of custodian/guardian farmers	<b>X</b>	
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		<b>X</b>
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA		<b>X</b>
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		<b>X</b>
5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		<b>X</b>
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks <sup>4</sup> , seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.		<b>X</b>
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection		<b>X</b>
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels		
9	Training, capacity development and public awareness creation		

<sup>4</sup> Including seed houses



10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.		
11	Other measures / practices		

- **In case you selected ‘other measures’, would you like to suggest a description of this measure, e.g. as a possible new category?**

NA

- **Objective(s)**

See above Objective(s)

- **Target group(s) and numbers of involved and affected farmers<sup>5</sup>**

Target groups were Iroquoian communities from Quebec and Ontario provinces, including Haudenosaunee and Huron-Wendat peoples.

- **Location(s) and geographical outreach**

The project took place mainly in AAFC research centres in Quebec, Saskatchewan and Ontario. Outreach activities allowed the team to meet with people from Akwesasne, Kahnawake, Kanesatake, Tyendinaga, and Six Nations of the Grand River and Wendake.

- **Resources used for implementation of the measure/practice**

The Three Sisters' project required the expertise of research teams from several AAFC research centers across Canada (Quebec City, St-Hyacinthe, St-Jean-sur-le –Richelieu, Ottawa and Saskatoon). It also involved the collaboration of Indigenous peoples from different communities in Quebec and Ontario to help the research team to better understand the current status of the Three Sisters culture system and plant varieties.

- **How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture?**

The Three Sisters project gathered knowledge on plant genetic resources pertaining to the Three Sisters, including varieties of corn, squash and beans. Based on processing research and development, it led to better characterization of post-processing attributes and functionalities (nixtamalization, bioproducts, flours and breads) from Indigenous corn, squash and bean varieties. Another important outcome of the project was the development of an approach respecting Indigenous people's rights over the genetic resources and associated knowledge they hold. Some other project outcomes included: a literature review on Three Sisters cropping models, outreach and networking activities with members of First Nations, especially seed keepers, the implementation of demonstration plots on AAFC research and development centre farms, the assessment of agricultural

<sup>5</sup> Any classification, e.g. of the types of farmer addressed, may be country-specific.



potential of Indigenous communities' lands. The project has thus led to significant advances in understanding the Three Sisters culture and the food produced, as well as building relationships with Indigenous people.

- **Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)**

Refer to section “key outcomes” listed above

- **Other national level instruments that are linked to the measure/practice**

NA

- **Are you aware of any other international agreements or programs that are relevant for this measure/practice?**

NA.

- **Other issues you wish to address, that have not yet been covered, to describe the measure/practice**

NA

#### **Lessons learned**

- **Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).**

While the objectives were initially oriented toward economic development, discussions with Indigenous people from diverse communities highlighted the need to approach Indigenous agriculture and agri-food based on community needs, particularly from nutrition and cultural revitalization perspectives. For this reason, future work will aim at understanding and valuing the Three Sisters polyculture system in connection with nutrition.

- **What challenges encountered along the way (if applicable) (max 200 words)**

It is sometimes still surprising for some researchers to realize that the integration or use of traditional knowledge is significantly increasing the chances of finding promising resources and uses.

- **What would you consider conditions for success, if others should seek to carry out such a measure or organize such an activity? (max 100 words)**

The establishment of a relationship of trust among the various stakeholders is the key to the success of such an initiative. When working with Indigenous people, it is important to become familiar with and respect their culture. The relevance of the Three Sisters project



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du Canada

is largely due to the fact that throughout the project, Indigenous people have been involved to identify their needs and jointly identify research avenues

**Further information**

- **Link(s) to further information about the measure/practice**  
[http://www.procinorte.net/Documents/Workshop\\_Report\\_Conservation\\_Plant\\_Genetic\\_Resources\\_May\\_10-11\\_2016.pdf](http://www.procinorte.net/Documents/Workshop_Report_Conservation_Plant_Genetic_Resources_May_10-11_2016.pdf)



**Title of measure/practice :** Western Wheat Breeding Core Support Agreement

**Date of submission :** July 2019

**Name(s) of country in which the measure/practice is taking place :** Canada

**Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person) :**

Agriculture and Agri-Food Canada, 3600 Casavant W, Saint-Hyacinthe, Quebec, Canada J2S 1T7 Contact person: Nancy Gardner [nancy.gardner@canada.ca](mailto:nancy.gardner@canada.ca) 450-768-9659

**Type of institution/organization (categories) :** Department of the Federal Government of Canada

**Collaborating/supporting institutions/organizations/actors, if applicable (name, address, website (if applicable), e-mail address, telephone number(s))**

Western Grains Research Foundation (WGRF)

<https://westerngrains.com/>

306 – 111 Research Drive

Saskatoon, SK S7N 3R2

Phone: **306-975-0060**

Fax: 306-975-0316

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### **Description of the example**

#### **Mandatory information:**

#### **Short summary to be put in the inventory (max. 200 words) including:**

Western Grains Research Foundation (WGRF) is a farmer-funded and farmer-directed non-profit organization investing in agricultural research that benefits western Canadian farmers. Since 1995, WGRF and Agriculture and Agri-Food Canada (AAFC) have collaborated on western wheat and barley variety development, through a series of collaborative agreements stating contributions of the parties and shared goals. The objective is to provide mutual financial and technical support and to facilitate the development of wheat and barley varieties for Western Canadian farmers with higher yields, improved agronomic traits, end use properties, and better disease and insect resistance. The investment of WGRF relies on check-off payments of farmers in several provinces of western Canada on wheat and barley sold. This money is reinvested in the development of new wheat and barley varieties at AAFC. Farmers are part of the decision-making committee responsible to identify the needs of new varieties and traits creating economic, social or environmental benefits. New varieties may be offered for testing purposes to farmers who contribute to their evaluation. Key outcomes of the collaboration are wheat and barley



varieties that are adapted to various agroecological zones – more than 150 since 1996 – and several research projects focusing on sustainable use of PGRFA.

(200 words)

Implementing entity and partners :

- Western Grains Research Foundation
- Government of Canada – Agriculture and Agri-Food Canada

Start year:

- 1995

Objective(s):

- The objective of the collaboration between WGRF and AAFC is to provide mutual financial and technical support for the wheat and barley breeding programs, to facilitate the development of wheat and barley varieties for Western Canadian farmers with higher yields, improved agronomic traits, end use properties, and better disease and insect resistance. AAFC and WGRF recognize the importance of this partnership through the core support agreement to maintain competitiveness for the wheat and barley producers and their value chain.

Summary of core components:

- The investment of WGRF relies on check-off payments of farmers in several provinces of western Canada on wheat and barley sold. This money is reinvested in the development of new wheat and barley varieties at AAFC.

Key outcomes:

- Key outcomes of the collaboration are wheat and barley varieties that are adapted to various agro-ecological zones – more than 150 since 1996 – and several research projects focusing on sustainable use of PGRFA.

Lessons learned (if applicable):

- Have clear objectives and common goals and maintain sight of those throughout the process and all along the collaboration.

**Brief history (including starting year), as appropriate**

WGRF was created in 1981 bringing together 12 farm organizations who had a vision of building a scientific network on variety development and field crop research that would consult farmers on their needs and work with research organizations to fill that need.

A study commissioned by WGRF to determine how the farmers investment in research in variety development through WGRF benefitted farmers and the study determined that for every check-off dollar invested in varietal development there was a return of \$20.40 in value to Canadian farmers (Gray, R. Nagy, C. and Guzel, A. 2012, University of Saskatchewan).





WGRF and Agriculture and Agri-Food Canada (AAFC) have collaborated on western wheat and barley variety development, through a series of collaborative agreements since 1995.

### Core components

WGRF's investment dollars are directly derived from farmers who paid a check-off payment on wheat and barley sold in the Canadian provinces of British Columbia, Alberta, Saskatchewan and Manitoba. This money collected from farmers is reinvested in the development of new wheat and barley varieties at AAFC. Farmers are part of the decision making committee responsible to identify the needs of new varieties and agronomic traits creating economic, social or environmental benefits. The research agenda focuses on public research. These collaborative agreements define the respective contribution of the parties, the objectives of the research and how the results and new varieties will be shared with the farmers. Extension and technology transfer of research results are planned with farmers and agronomists in the agreement. Those new and improved varieties are offered back to the farmers. Varieties may be offered for testing purposes to farmers who then contribute to the evaluation of those new varieties. Doing so, they are developing the know how pertaining to the production of the new varieties.

### Description of the context and the history of the measure/practice is taking place (political, legal and economic framework conditions for the measure/practice) (max 200 words)

Leaders from 12 farm organizations came together to create WGRF in 1981. Their vision was to establish a robust agricultural research funding organization, one that would consult farmers about what they needed, then work with research providers to fill that need. Today, WGRF invests over \$15 million annually into variety development and field crop research. With the goal of improving Canadian wheat production, AAFC has collaborated on western wheat development through a series of collaborative agreements since 1995.

To which provision(s) of Article 9 of the International Treaty does this measure relate?

Article 9.1	
Article 9.2 a	
Article 9.2 b	<b>X</b>
Article 9.2 c	<b>X</b>
Article 9.3	



**Other information, if applicable**

Please indicate which category of the Inventory is most relevant for the proposed measure, and which other categories are also relevant (if any):

No.	Category	Most relevant	Also relevant
1	Recognition of local and indigenous communities', farmers' contributions to conservation and sustainable use of PGRFA, such as awards and recognition of custodian/guardian farmers		
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA		
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		
5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks <sup>1</sup> , seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.		X
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection	X	
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels		
9	Training, capacity development and public awareness creation		X
10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.		
11	Other measures / practices		

**In case you selected 'other measures', would you like to suggest a description of this measure, e.g. as a possible new category?**

\_\_\_\_\_

<sup>1</sup> Including seed houses



- **Objective(s)**

To establish collaboration through a core agreement between WGRF and AAFC on common goals for the wheat and barley breeding program with the purpose of developing wheat and barley varieties for Western Canadian farmers with higher yields, improved agronomic traits, end use properties, and better disease and insect resistance.

- **Target group(s)** and numbers of involved and affected farmers<sup>2</sup>

Mostly wheat and barley farmers but other groups benefit from the core agreements such as canola farmers. WGRF is made up of farmers from different agricultural organizations across western Canada. AAFC however, represents all Canadian farmers.

- **Location(s)** and geographical outreach

The core agreement focuses mainly on the Eastern Prairie, Semi-Arid and Northern Prairie zones in Canada

- **Resources used for implementation of the measure/practice**

Over the past 5 years, WGRF invested \$ 20 million of Canadian dollars to leverage AAFC's contribution to its wheat and barley breeding programs.

- **How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture?**

Various research projects aiming to improve the sustainable use of PGR were conducted via this collaboration. A few examples:

*-Delivery of an innovative winter wheat agronomic package to achieve sustainable wheat production in Canada (2018)*

*-Long term canola production\_all phases rotating (2017)*

- **Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)**

From 1996 until the present AAFC has licensed or is in the process of licensing over one hundred and fifty wheat and barley varieties suited to various agro-ecological zones of the Canadian prairies.

- **Other national level instruments that are linked to the measure/practice** No
- **Are you aware of any other international agreements or programs that are relevant for this measure/practice?** No
- **Other issues you wish to address, that have not yet been covered, to describe the measure/practice**

#### Lessons learned

- **Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).**

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<sup>2</sup> Any classification, e.g. of the types of farmer addressed, may be country-specific.



Because of the challenges administrating the core agreement, monthly internal governance meetings for all researchers receiving funds from this core agreement were implemented. This ensures that the research is consistent with the objectives outlined in the agreement.

- **What challenges encountered along the way (if applicable) (max 200 words)**

Because the core agreement represents many farmers with many perspectives and because AAFC is a government organization, it was challenging to negotiate an agreement. The agreement is a huge document with many researchers involved in receiving funding.

- **What would you consider conditions for success, if others should seek to carry out such a measure or organize such an activity? (max 100 words)**

Have clear objectives and common goals and maintain sight of those throughout the process and all along the collaboration.

**Further information**

- **Link(s) to further information about the measure/practice**  
<https://westerngrains.com/>