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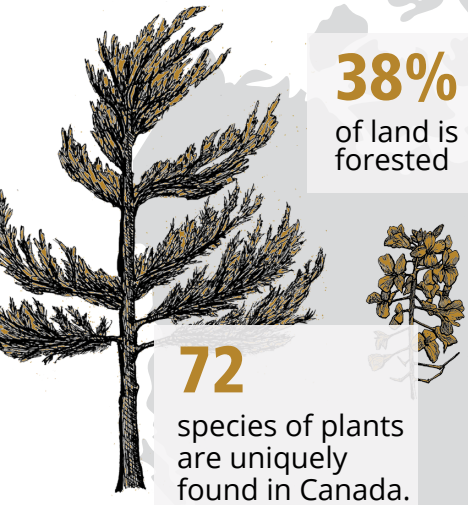
Cultivating Diversity

Plants are foundational to the economic, cultural, physical, and spiritual well-being of all people in Canada, but they are under threat because of environmental and land use changes and the introduction of new pests. ***Cultivating Diversity*** examines the complex web of risks to plant health in Canada and explores promising practices to enhance their resilience – from forests to farms to fields.

PLANTS ARE IMPORTANT

Plants are critical to our daily lives — from the food we eat, to the air we breathe, to the medicines we take.



38% of land is forested

72 species of plants are uniquely found in Canada.

6.5% of land is agriculture

The relationships between **Indigenous Peoples** and plant life are integral to Indigenous identity, culture and, food security.

3% = the contribution of plants to Canada's **GDP**.

Agriculture and forestry account for:

500,000 **jobs**

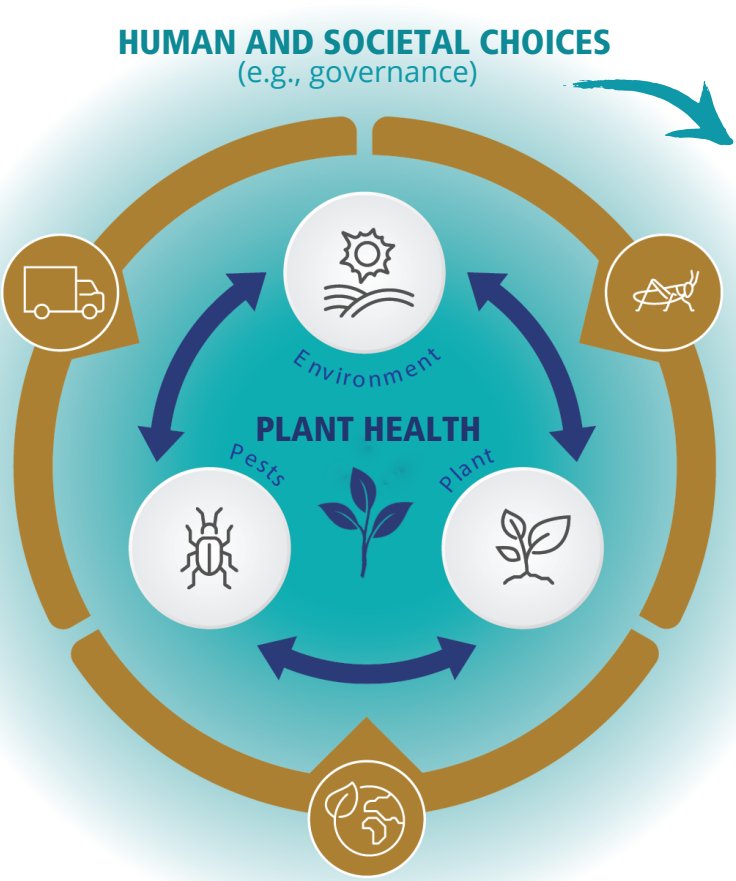
> $90 **billion** in annual **exports**

Healthy plants are able to maintain ecosystem functions, such as supplying food, timber, oxygen, and fresh water, regulating climate, nutrient cycling, and even creating a sense of place.

Plant health reflects the relationships among plants, pests, and the environment.

Risks to plant health are **exacerbated by** factors such as:

- The **movement of goods** and people around the world, which introduces and spreads pest species.
- **Climate change**, which alters weather patterns and causes more extreme events (e.g., wildfires, floods).
- **Evolutionary processes**, which result in pest populations that adapt to management and cultivation practices.



All aspects of the plant health system are affected by issues of **governance**, which reflect the choices we make as individuals and as a society.

Cultivating Diversity identifies risks to plant health caused by changes in the environment, pests, and issues of governance, including a lack of Indigenous perspectives.

MECHANISMS TO ADDRESS RISKS TO PLANT HEALTH

Vulnerability is the inability of the system to resist the impacts of an unwanted event and to restore itself to its original state or function.

DECREASING VULNERABILITY

- Innovation
- Communication
- Coordination

INCREASING RESILIENCE

- Diversity
- Redundancy
- Planning

Resilience is the ability of the system to absorb shocks and accommodate change while maintaining function and avoiding failure.

PROMISING STRATEGIES & PRACTICES

While there is a multitude of practices for managing risks to plant health, the applicability of any one practice or strategy will depend on many different factors. Some examples include:

PREVENTION

- Soil conservation
- Increasing protected land
- International standards
- Public and Indigenous-led plant monitoring
- Surveillance and monitoring technologies

MITIGATION

- Water management
- Novel crop protection products
- Integrated pest management
- Precision agriculture and forestry
- Efficient use of inputs

ADAPTATION

- Breeding technologies
- Indigenous management practices
- Diversification of management practices and goals
- Assisted migration
- Diversification of crop and forestry species

- Increasing capacity and skills
- Early and active engagement
- Sustainable management practices
- Enhancing coordination and transparency
- Active encouragement and respectful inclusion of Indigenous knowledge

An **inclusive**, **connected**, and **responsive** plant health system is key to addressing current and emerging plant health risks in Canada

A continuous risk management approach can be useful in addressing a dynamic risk landscape, allowing for an iterative and adaptive process that is centred on communication and documentation.

Canada is comprised of vast, diverse landscapes, and the scope and urgency of protecting plant health is daunting. Many are unaware of the critical role plants play in their lives, but the ecosystem functions of plants support us, and other life, on Earth. However daunting, **addressing risks to plant health is achievable and imperative** for ensuring our collective future.

Cultivating Diversity. The Expert Panel on Plant Health Risks in Canada (2022).
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