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SPARK questions about **food** DIVERSITY

project

AGRICULTURE

How does **crop diversity** feed the world?

Crop diversity is central to the production of food around the world.

food comes from cultivated plants

Agriculture provides not only food and jobs, but also resources such as cotton for clothing, wood for shelter and fuel, plants and roots for medicines.

Nearly one third of the world's land area is used for food production.

Cultivated plant species are an important source of nutrition. However, of the more than 6 000 plant species that have been cultivated for food, only nine species account for 66 percent of the total crops produced.



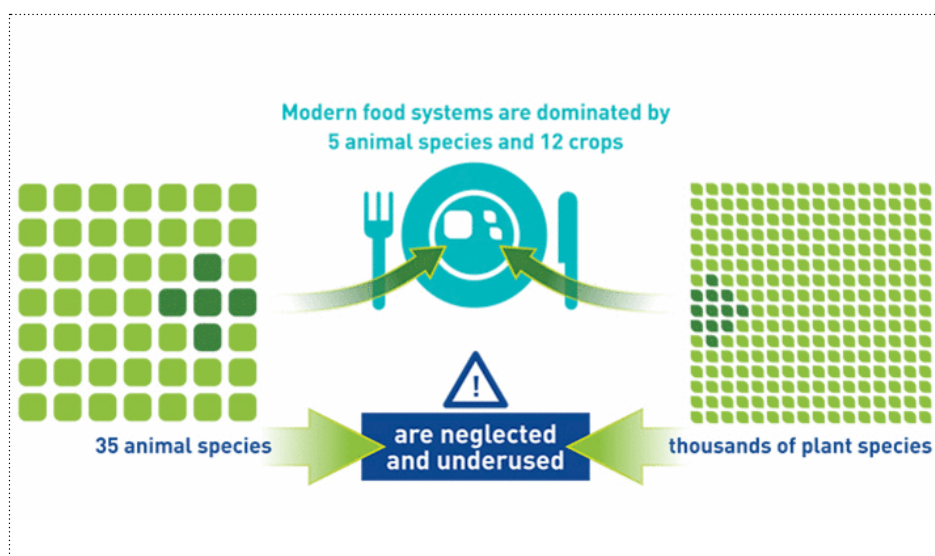
I will use information and **INVESTIGATE FURTHER** questions to help me identify a project question I want to investigate for an **food DIVERSITY** project.

I will identify what I need to know more about.



INVESTIGATE FURTHER

What plants are the most commonly used sources of food? Why are these plants most commonly used?



Infographic provided under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License from Improving nutrition with diverse local foods. www.biodiversityinternational.org/research-portfolio/diet-diversity/improving-nutrition-with-diverse-local-foods/

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Wild species are also an important source of nutrition for many people around the world. They contribute to traditional food systems. However, many wild species are at risk.

A **food system** includes how and where food is grown, the materials needed to grow the food, how it is processed and distributed and how it is consumed. It also includes the waste that is created by all these activities.



Food systems that encourage agricultural diversity as well as traditional knowledge have the potential to more efficiently provide food across the world.

- ◆ Diversity in food systems includes natural and human-made plant resources, including crops, wild plants that are harvested for food and trees on farms, pastures and ranges.
- ◆ Food system diversity includes animal resources, including domesticated animals, wild animals hunted for food, wild and farmed fish and other aquatic organisms.
- ◆ Diversity also includes microbial and fungal genetic resources.

From Agricultural Biodiversity. Convention on Biological Diversity: Online. www.cbd.int/agro/

INVESTIGATE FURTHER

How does agricultural diversity strengthen food systems?

INVESTIGATE FURTHER

What role do plants – both cultivated crops and wild plants – play in the world's food supply?

INVESTIGATE FURTHER

How do crop plants contribute to biodiversity?

biodiversity is important to agriculture

The variety and diversity of plants – as well as all other living species – in the world is also described as **biodiversity**.

Biodiversity is also of great importance to farmers. Crops, livestock, insects, water sources, soils and natural landscapes all interact with each other. All these factors are considered and maintained by farmers to protect and strengthen **agricultural biodiversity**.



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What is agricultural biodiversity?

Basically, it's the variety and variability of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture.

So, agricultural biodiversity can encompass crop varieties within a species (for instance, the 1000s of varieties of quinoa, and over 4000 varieties of potato), different crops, different land-use types in mosaic landscapes, species and breeds of livestock, farmed fish species, a vast array of wild biodiversity – from insects that pollinate crops, to crop wild relatives, to myriad soil biota. All very impressive, but what does it actually do for us?

What has agricultural biodiversity ever done for us? Biodiversity: Online. www.biodiversityinternational.org/news/detail/what-has-agricultural-biodiversity-ever-done-for-us/

BENEFIT: Agricultural biodiversity provides food.

Agricultural biodiversity gives us an enormous variety of food, not just countless tonnes of the same food.

This includes food choices and the recipes used to make them as well as a variety of local and regional foods and the stories and traditions associated with them.

Think about what the four benefits described here tell you about the importance of agricultural biodiversity.



BENEFIT: Agricultural biodiversity reduces losses of crops from pests and diseases.

Pests and diseases are a constant issue for farmers and one of the major causes of crop loss. The insect pests pictured here – grasshoppers, bertha armyworm and cabbage seedpod weevil – are common pests found in Alberta grain and oilseed crops.



When crop diversity is reduced, the chances of crop pest and disease outbreaks increases. However, high levels of agricultural biodiversity can help suppress or reduce pests and disease.

For example, using practices like crop rotation and increasing the number of crop varieties or species in a field or farm can reduce the chances that pests will find their target crop plants. These practices can also reduce the movement of pests and increase the predators and parasites that prey on those pests. All of these can reduce damage to the crop plants.



INVESTIGATE FURTHER

How can crop diversity and variety reduce pests and diseases?

How does soil quality affect the growth of healthy crops?

BENEFIT: Agricultural biodiversity can have beneficial effects on soil function.

Planting several crop plant species together, such as mixtures of grass and legumes, can:

- ◆ Increase soil nitrogen, which can reduce the need for fertilizers
- ◆ Reduce weed invasion through increased soil cover
- ◆ Lead to higher moisture retention in the soil
- ◆ Stabilize the soil and reduce erosion
- ◆ Increase soil biodiversity and its many useful ecosystem functions



BENEFIT: Agricultural biodiversity can be beneficial for wild biodiversity.

Farms with high agricultural biodiversity tend to be more complex and therefore provide habitat and resources for wild species.

Agricultural biodiversity can help reduce or prevent pests and diseases while supporting natural soil fertility. This can help protect natural vegetation, such as the plants, trees and organisms found in forests and wetlands.

The increase of wild biodiversity can lead to increased pollination rates, which benefits both natural and cultivated plants.



Information from What has agricultural biodiversity ever done for us? Biodiversity: Online. www.biodiversityinternational.org/news/detail/what-has-agricultural-biodiversity-ever-done-for-us/ and Major crop insect pests. Government of Alberta: Online. www.alberta.ca/major-crop-insect-pests.aspx



INVESTIGATE FURTHER

How do plants interact with animal life and microorganisms in agricultural environments? Why is this interaction important?