



Build Competencies in **sustainable** PRACTICES

project

AGRICULTURE

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making **ecosystem** and **agriculture** connections



MAKE IT PERSONAL

How many different plant species do you depend on for food?



SEARCH AND EXPLORE

Ecosystems

Work with a partner or small group to find and watch the **What are Ecosystems and Biomes** video listed in the sidebar. As you listen to the definitions and descriptions of ecosystems, write down at least five descriptive points that explain why farms are ecosystems.

Listen for definitions of biomes found around the world. Or, skip ahead to **12:40** to learn about grassland biomes or **14:10** to learn about aquatic biomes, including wetlands. Why are prairie grasslands and wetlands considered biomes? Why are Alberta grain, oilseed and pulse farms part of either of these two biomes?

Use the **T-Chart** on the following page to provide at least **two** reasons why prairie grasslands **or** wetlands are a biome and why farms are part of one of these biomes.



Use **HOW ARE NATURAL AND AGRICULTURAL ECOSYSTEMS CONNECTED?** for these learning tasks. Use the Learning Source and the information for this guiding question in the **sustainable PRACTICES** carousel on www.projectagriculture.ca. Check out these weblinks for additional information.

Find and watch the video **What are Ecosystems and Biomes - More Way Cool Science** on the Learning Videos Channel, found at www.youtube.com/watch?v=Y3Hw-9TElyk to explore the characteristics of ecosystems.

Find a map of pulse crop areas in Alberta on the Alberta Pulse website at <https://albertapulse.com/growing-pulses/growing-zones/>.

A map showing the canola growing areas of Alberta can be found at www.canolacouncil.org/about-canola/industry/.

Explore the connections between winter wheat and ducks in the article **Ducks love to nest in winter wheat (November 2021)** on the Ducks Unlimited website at www.ducks.ca/stories/grasslands/duck-nests-in-winter-wheat/.

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Why prairie grasslands or wetlands are biomes	Why grain, oilseed and pulse farms are part of grassland or wetland biomes

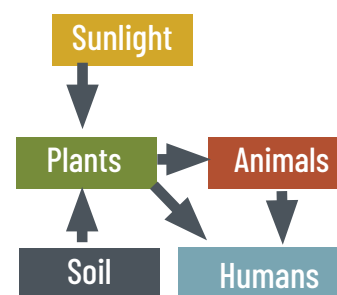


INVESTIGATE AND CREATE

Farms as Ecosystems

What are the characteristics of different agriculture ecosystems? Focus on **one** of the following examples of crops that are grown in Alberta.

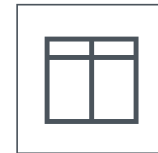
Use the crop you select to illustrate what an agricultural ecosystem with this crop would look like. Use the ecosystem flowchart as an model. Create your own version of this ecosystem flowchart, using the crop you select. Use the suggestions on the following page to help you add details to your ecosystem flowchart.



Winter Wheat	Spring Wheat	Barley	Chickpeas
Lentils	Dry Peas	Beans	Canola

- Apply what you have learned about agricultural ecosystems to provide details that are specific to your crop.
- Find out where this crop is grown in Alberta. Focus on one area. For example, you may find that most dry bean crops are grown in southern Alberta. What are some of the natural features of this area?
- Add illustrations to your agricultural ecosystem flowchart.
- Compare your agricultural ecosystem flowchart with another focused on a different crop.

Describe the biotic and abiotic elements of your agricultural ecosystem. Use the **T-Chart** below or create your own to organize your thinking.



Biotic elements of the agricultural ecosystem	Abiotic elements of the agricultural ecosystem

What are three examples of interactions between the biotic and abiotic elements in your agricultural ecosystem?

Which ecosystem features are the same, no matter what type of farm or crop?
Which could be different?

What does the idea of ecosystem services mean to you? In what ways are human needs met by both natural and agricultural ecosystems?

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Ecosystem services provide functions that are essential to all life, including humans.

How do natural and agricultural ecosystems complement each other? How might they conflict with each other? Use another T-Chart to compare natural and agricultural ecosystems.

Complement	Conflict

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Canada’s grasslands protect our soil and mitigate climate change. They are complex ecosystems that support hundreds of species, but they are also where we grow our food and enjoy the outdoors.

From Grasslands. Ducks Unlimited Online. www.ducks.ca/our-work/grasslands/

How can this quote help you make a conclusion about the interdependence of natural and agricultural ecosystems in meeting human needs?

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