

## WHAT ARE PULSES?

Pulses are the dried, edible seeds of some of the plants in the *legume* family. The two main types of pulses grown in Manitoba are *peas* and *edible beans*. Because pulses are high in protein, they are a valuable and popular source for plant-based protein.

## PULSES AND THE ENVIRONMENT

Pulses are *nitrogen-fixing* plants. This means that bacteria in the *inoculants* applied to pulses take nitrogen from the air and convert it into plant food. Because of the extra nitrogen pulses provide, farmers don't need to put as much fertilizer in the soil. Their lower environmental impact makes pulses a more sustainable crop to grow than other crops.



**DID YOU  
KNOW?**

You can even  
put pulses in muffins  
and lasagne!

## CAREERS

- » Farmer
- » Agronomist
- » Researchers
- » Seed cleaning
- » Farm labourers
- » Truck drivers
- » Marketing
- » Journalist
- » Machinery development
- » Quality assurance
- » Farm advisors
- » Food processing

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## HISTORY

Field peas are one of the oldest crops in the world, first cultivated as early as 9,000 years ago! They are native to Syria, Iraq, Iran, Turkey, Israel, Jordan, and Lebanon, and have been cultivated in Europe for several thousand years.

Peas are now grown in all climate zones, including the tropics, where they're grown at high elevations.

Pea production in Manitoba began in 1908, but less than 2,000 acres were harvested. In the years following the Second World War, Canadian pea production was concentrated in Manitoba.

Production slowly started increasing in 1977. The opening of the European feed pea market in 1985 made production highly profitable for pea producers in Western Canada. In Manitoba, growth in production reached a pinnacle of 260,000 acres in 1998.

## PRODUCTION

Peas are a legume with a *taproot* root system. Peas do not tolerate *salinity* (saltiness) or *water logging* (soil that holds too much water). Pea plants develop best in deep soils and grow poorly in eroded or compacted soils.

*Field peas* are a cool season crop sensitive to drought, especially during flowering and pod set. They yield highest in the cooler Black and Grey soil zones.

In Manitoba, pea yields achieved a new record in 2020 when they climbed to an average of 52.5 bushels (3,150 lbs) per acre across the province.

Growing peas can be good for soil that has lost nutrients. Like other pulses, peas also put nitrogen back into the soil.

## VARIETIES

The varieties of peas produced and marketed in Manitoba are:

- Yellow (yellow *cotyledons* or leaves)
- Green (green *cotyledons*)
- Forage (also called Austrian winter pea, with coloured flowers)
- Maple pea
- Marrowfat

## NUTRITION

Peas are rich in complex carbohydrates, fibre, vitamin C and B-vitamins and are low in fat. They are also a great source of protein for both human and livestock (especially pig) consumption.

**DID YOU  
KNOW?**

Manitoba is the home to the world's largest pea processing plant! The Roquette plant opened in Portage la Prairie at the end of the 2020 harvest.



# FARMER PROFILE



## BRYCE MACMILLAN

Marquette, Manitoba

“I like growing peas because they are an environmentally friendly crop that is meeting the demand for plant protein.”

### INDUSTRY IN MANITOBA

**Production:** 218,000 metric tonnes (2023)

**Acres Grown:** 161,000 (2023)

**Value to Economy:** \$91.9 million in farm cash receipts (2022)

### INDUSTRY IN CANADA

**Production:** 2.7 million metric tonnes (2023-24 season, estimated)

**Acres Grown:** 3.2 million (2023)

# Edible Beans

## HISTORY

Edible beans, also known as dry beans, field beans or common beans, are an important part of Manitoba's agricultural history. These beans, which were probably domesticated 7,000 to 8,000 years ago in South and Central America, were grown in what is now Manitoba over 2,000 years ago. The plant would have made its way north through trade between Indigenous groups in the countries now known as Mexico, the United States, and Canada.

Beans are one of the *Three Sisters* crops – a triad made up of corn, squash and beans. Indigenous peoples used these crops to support an efficient production system: all three were planted in the same area so the beans could climb the corn stalks and the squash could cover the ground to prevent weed growth.

The development of edible bean varieties adapted to the environment, with improved seed quality and disease resistance, have resulted in a substantial increase in edible bean production since the mid-1990s. Manitoba is the second largest producer of edible beans in Canada, accounting for 40 per cent of the country's production in 2020.

## PRODUCTION

Like peas, beans are sensitive to high salt levels and don't tolerate large amounts of water. Unlike peas, they're a warm season pulse, which means frosts and low soil temperatures can harm them. They're planted mid to late May and early June to avoid risk of frost and ensure the soil has had time to warm up.

Compared to other pulses, beans aren't the best at nitrogen fixation. They can only pick up about half the nitrogen they need, which means farmers often need to supply them with extra nitrogen via fertilizer.

Edible beans don't compete well with other plants, so farmers must be careful to manage the weed populations in their bean

fields. They often do this by planting in narrow rows, making sure the plants aren't overcrowded, and using herbicides to prevent and kill weeds. Other weed management techniques include planting edible bean plants into clean fields where a competitive cereal has grown beforehand and already eliminated many of the weeds. Farmers who plant their beans in wide rows use *tillage* between the rows to stir up and aerate the soil, ripping up weeds in the process.

*Fusarium root rot* is the most common disease affecting beans in Manitoba. It's more likely to strike when moisture sits in the soil.

Farmers take care of their crops by checking on them regularly to see how they're coping with weather, insects, diseases, other plants, and more. This helps producers better evaluate and predict yields.

Beans can be harvested the following ways:

1. **Undercutting** and **windrowing** cuts the bean plants just below the soil surface and piles them into long rows. This method is used on plants with lots of vines that grow with pods close to the ground, and on wide-row beans.
2. **Swathing** cuts the plant just above the ground so that combines can pick them up more easily. A combine is a piece of equipment that cuts the stems and separates the beans from the stalks.
3. **Straight cut** or **direct harvesting** uses a special header on the combine. This header sits low to the ground to cut the plants at exactly the right height. Swathing or direct harvesting methods work better for harvesting beans that grow tall and have more pods closer to the top of the plant.

Beans are ready to be harvested when about three quarters of the pods in the field are dry.



## VARIETIES

Many different edible beans are grown in Manitoba:

- White Pea (Navy)
- Coloured and other
- Kidney and cranberry
- Pinto (the most popular)
- Black
- Small Red

## NUTRITION

Edible beans are a great source of protein, fibre, and other high-quality nutrients. Even better, they contain very little fat, sodium, or cholesterol. Studies have shown that consuming edible beans reduces the risk of heart disease, diabetes, obesity, and cancer. Beans are also a budget-friendly choice. Their neutral flavour means they can be added to any meal, from pastas to desserts!

### INDUSTRY IN MANITOBA

**Production:** 121,900 metric tonnes (2023)

**Acres Grown:** 142,000 (2023)

**Value to Economy:** \$121,076,000 in farm cash receipts (2022)

### INDUSTRY IN CANADA

**Production:** 276,600 metric tonnes (2023-24 season, estimated)