Farm Management Survey, 2021

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Fertilizer use in Canada

The type of fertilizer Canadian farm operators applied to crops, the methods they used and the timing of the application are important farm management practices to optimize yields. These practices can also minimize the environmental impacts of fertilizer use, especially fertilizer containing nitrogen. The application of nitrogen can result in greenhouse gas emissions and harm water and biodiversity when leached into the environment.

The Government of Canada has set out a target to reduce nitrogen emissions associated with fertilizer application by 30% below 2020 levels by 2030. Efforts to achieve emissions reductions will focus on improving nitrogen management and optimizing fertilizer use.

Overall fertilizer use in Canada decreasing

In 2021, 80% of field crop producers (such as canola, soybeans and corn) applied commercial fertilizer, compared with 89% in 2017. For forage crop producers (such as hay or silage), 39% applied fertilizer, down 2% from 2017. In 2021, almost two-thirds (63%) of fruit, vegetable, berry and nut crop producers applied fertilizer, down 12% from 2017.

Average number of fertilizer types applied

The average number of fertilizer types field crop producers applied in 2021 was 1.63, up from 1.51 types in 2017. For forage crops, it was 1.10, down from 1.13 types in 2017. Fruit, vegetable, berry and nut crop producers applied 1.29 types of fertilizers on average, down from 1.39 types in 2017.

Types of fertilizers applied on Canadian farms

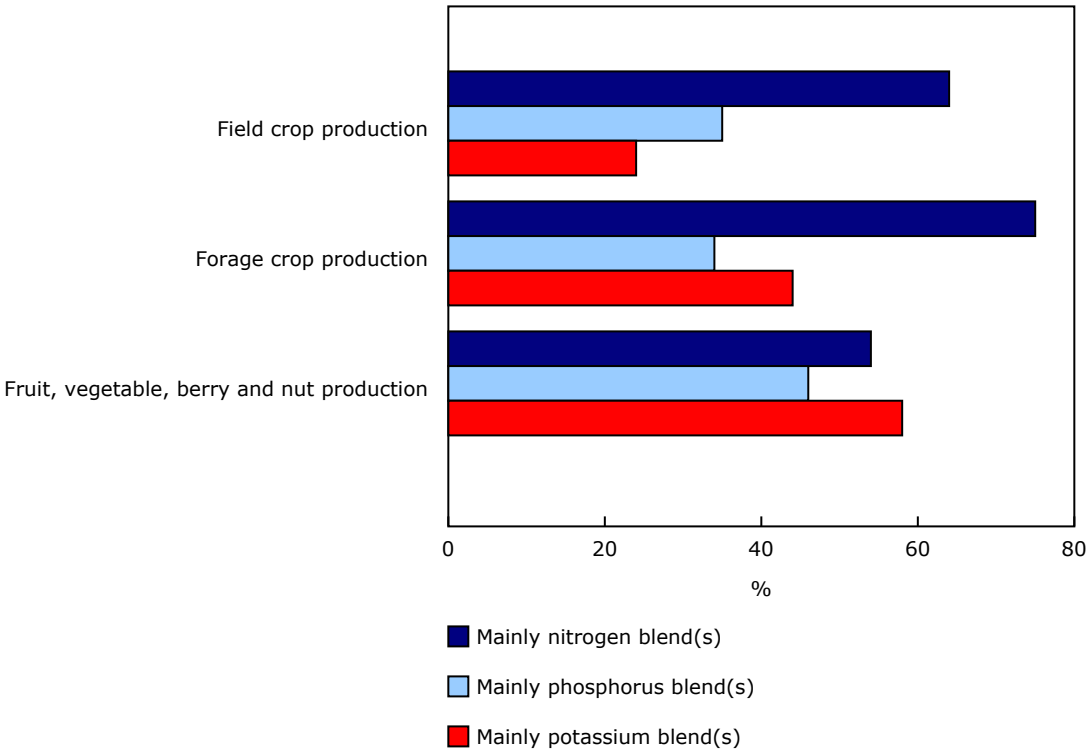
When it comes to the type of fertilizer that was applied, 33% of field crop producers in Canada who applied commercial fertilizer used a custom or common blend fertilizer, down 3% from 36% in 2017. A custom blend is a unique blend prepared for a specific client, and a common blend is a blend of two or more fertilizer products that are prepared by a fertilizer dealer for several clients. In 2021, 26% of forage crop producers and 35% of fruit, vegetable, berry and nut producers in Canada who applied fertilizer used a custom or common blend fertilizer, down 8% and 6%, respectively.

In 2021, 64% of field crop producers who applied a custom or common blend fertilizer applied one with mainly nitrogen, down 1% from 65% in 2017. For forage crop producers, 75% of those who applied a custom or common blend fertilizer applied one with mainly nitrogen, up 10% from 65% in 2017. Finally, 58% of fruit, vegetable, berry and nut crop producers who applied a custom or common blend fertilizer opted for one with mainly potassium in 2021.

Aside from custom or common blends, 32% of field crop producers across Canada used urea fertilizer products, 10% used ammonia or anhydrous ammonia, 12% used urea ammonium nitrate liquid, 25% used monoammonium phosphate and 25% used potash.

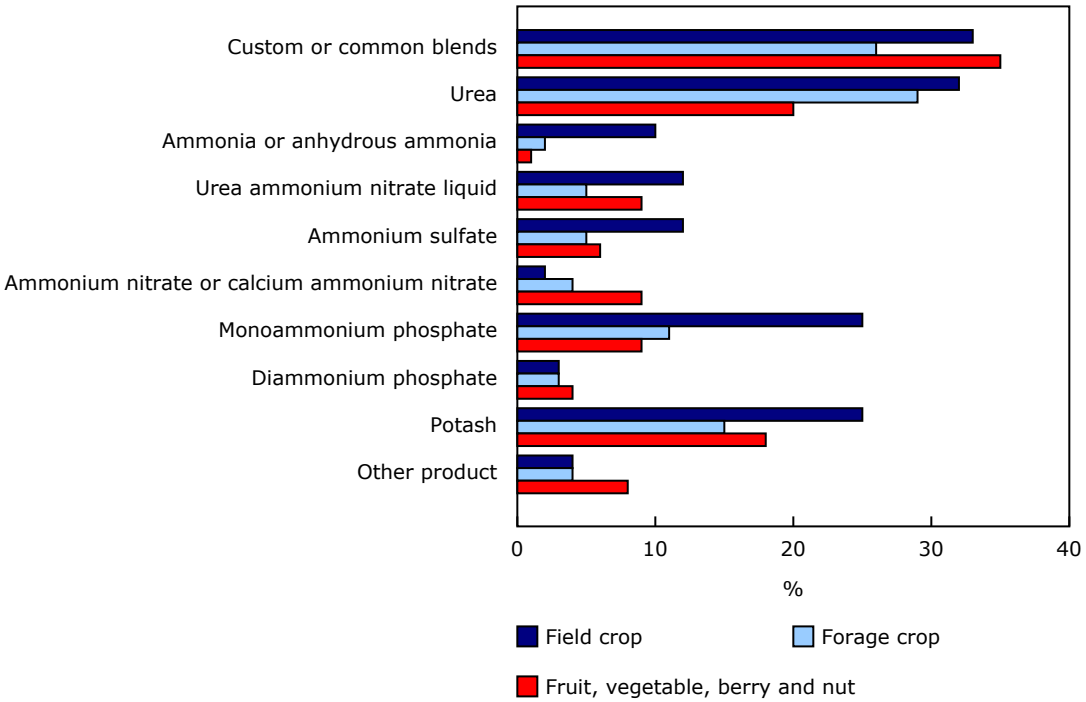
Controlled or slow-release fertilizers are effective at making sure nutrients, such as nitrogen, are available when crops need them. In 2021, 24% of field crop producers used controlled or slow-release fertilizer, up from 21% in 2017. Fewer Canadian fruit, vegetable, berry and nut crop producers used controlled or slow-release fertilizers in 2021 (20%) than in 2017 (25%).

Chart 1
Custom or common blend fertilizer use by nutrient content, Canada, 2021



Source(s): Table 32-10-0389-01.

Chart 2
Distribution of types of fertilizer applied, by crop production type, Canada, 2021



Source(s): Table 32-10-0389-01.

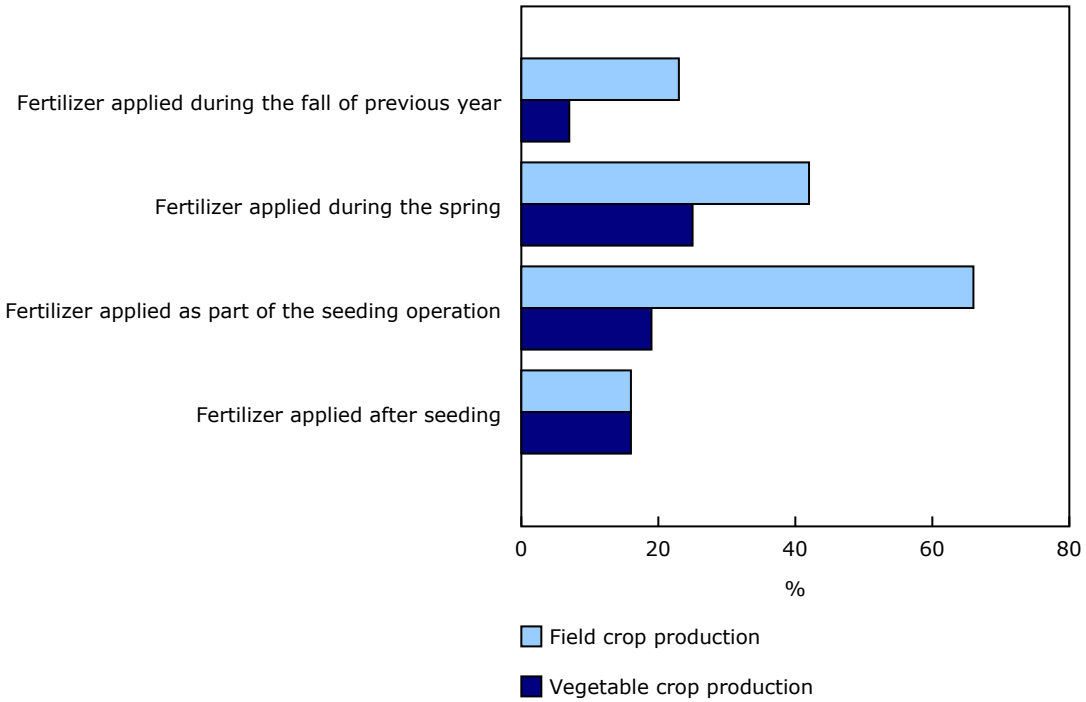
Timing of fertilizer application

There is a higher risk of nutrient loss from flooding and run-off events when fertilizer is applied during the fall, resulting in greater environmental impacts. In 2021, 23% of the field crop producers who applied commercial fertilizer in Canada applied it in fall 2020, compared with 19% in 2017. For vegetable crop producers, 7% applied fertilizer during fall 2020. Further, two-thirds (66%) of field crop producers and 19% of vegetable crop producers applied their commercial fertilizer as part of the seeding operation in 2021. It is beneficial to apply during this time—later in the spring as opposed to earlier in the fall—as the crop is at its critical growth stage.

The most common crop type is determined by the largest crop grown on an operation, based on the planted or seeded area. Of the producers growing mainly canola in Manitoba who applied fertilizer to their canola crops, 58% applied it in fall 2020. In contrast, canola producers in Saskatchewan (82%) and Alberta (72%) applied fertilizer more often as part of the seeding operation in 2021. Meanwhile, of the wheat crop producers in Ontario who applied fertilizer, 52% applied it in fall 2020.

Of the forage crop producers in Canada who applied fertilizer, 85% applied it from April to June, up 5% from 2017.

Chart 3
Timing of fertilizer application for field crop and vegetable crop production, Canada, 2021



Note(s): Asked only of field crops and vegetable crop producers (excluding asparagus) applying fertilizer. This is because these crops are generally annual. Fertilization timing in relation to seeding can be asked.
Source(s): Table 32-10-0390-01.

Methods of applying fertilizer across Canadian farms

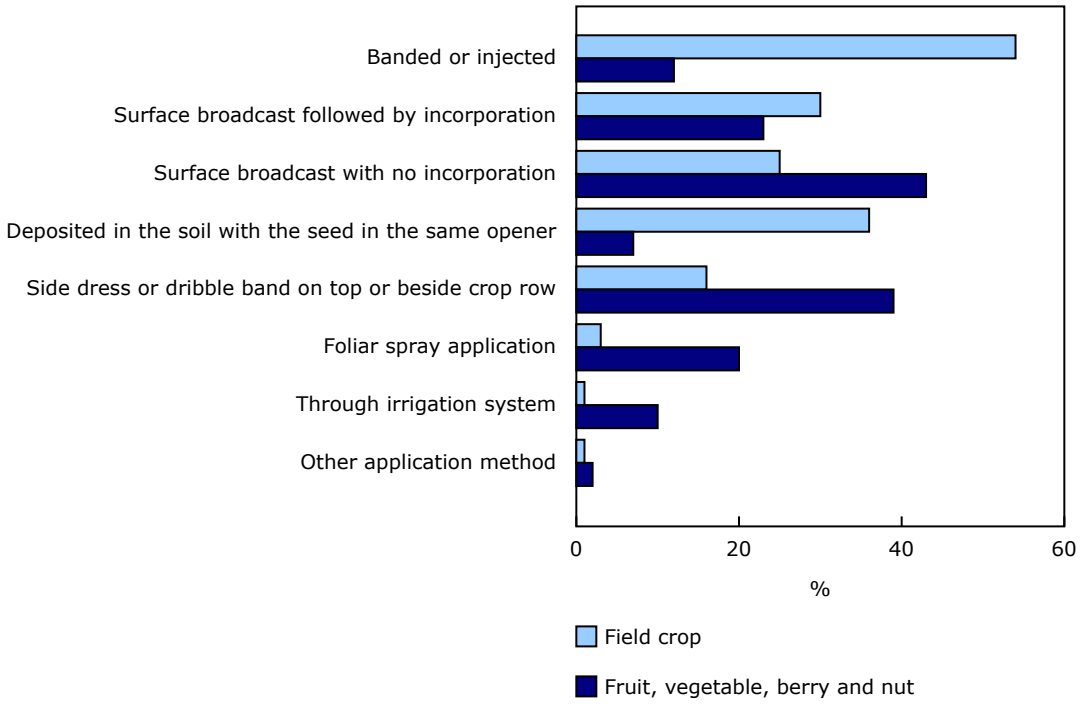
Ensuring nutrients are applied in the right place, where crops can use them, is important to reduce inefficient uptake and nutrient loss to the environment. Certain application methods—such as the banded application, where fertilizer is placed in a "band" about 2 inches above and 2 inches below the seed or plant—are recommended to reduce nitrogen emissions from fertilizer application.

Of the field crop producers in Canada who applied commercial fertilizer, 54% applied it in bands or injected it directly into the roots of the plants. The majority of field crop producers in Manitoba (72%), Saskatchewan (71%) and Alberta (63%) who applied commercial fertilizer used the banded or injecting fertilizer application methods.

Side dressing, dribble band application and fertilizer that is deposited in the soil with the seed in the same opener are other important methods that can be used to increase efficient nutrient uptake of fertilizer. Of the field crop producers in Canada that applied fertilizer, 16% used side dressing or dribble band application and 36% deposited the fertilizer in the soil with the seed in the same opener.

A surface broadcast is a method of fertilizer application whereby nutrients are spread on the surface of the soil (or growing crop). A surface broadcast without soil incorporation can lead to inefficiencies in nutrient uptake and high nutrient loss to the broader environment from run-off. In 2021, 30% of field crop producers used surface broadcast followed by incorporation and 25% did so without incorporation. Of the fruit, vegetable, berry and nut producers that applied fertilizer, 23% used surface broadcast followed by incorporation and 43% did so without incorporation.

Chart 4
Methods of fertilizer application, by crop production type, Canada, 2021



Source(s): Table 32-10-0391-01.

Note to readers

The Farm Management Survey

This release focuses on estimates based on fertilizer-related data.

The Farm Management Survey (FMS), published every five years, is a collaborative project between Statistics Canada and Agriculture and Agri-Food Canada.

The FMS contributes to Agriculture and Agri-Food Canada's work on measuring selected management practices in the agricultural sector. The information generated from this survey informs federal and provincial policy decisions in the sector.

Methodological information

Further information on the Farm Management Survey is available.

Previous publications

Further analysis can be found in the Farm Management Survey release from December 3, 2019.

Available tables: 32-10-0389-01 to 32-10-0391-01 .

Definitions, data sources and methods: survey number 5044.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; **infostats@statcan.gc.ca**) or Media Relations (**statcan.mediahotline-ligneinfomedias.statcan@statcan.gc.ca**).