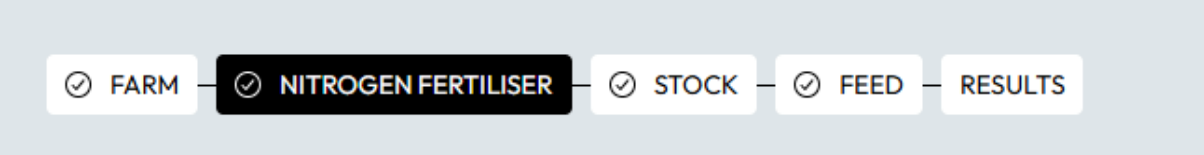
on-farm emissions calculator

**Using the On-Farm Emissions Calculator: data entry guide**

This guide walks you through the key steps for entering your farm data into the Calculator. It's designed to help you get accurate results with minimal fuss, whether you're planning a future scenario or just exploring how your farm's emissions stack up.

**Navigating the entry screens**

At the top of each entry screen, you'll see a handy **breadcrumb trail** – a visual wayfinder that shows where you are in the process and what's coming next.




It helps you track your progress and understand whether you're ready to move forward.

- The **"Next" button** only becomes active once all required fields have been entered correctly.
- If something's missing or doesn't look right, you'll see **error messages or hints in red** to help you fix it.
- You can move back to previous steps at any time to review or update your entries.

This built-in guidance helps ensure your data is complete and valid before you calculate your results.

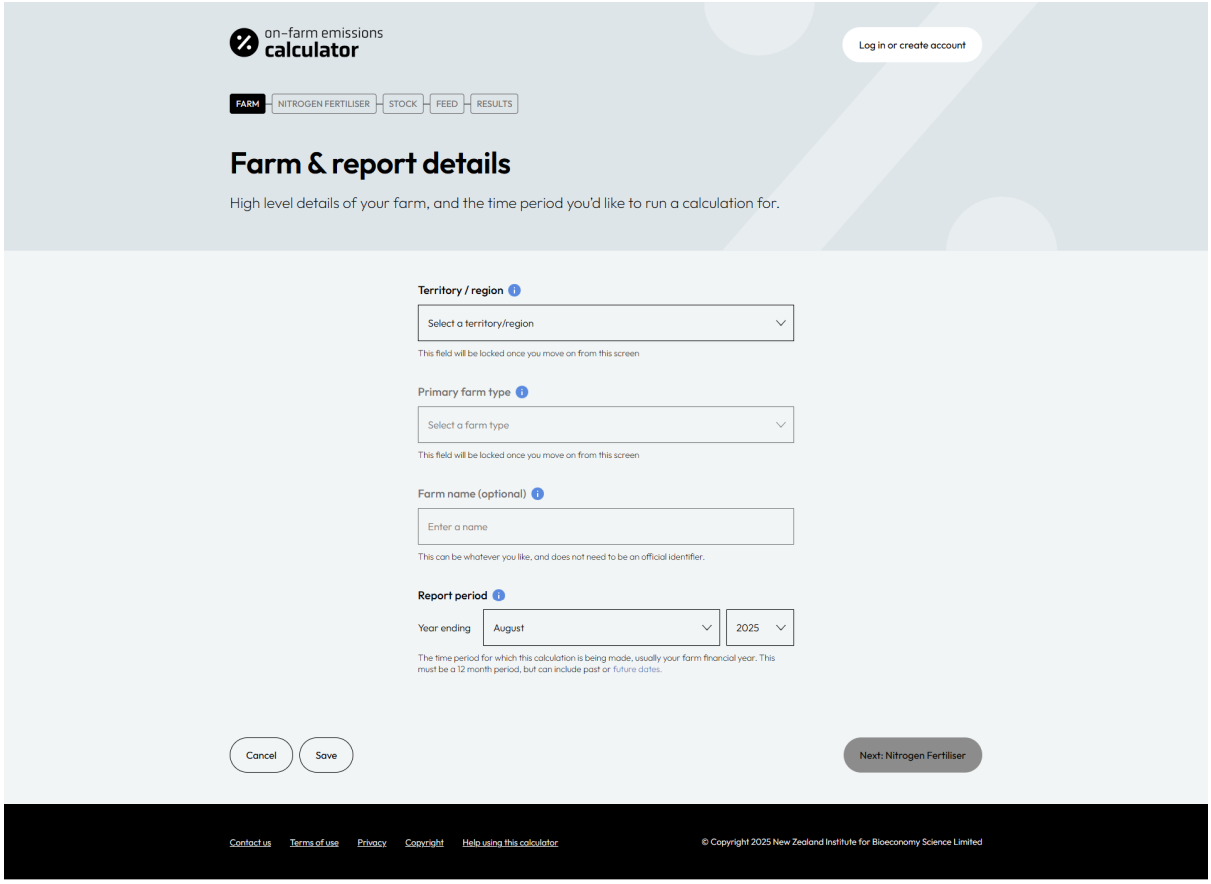
**Step 1: Farm and report details**

Start by setting the context for your calculation.

**What you'll enter:**

- **Territory / Region**
  Choose your farm's location based on your local council or territorial authority.
  This field is locked once you move to the next screen.
- **Primary Farm Type**
  Select the main farm class based on revenue and stocking rate.
  Also locked after this screen.

- **Report Period**
  Choose any 12-month period: past, current, or future.
  You don't need to match your financial year.
  If you're planning ahead, use the same month from this year (e.g. July next year → July this year). The Calculator uses seasonal patterns, so the month matters more than the year. *A standard reporting year is 365 days. If you copy a report but change the reporting period, you may see slight changes to the emissions, especially if your new period includes a leap year (366 days).*
- **Farm name (optional)**
  This appears on your downloadable report. You can enter any name you like.



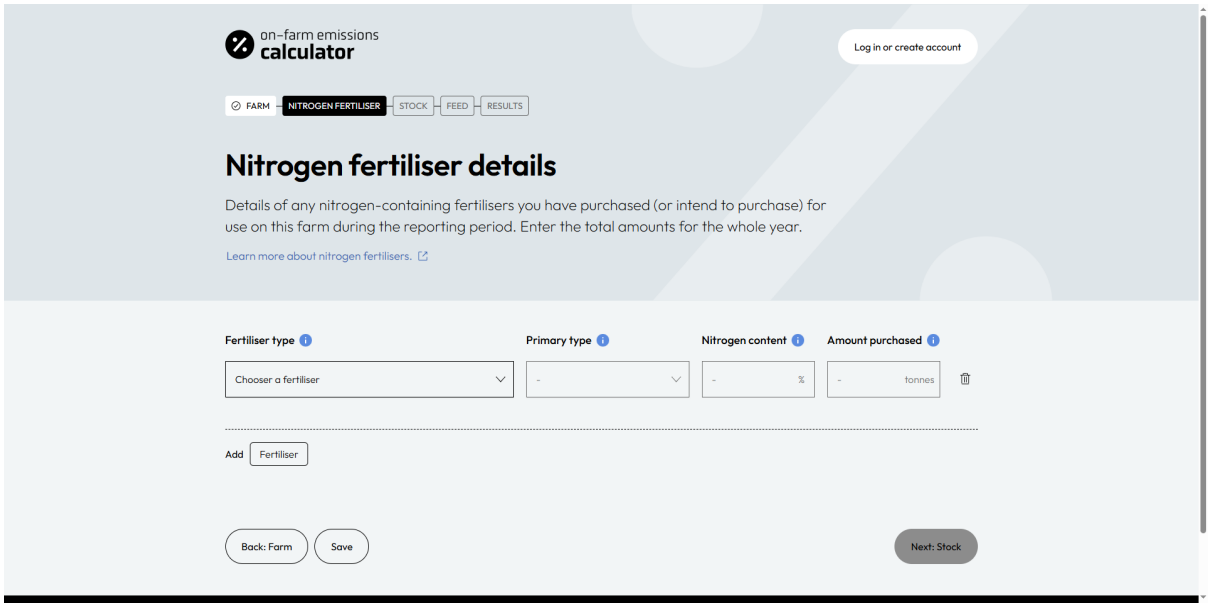

### Step 2: Fertiliser use

Record fertiliser purchased during the report period. We have included common fertilisers for you to select from but if yours isn't on the list or you use a custom blend, then select custom and use the details from your invoice or receipt for the percentage nitrogen.

**For each fertiliser type:**

- **Fertiliser Type**
  Select from the dropdown or enter manually.
- **Primary Type**
  Choose the fertiliser category (e.g. urea, coated urea).
- **Nitrogen Content (%)**
  Found on product labels or supplier receipts.
- **Amount Purchased (kg)**
  Total purchased during the report period (even if not all of it was applied).

You can add multiple fertiliser types. The Calculator uses this data to estimate nitrous oxide emissions.




### Step 3: Stock numbers and movements

Enter stock numbers and movements across the year. You will need to select the sectors (sheep, beef, deer and/or dairy) for which you have stock and then provide information on stock classes.

**For each stock class** you are provided a summary of**:**

- **Opening Count**
  Starting number of animals at the beginning of the report period.
  Automatically blank for newborns.
- **Incoming**
  Includes births, purchases, and transfers in.

- **Outgoing**
  Includes deaths, sales, and transfers out.
- **Closing Count**
  Auto-calculated: Opening + Incoming – Outgoing.

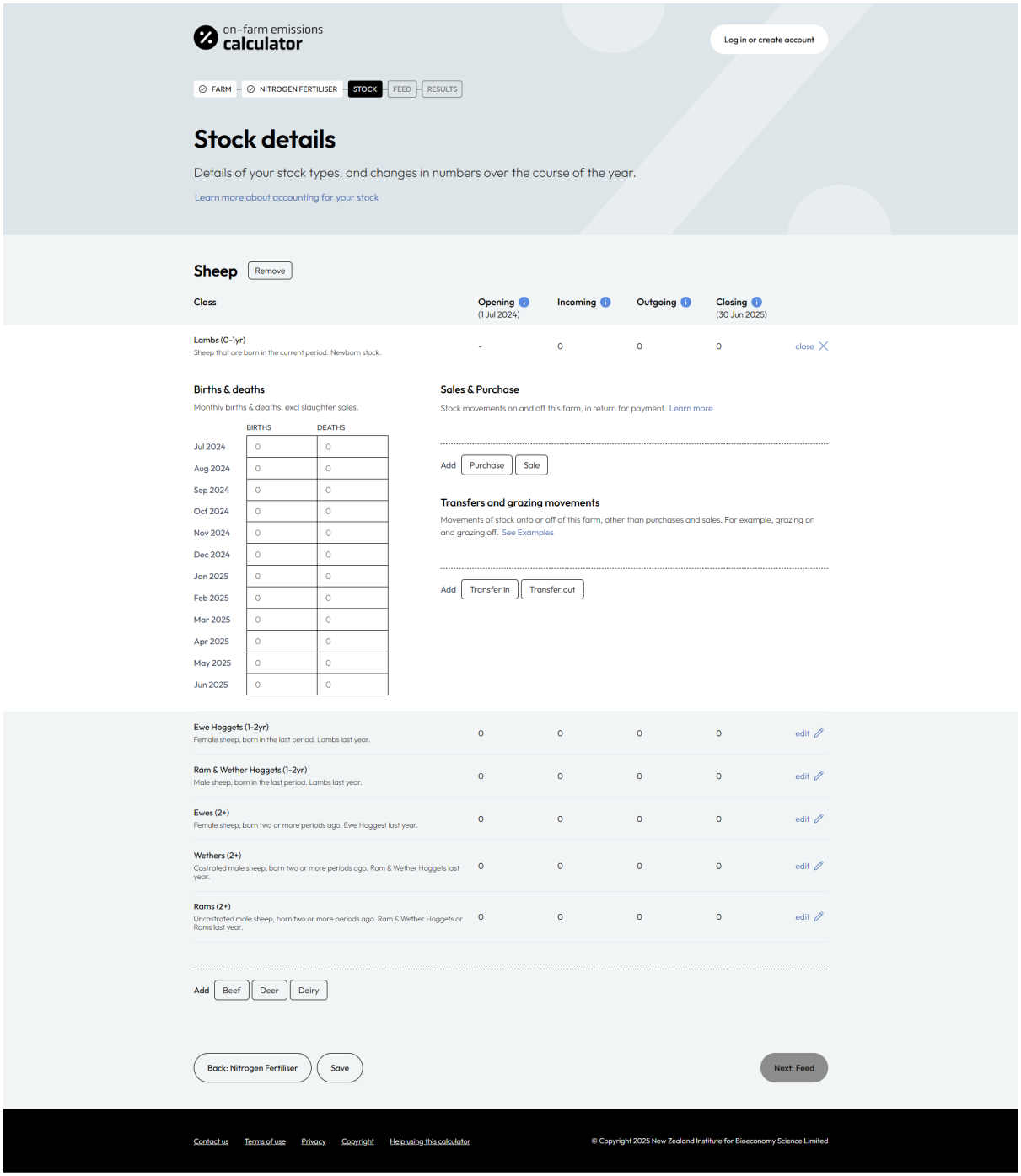
You'll need to enter monthly breakdowns for **births & deaths**.

You can enter stock counts and dates for

- **Sales & Purchases**
- **Transfers & Grazing**

Stock classes follow industry conventions (MPI, IRD, Farmax). You can use estimates but the more accurate your data, the more precise your results. Make sure movements reconcile; negative counts will trigger validation errors.

You can remove entire sectors but will need to delete stock movements and zero out opening balance, births and deaths to "remove" an individual stock class.




## Step 4: Milk production (dairy only)

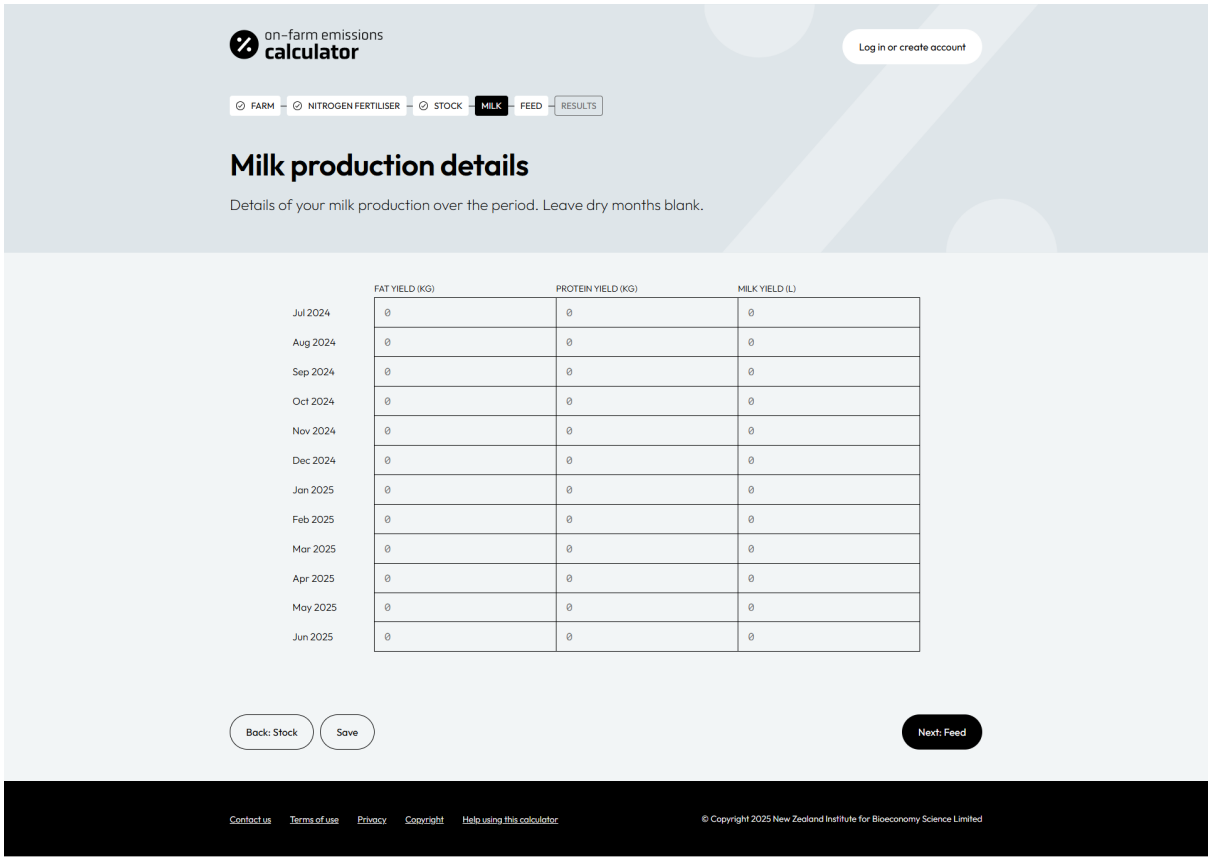
This section only appears if you've entered mature milking cows in the previous step. The input table loads default to 0. If you don't wish to enter milk data or have no milk production (for example, as a wintering farm), simply leave everything as 0.

**What you'll enter:**

- **Fat yield (kg)**
  Fat yield for each month.

- **Protein yield (kg)**
  Protein yield for each month.
- **Monthly milk volume (L)**
  Enter litres produced each month. Leave dry months blank.

These values help refine emissions estimates from dairy production. Make sure they align with your stock numbers and lactation periods.




### Step 5: Supplementary feed

Record non-pasture feed used or planned. You can only add feed information if you had stock.

**For each feed type:**

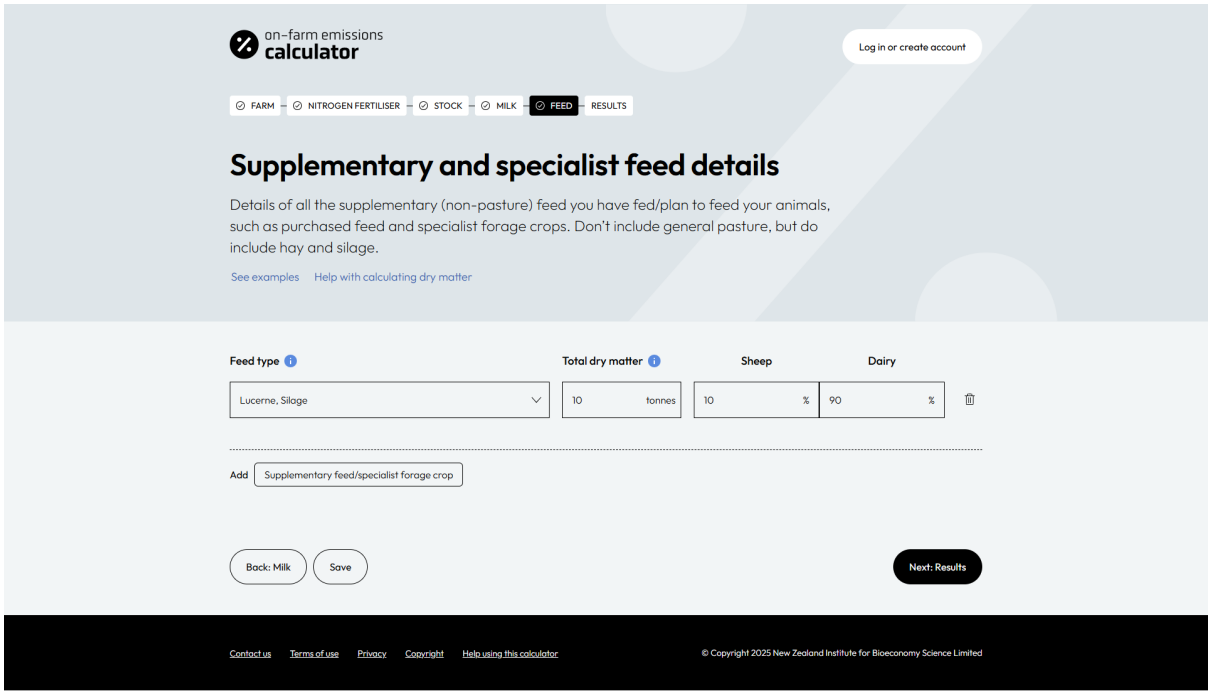
- **Feed Type**
  Select from the dropdown or enter manually.
- **Total Dry Matter (kg)**
  Weight of feed excluding moisture: the nutrient-rich portion animals actually consume.

Include:

- Concentrates (e.g. grains, PKE, molasses)

- Conserved feeds (e.g. silage, hay, fodder beet)
- By-products (e.g. horticultural waste)

You will allocate the percentage of each feed per sector of stock. If you only have one sector (for example, as a dairy only operation) it will default to 100% for that sector.




Standing pasture is excluded. For dry matter percentages, refer to the NZ Grass-Fed Standards.

**Step 6: Results and report**

Once your data is entered, the Calculator estimates your emissions using the Farm Emissions Method (FEM), developed specifically for New Zealand's pasture-based systems.

**Your results include:**

- **Methane ($CH_4$)**
  From digestion, effluent, and dung/urine.
- **Nitrous Oxide ($N_2O$)**
  From fertiliser, effluent, and excreta.
- **$CO_2e$ Total**
  Converted using AR5 GWP factors. Includes direct $CO_2$ from fertiliser.

Results are shown by gas type. Fuel, electricity, and sequestration are not included.

on-farm emissions calculator

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FARM – NITROGEN FERTILISER – STOCK – MILK – FEED – RESULTS

Dairy Farm

# Biogenic Emissions Results

1 Oct 2024 - 30 Sep 2025

This report has been saved to your dashboard

| | METHANE (kg) | NITROUS OXIDE (kg) |
|---|---|---|
| **Total net** | **27,987** | **589** |
| **Dairy** | **27,987** | **571** |
| Digestion | 26,131 | - |
| Dung & urine | 293 | 556 |
| Effluent | 1,563 | 15 |
| **Fertiliser** | **-** | **17** |

Total $CO_2e$ **940.9** tonnes* including 783.6 tonnes from methane and 156.0 tonnes from nitrous oxide

*Includes 1.3 tonnes of direct $CO_2$ from nitrogen containing fertilisers

Learn how this is calculated.

This output has been produced by an unmodified version of MPI-FEM v2024.2.0.0 on 5 September 2025 at 11:25am

This report contains the farm's methane and nitrous oxide emissions and total emissions as $CO_2$ equivalents. These results show biogenic greenhouse gas emissions only and do not include greenhouse gas emissions involved in the production of fertiliser, $CO_2$ emissions from fuel and electricity, nor do the results include carbon sequestered in vegetation.

For clarity, all results are rounded to the nearest whole number. Minor discrepancies may occur due to rounding, particularly when totals are calculated from multiple components.

## Your supplied details

**NOTE:** All these sections will be visible if you print this page.

- Farm details
- Nitrogen fertiliser details
- Stock details
- Milk production details
- Supplementary feed details

## For more information

For more information on agricultural greenhouse gas emissions visit the Ag Matters website - clear, easy-to-understand resources, including videos and guides, to help farmers and growers learn about climate change, agricultural emissions, and strategies for reducing on-farm emissions. Below are suggestions of where to start.

Visit AgMatters

Learn how Waikato dairy farmer George Moss uses his greenhouse gas numbers and profitability data to set the direction of travel for the farm towards a more sustainable future.

Find out more

Learn how Emma and Kyle are making changes for the climate on their high-country station.

Find out more





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If you choose to have an account, it's stored securely and only accessible via your account. You can delete your account and all associated data at any time.

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