# DairyNZ

# How to use the FeedChecker

## ① Getting started with the FeedChecker calculator

Enter your selected date, or use today's date (the default).

| NAME | | | | |
|---|---|---|---|---|
| Calcs from Today | 19/09/2022 | | Calcs from a different date? | 12/09/2022 ⓘ |

Below is a key for helping you fill in the FeedChecker. Cells highlighted green and bright yellow are required, light yellow cells are optional and red indicates that the value is out of the recommended range.

| INPUT KEY | |
|---|---|
| Select from drop down list | |
| Input values - required | |
| Input values - optional | |
| Out of recommended range | |
| Information | ⓘ |

## ② Input your herd details

Input information about your mob so the calculator can estimate the energy and nutrient requirements. The inputs required include:

- Breed
- Stage of lactation
- Average liveweight (kg)
- Estimated body condition score loss or gain over the next month
- Date of next planned start of calving

- Number of cows in the mob
- Milksolids production
- What terrain your farm has (flat, rolling, hilly)
- Total daily walking distance (km)

| 1. HERD/MOB INPUTS | | | | |
|---|---|---|---|---|
| Breed | cross-bred | Cows in mob | 180 | |
| Stage of lactation | Early | Milk solids (kg MS/cow/day) | 2.0 | |
| Average liveweight (kg) | 475 | Terrain | flat | |
| Estimated BCS loss/gain next month | -0.1 ⓘ | Total daily walking dist. (km) | 1.5 | |
| Date of next calving (PSC) | 7/07/2023 | Weeks to next PSC | 42.6 | |

# ③ Calculate your pasture quality and allocation

Enter in the pasture feed allocation you are providing as part of the diet, many of these inputs are optional.

FeedChecker provides an estimate of metabolizable energy (ME) based on your selection of pasture quality in the dropdown tab, however there is an option to directly input ME via the 'adjust MJME'.



| 2. PASTURE QUALITY & ALLOCATION | | | PASTURE ALLOCATION (for Option 1) | | |
|---|---|---|---|---|---|
| PASTURE QUALITY | | | Pre-grazing cover | 2600 | kg DM/ha |
| Pasture quality | Spring | | Post-grazing residual | 1500 | kg DM/ha |
| MJME | | 12.0 | Hectares grazed/day -this mob | 1.7 | ha/day |
| | adjust MJME? | 11.5 | Allocation per day | 10.4 | kg DM/cow |
| ROUND LENGTH ESTIMATE | | ha grazed/day | | OR | |
| Farm area in current round (ha) | 70 | 1.7 This mob | | | |
| Total area grazed (ha/day) | 1.7 | all mobs Mob 2 | Directly input pasture? | | kg DM/cow |
| | | Mob 3 | | | |
| Round length (days) | 41 | Mob 4 | | | |

The right-hand side gives you the option to calculate pasture allocated using pre-grazing cover, post-grazing residual and allocated area, or you can 'Directly input pasture' which is your estimate of pasture offered in kg DM/cow/day.

Note: FeedChecker will estimate utilisation from your 'FEEDING METHOD' selection in section 4.

# ④ Incorporate crops

This section relates to whether you are offering crops as part of the diet, you can skip this step if you are not currently feeding crops.

If you are feeding crops, you have the option to calculate break size using crop yield, DM%, break face length and daily crop DM allocation (kg DM/cow/d).



| 3. ARE YOU FEEDING CROPS? | | YES | Are you feeding Fodder beet? | YES |
|---|---|---|---|---|
| CALCULATE BREAK SIZE | | | | |
| Crop yield (T/ha) | 18 | | CALC DM% of FODDER BEET CROP | |
| DM (%) | | Leave blank to use fodder beet %DM calc | Bulb to leaf ratio | Bulb 75% Leaf 25% |
| Break face (metres) | 200 | | Bulb DM% | 19.4 |
| Allocation (kg DM/cow/day) | 3.0 | | Leaf DM% | 11.1 |
| Break size (metres/day) | 8.7 | Using fodder beet DM% calc | CropDM% | 17.3 |

If feeding fodder beet there is an option to use default or custom options for the proportion of leaf and bulb, and DM%. Enter a custom bulb to leaf ratio for fodder beet on the 'CUSTOM FEED SET-UP' tab.



| | | %bulb | %leaf | |
|---|---|---|---|---|
| Custom fodder beet ratio | Custom: Bulb% & Leaf% | | | Use this with **default** fodder beet feeding values |

For all bulb crops (including fodder beet) where you have had feed tests done and have custom feed analysis values enter a custom bulb to leaf ratio on the 'CUSTOM FEED SET-UP'.



| Custom bulb crop ratio | Custom: Bulb% & Leaf% | | | Use this with **custom** bulb crop feed values below | | | | |
|---|---|---|---|---|---|---|---|---|
| Add custom bulb crop analysis here | | | | DM | ME | CP | NDF | SSS |
| | | %bulb | %leaf | % | MJ/kg DM | %DM | %DM | %DM |
| | Custom bulb | 100 | 0 | | | | | |
| | Custom leaf | 0 | 100 | | | | | |

Note: you can only enter one bulb to leaf ratio for custom bulb crops, if you have multiple paddocks and mobs, we recommend you create a copy of the FeedChecker to calculate these separately.

# ⑤ Calculate feed and mineral supply

Enter information in 'FEED AND MINERAL SUPPLY' about the allocation of pasture, supplements, crops, and minerals to the mob. For pasture this can be entered manually, or pre-populated based on what you have selected as inputs in 'PASTURE QUALITY & ALLOCATION'

You have two choices here:

1. You can use the default feeding values within the FeedChecker calculator to estimate the energy and nutrients supplied in each dietary feed component.

2. Or you can enter in values from feed tests you may have by utilising the 'CUSTOM FEED SET-UP' tab. This will be more accurate and better represent your feed situation on farm.

On the 'FEEDCHECKER' tab, select the 'FEED TYPE', and the subsequent drop-down menus will change to show applicable 'FEED' and 'FEEDING METHOD' options.

Enter the amount offered in kg DM/cow. Feed eaten will be calculated based on the feeding method selected and estimated utilisation.

| 4. FEED AND MINERAL SUPPLY | | | | OPTION 1 | |
| --- | --- | --- | --- | --- | --- |
| | | | | OFFERED | EATEN |
| FEED TYPE | FEED | FEEDING METHOD | Util. | kg DM /cow | kg DM /cow |
| PASTURE | Spring | grazing - good conditions | 90% | 10.4 | 9.4 |
| Fodderbeet | Bulb 75% Leaf 25% | Utilisation 90% | 90% | 3.0 | 2.7 |
| By_products | PKE | feed pad | 90% | 3.0 | 2.7 |

A total feed offered and eaten is calculated at the bottom of this section.

| | OFFERED | EATEN |
| --- | --- | --- |
| Total feed (kg DM/cow/day) | 16.4 | 14.8 |
| Supplement (kg DM/cow/day) | 6.0 | 5.4 |

You can select custom feeds as 'Custom_Feeds_Minerals' from the drop-down 'FEED TYPE' menu after they have been added on the 'CUSTOM FEED SET-UP' page.

| Custom_Feeds_Minerals | Silage Farm A | in paddock good conditions | 80% | 3.0 | 2.4 |
| --- | --- | --- | --- | --- | --- |

You can select custom bulb crops as 'Custom_Bulb_Crops' from the drop-down 'FEED TYPE' menu.

| Custom_Bulb_Crops | Custom: Bulb% & Leaf% | Utilisation 90% | 90% | 7.0 | 6.3 |
| --- | --- | --- | --- | --- | --- |

Don't forget to enter the feed values on the 'CUSTOM FEED SET-UP'.

## ⑥ Compare two different feeding options

The calculator is designed to allow two feeding options for the same mob to be compared at the same time (Options 1 and 2). Simply select yes for Option 2 and enter in the feed values.



## ⑦ Calculate energy requirements

FeedChecker will calculate DM and energy requirements based on your mob inputs.

| ENERGY REQUIREMENTS | MJME/cow | | |
|---|---|---|---|
| maintenance | 57 | | |
| total MS production | 160 | | |
| daily BCS gain/loss | -4 | | |
| pregnancy | 0 | | |
| total activity | 3 | | |
| Sum of ME requirements at default ME = 11 .0 | 216 | Opt 2 | |
| Multiplier for feed quality (+/- 5% per MJ ME) | 0.95 | 0.95 | |
| Total ME requirements at diet ME = OPT.1 11.9 | 205 | 205 | |
| All MOB inputs complete? YES OPT.2 11.7 | | | |

FeedChecker can also calculate energy and mineral requirements specifically for Transition cows when the dry cow option is selected in the Herd/Mob inputs.

### TRANSITION COW

| Transition cow (2-3 weeks pre-calving) | YES |
|---|---|
| Are cows at or above target BCS for calving? | YES |

**Feed cows at 90% of energy requirements**

| RECOMMENDED | | OPT.1 | | OPT.2 | |
|---|---|---|---|---|---|
| | Eaten | | diff | | diff |
| DM (90%) | 4.8 | 18.3 | 13.5 | 24.7 | 19.9 |
| MJME (90%) | 51 | 194 | 143 | 260 | 209 |

# ⑧ How to use the final summary

The main summary compares the nutrient and energy requirements of the cows based on the mob inputs, accounting for the different requirements based on stage of lactation and pregnancy, with what is supplied in the diet for the feeding scenarios (Options 1 and 2).

The cells will change colour if the values are outside of the recommended range.

Note: this calculator does not highlight the most profitable option.

## FEEDCHECKER

|  | RECOMMENDED | | OPTION 1 | | OPTION 2 | |
|---|---|---|---|---|---|---|
|  | Opt 1 | Opt 2 |  | diff |  | diff |
| DM eaten | | | | | | |
| DM | 17.3 | 17.5 | 14.8 | -2.5 | 17.6 | 0.0 |
| Average MJME/kg DM | | | | | | |
| MJME | 205 | 205 | 175 | -30 | 205 | 0 |
| PROTEIN | 18.0 | 18.0 | 21.7 | | 21.6 | |
| NDF | >35 | | 39 | | 41 | |
| SSS | <38 | | 20 | | 17 | |
| STARCH | <30 | | 0.3 | | 0.2 | |
| FAT | <6 | | 4.2 | | 4.6 | |

In this example, there is a deficit of ~ 2.5 kg DM for Option 1 while Option 2 is meeting the main nutrient requirements, to ensure nutrient and energy supply meets demand some options may include increasing supply (e.g. allocating more pasture, offering more supplements, including a mineral supplement), or reducing demand (e.g. accepting a lower milk production or BCS gain), or a combination of both.

In the summary, FeedChecker will also calculate the mineral requirements of the cows based on the mob inputs, accounting for the different requirements based on stage of lactation and pregnancy, and highlight any deficiencies in the diet options.

## MINERALS

| | | | | |
|---|---|---|---|---|
| Na | 0.2 | min | 0.33 | 0.29 |
| K | 1.2 | min | 2.85 | 2.72 |
| Cl | 0.3 | min | 0.92 | 0.90 |
| S | 0.3 | min | 0.32 | 0.34 |
| Mg | 0.4 | min | 0.28 | 0.28 |
| Ca | 1.1 | min | 0.59 ⓘ | 0.57 ⓘ |
| | 0.8 | max | | |
| P | 0.35 | min | 0.40 | 0.43 |
| | 0.35 | max | | |

Dietary cation anion difference (DCAD) calculations are also provided if required (when you select "Yes" for Transition cow 2-3 weeks pre-calving).

The DCAD value of feed is used to determine the effect of cations (potassium, sodium, calcium, and magnesium) and anions (sulphur, chloride, and phosphorous) on blood pH, which in turn regulates calcium absorption from the intestine and possibly calcium mobilisation from bone. Cations are positively charged and have an alkalising function and anions are negatively charged and have an acidifying function.



Note: In a pasture-based system it is very hard to achieve a negative DCAD; therefore, the DCAD concept is virtually irrelevant. In systems where cows are offered large proportions of maize silage, brewers grain, molasses, or other low DCAD feed ingredients, a small amount of anionic salts (magnesium sulphate or magnesium chloride) may reduce the DCAD sufficiently to help prevent milk fever. For further information we recommend you consult your local vet practitioner.

# ⑨ How to calculate a supplement feed budget

An optional feed budget calculates the amount of supplement used per day and the cost of supplement. It doesn't consider the return or benefits from the different feeding options.



# ⑩ How to use the feed breakdown

A detailed breakdown of energy and composition is given for all selected feed types.