

Grass-fed Irish milk

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Summary

- Grass fed milk is a high value product that some purchasers are willing to pay extra for, provided certain conditions are met e.g. a minimum proportion of grass in a cow's diet.
- A methodology was developed to determine the amount of grass Irish dairy cows consume and deployed at the national scale using the Teagasc national farm survey.
- On average, the approach showed grass (grazed grass and grass silage) represented over 95% of the Irish dairy cow's annual diet as fed over the period 2013–2017.

Introduction

Grass fed milk or “Grassmilk” is rising in popularity in some European and US markets and is reported to fetch a premium price. There is a plethora of grass fed milk claims from different companies, but most provide little detail on the proportion of a cow's diet represented by grass, and therefore, may not actually be advantageous from nutritional, animal welfare and ecological viewpoints. Consumers are beginning to question the current measures of grass fed milk and are increasingly requesting information on the typical quantities of grass that a dairy cow consumes. The objective of this study was to develop a methodology that can quantify the annual amounts of grass in the diet of dairy cows at a regional or national level on an as fed basis.

Quantifying grass fed milk

Diets of Irish dairy cows were estimated with the Teagasc national farm survey (NFS) for the years 2013–2017. The survey was carried out on 275–341 specialist dairy farms and weighted to represent the national land area under milk production. The survey was expanded to collect technical data such as turnout and housing dates, monthly concentrate feeding rates, forage(s) conserved, milk production and composition. Data necessary to compute the diet of animals that could not be collected via surveys were obtained from the literature and via industry consultation. Dairy farms surveyed were operating grazing systems. The methodology applied the Irish net energy (NE) demand system to quantify total NE requirements for cow maintenance, activity, milk production, pregnancy and growth. The NE from concentrate was subtracted from cows' total NE requirement to estimate the NE provided by forage per month. The proportion of NE that came from pasture monthly was estimated by relating turnout and housing dates to the total NE provided by forage monthly. Net energy provided by conserved forage was estimated as the difference between NE provided from forage and grazed grass. Forage intakes were computed by dividing the NE provided by a forage by its NE value/kg dry matter (DM) or as fed. Grass intake was computed by summing grazed grass and grass silage intakes. The level of grass in the diet was determined on an as fed basis and was expressed dairy cow annual grass intake as a proportion of their total diet. The proportion of grass in the diet on a DM basis was also quantified.

Irish milking cows typical diet

Grass was the main feed Irish dairy cows consumed (Table 1). At the national scale, the Irish grass fed milk number was on average 95%. In terms of DM, the national results showed that across most years, grass comprised 81%–83% of the average cow's annual diet. Grazed pasture was the main component of dairy cow's diet contributing on average

73%-77% of the annual cow's diet as fed (57%-63% as DM). Grass silage was the next largest component of the average annual cow diet as fed followed by concentrate. The former was also the second largest consumed by cows on a DM basis, except in 2013.

Table 1. Typical (mean) annual Irish dairy cow diets on an as fed and dry matter (DM) basis from the Teagasc national farm surveys specialist dairy farms

Parameter	2013	2014	2015	2016	2017
Number of farms	275	318	314	341	327
Total intake as fed, tonnes/cow	22.7	23.7	24.8	25.1	25.0
Grass fed milk, % diet as fed	93.4	94.9	95.3	95.2	95.4
Grazed grass, % diet as fed	74.2	76.8	76.9	72.8	73.4
Grass silage, % diet as fed	19.2	18.0	18.4	22.4	22.1
Grass, % DM diet	76.6	81.0	82.3	83.7	82.2
Grazed grass, % DM diet	56.8	61.6	62.2	59.3	60.5
Grass silage, % DM diet	19.8	19.5	20.1	24.4	21.7

¹Grass included grazed grass and grass silage.

Our results were validated using Teagasc dairy research farms and showed that diets were similar for the top 5% of farms in the NFS, but the average dairy farmer fed 500–600 kg more concentrate DM/cow. Nevertheless, the average milk producer was still very reliant on grass. The findings imply that the overall proportion of grass in the average Irish cow's diet may be possible to increase.

Conclusions

A robust modelling method to estimate the typical Irish cow's diet on a countrywide scale was developed. The approach can be applied to support Irish dairy systems grass fed milk claims and provide interested consumers with better information on the contribution of grass to a dairy cow's diet.

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