

FEEDING LIVESTOCK ON PASTURE-BASED DIETS



Photo: Lindsay Whistance

PROBLEM

Herbivores compete with humans when fed on concentrated feed, such as soya, grains and pulses.

SOLUTION

Select breeds of farm animals able to thrive in pasture-based systems in all seasons and at all growing stages. In grass-based systems, FCRs can still be high (13:1 for beef) but the competition with humans is removed.

Offer animals a diverse landscape with trees and herb-rich pastures in managed grazing systems to optimise intake of digestible matter and pasture regrowth.

OUTCOME

Improved health in ecosystems through diverse plant populations encouraging wildlife such as pollinator insects. In pasture-based systems, carbon sequestration is higher than in grain-based systems.

Although animals may grow more slowly due to breed selection and energy intake, the costs related to purchasing and storage of concentrates can be minimised or avoided.



Photo: Lindsay Whistance

APPLICABILITY

Applicable production types



Application time

Year-round system

Required time

Year-round system with animals grazing in summer and grazing or feeding on preserved forage in winter

Regulatory compliance

National regulations are somewhat misleading since animals sold as grass-fed may only have been fed grass for 51% of their total feed in-take. Pasture Fed Livestock Association, on the other hand, offer certification for 100% grass-fed livestock.

Equipment/resource required

Usually less machinery required though forage crops still require harvesting and storing for winter feed. May be more time-consuming with regular movement of stock.

Best in

Systems with slower-growing animal breeds suited to outdoor conditions. Animals grazed on fertility-building herbal grass leys used in arable crop rotations. Areas of permanent pasture and less favoured areas.



PRACTICAL RECOMMENDATIONS

IMPLEMENTATION

- Select breeds or cross-breeds appropriate to the location and system.
- Allow for a slower growth rate and a lower yield compared to grain-fed animals.
- Manage plants and animals so that optimum production coincides with optimum growth.
- Grassland management is vital.
- Pasture that contains a variety of herbs, including some with long tap roots, increases the availability of vitamins and minerals compared to rye grass/clover monocultures.
- A version of rotational grazing that allows plants to recover quickly and then be left to recover with sufficient resources to develop strong root systems increases sustainability.
- Good management of herb-rich pasture including rotational grazing can increase crude protein and digestibility of forage.

EASE OF ADOPTION ON NON-ORGANIC FARMS

- Pasture-based livestock systems are not exclusive to organic farming but some awareness of agroecological principles is beneficial

BENEFITS OF IMPLEMENTATION

- Use of permanent and temporary grasslands through ruminants
- Environmental gains include the development of a diverse landscape that benefits wildlife as well as farmed stock
- Economic gains can arise from reduced inputs as well as product premiums
- Social sustainability gains from associated public goods such as increased diversity and better water management from maintaining a canopy which minimises the amount of soil left bare

DRAWBACKS OF IMPLEMENTATION

- Dairy cows may be required to walk for long distances each day to and from the milking parlour. This then requires well-designed and well-maintained tracks that enable animals to move easily and limits any risk of lameness from, for example, stones in the hoof.
- Grazing requires good fencing and time spent on maintenance and moving livestock to new pasture.

BARRIERS AND RISKS

- Barriers can include having insufficient land available limiting pasture resting times between grazing periods.
- Potential increase in labour requirements
- More extreme versions of mob-grazing offer limited space allowance for each animal which can increase social stress as well as unnecessary competition during feeding bouts.
- Moving animals too often or disrupting daily resting bouts to move them can cause unnecessary social and metabolic stress.
- Investment in machinery for harvesting forage at optimum time(s) can present a significant barrier.
- Perceived increased risk from increased exposure to disease such as internal parasites and clostridial diseases in pasture-based systems.



FINANCIAL ANALYSIS

This practice is likely to be associated with an increase in margins due to a reduction in variable costs offsetting reduced yields, whereas fixed costs remain approximately the same

Initial investment	Ongoing costs	Yields	Financial output	Expected effect on margin
~	↓↓	↓	↑	↑

Rating approach used to describe the effect and direction of change (increase or decrease): Unknown = ? None = ~ Low = ∨ Moderate = ∨∨ High = ∨∨∨

In the analysis, a predominantly grass-based dairy system with spring block calving is compared with a system based on mostly year-round calving and higher yield and use of concentrate.

FURTHER INFORMATION

Video

- Explaining the benefits of feeding pasture for life by one of PFLA members, Mark Bury, Director of Eversfield Organic https://youtu.be/c9gJscIXfII?list=UU6claMX60C9Gx5TA0_HU-gg

Further reading and weblinks

- Pasture For Life Association. <https://www.pastureforlife.org/>
- Smil V (2003) Eating meat: evolution, pattern and consequences. http://home.cc.umanitoba.ca/~vsmil/pdf_pubs/PDR2003.pdf
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- Wilkinson J (2011) Re-defining efficiency of feed use by livestock. *Animal* 5: 1014-1022
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- Brunyee J (2016) Turning sunshine into Sunday dinner: Musings from a 'pasture fed' Cotswold farmer. *Agricology* blog <https://tinyurl.com/Brunyee-blog>
- Agricology farmer profile. Jonty & Mel Brunyee, Conygree Farm. <https://www.agricology.co.uk/field/farmer-profiles/jonty-mel-brunyee>
- Agricology farmer profile. John and Paul Cherry, Weston Park Farms <https://www.agricology.co.uk/field/farmer-profiles/john-and-paul-cherry>
- Agricology farmer profile. Christine Page, Smiling Tree Farm. <https://www.agricology.co.uk/field/farmer-profiles/christine-page>
- Agricology farmer profile. Havard & Co Organic Farms <https://www.agricology.co.uk/field/farmer-profiles/rob-havard>
- Fordhall Farm – Foggage Farming <https://www.fordhallfarm.com/about-us/foggage-farming/>
- Crawley K, Smith J, Gerrard C, Sumption P (2015) Fulfilling 100% organic poultry diets: Roughage and foraging from the range. ICOPP Technical Notes, No. 2. Organic Research Centre. <http://orgprints.org/28090/>
- Crawley K, Smith J, Gerrard C, Sumption P (2015) Fulfilling 100% organic pig diets: Feeding roughage and foraging from the range. ICOPP Technical Notes, No. 4. Organic Research Centre. <http://orgprints.org/28088/>



CASE STUDY FARMER APPLYING THE PRACTICE: FORDHALL FARM

Location: Shropshire

Size: 57 hectares

Enterprises: Mixed cattle, sheep and pigs

Fordhall Farm in Shropshire is run on a 100 % forage system where the grasslands are managed in a way that provides grazing for most of the year with minimal supplementary feeding of hay in the depths of winter. The grazing system is one that was developed by Arthur Hollins and called 'Foggage farming' where diverse pastures gain enough herbage during the growing season to maintain the stock outdoors throughout the year.



Photo: Fordhall Farm

The major benefits of this style of pasture management include low fossil fuel consumption, a reduction in poaching and compaction from healthy root systems and stocking rates and substantial carbon sequestration from permanent pastures alongside abundant trees.

From: Smith LG, Williams AG (2018 - in press). Towards improved greenhouse gas mitigation and energy efficiency in organic livestock farming. In: Improving organic animal farming (Eds. Mette Vaarst and Stephen Roderick). Cambridge: Burleigh Dodds.

ABOUT THIS PRACTICE ABSTRACT

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