

A guide to organic grassland

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What is organic farming?

Organic agriculture is based on farming systems that include the rational use of organic manure, the use of appropriate cultivation techniques, the avoidance of soluble fertilisers, the prohibition of agrochemical pesticides and, most importantly, the employment of balanced rotations.

Organic farming systems in the UK are traditionally based on ley/arable crop rotations. Up to 70% of the farmed area comprises of mixed grass and legume leys. These leys offer a powerful mechanism for supplying nitrogen through their potential to harvest biologically fixed nitrogen to support both animal production and a subsequent phase of arable cropping.

Organic production systems are defined by the EC Regulation 2092/91 (EC 1991) and 1804/99 (EU 1999). In the UK these are administered by the United Kingdom Register of Organic Food Standards (UKROFS 1999). Since 1994 the UK Government has supported those converting to organic farming with payments under various Organic Aid Schemes.

Some of the common questions about organic grassland management are answered below. These are very general answers, as specific recommendations need to be made on a site by site basis.

Q: Should I use red or white clover?

Red clover is less persistent than white clover but does fix more nitrogen (N). Red clover tends to be used in short-term conservation leys while white clover is used more in medium to long term leys.

Q: How long will a grass/clover ley last?

This depends to some extent on the rotation design as well as grazing and cutting pressure. A red clover ley in a predominantly arable rotation would be in the region of 18 months to two years whereas a white clover grazing ley will be seen in the medium to long term 3-5 years.

Q: What sort of seed mixes/rates should I use?

Again dependent on the role of the grassland. Typically for a grass/white clover ley you would be looking for about 30 % of the dry matter to be

clover. The tables below give an idea of the type of mix and seed rates used for short term and medium term leys.

Short term ley

Seed mixtures	kg/ha
Italian ryegrass	15
Red clover	10
<i>Total</i>	<i>25</i>

Medium/long term grazing leys

	Cattle grazing	Sheep grazing
	kg/ha	kg/ha
Seed Mixtures		
Perennial ryegrass	20	18
Italian ryegrass/Timothy	8	
Meadow fescue		4
Cocksfoot		4
White clover	4	4
Red clover		
<i>Total</i>	<i>32</i>	<i>30</i>

From the end of 2003 Standards will require organic seeds to be used.

Q: How and when should I establish my new ley?

Two methods are commonly used to establish leys. Again the choice of method depends on rotation design and the workload of the farm.

1. Undersowing into a nurse cereal crop in late April/early May
2. Into a prepared seed bed in the autumn

Q: What is clean grazing?

Clean grazing is a rotational grazing system employed to reduce internal parasite infections. It is achieved by allowing young stock access to new leys i.e. those with the minimum worm burden and where possible alternating cattle and sheep grazing pastures.

Q: Aren't there problems with bloat?

This is a frequent misconception about organic, or indeed any, clover based forage system. From time to time there may be problems, but careful management can mean the potential problems can be avoided. For example:

Do not turn 'hungry' animals out or animals that have been held on a tight sward onto lush clover rich pasture, buffer feed first.

Do check animals at regular intervals if they have been recently put into a field of high clover content, particularly if the conditions are warm and wet.

Q: Aren't there problems with fertility?

This is again a frequent misconception about organic, or indeed any, clover based forage system. Pure swards of red clover may cause fertility problems in both cattle and sheep but most grazing seed mixes contain very little red clover. If red clover silage is fed as part of a mixed ration then the likelihood of fertility problems are reduced.

Q: Aren't there problems with pests and diseases?

The most common problem tends to be with slugs at establishment. A firm seedbed and rolling can control the problem.

Ensure there is a 5-6 year interval between clover crops, and a 5 year interval between lucerne.

Q: How do I control weeds? Especially persistent perennial weeds like docks and thistles?

Weeds are controlled in the sward by cultural methods such as chain harrowing in the Spring or regular topping through the growing season. New leys can be topped before grazing to control annual weeds.

Perennial weeds need to be controlled throughout the rotation, starting with intensive cultivations prior to the establishment of the ley, prevention of the setting seeds by timely topping, by composting farm yard manure and by aeration of slurry and by rotavation at the end of the ley phase.

Q: What fertilisers can I use?

Organic standards prohibit the use of soluble N fertilisers because, within an organic grass/clover system, the bacteria associated with the clover will supply nitrogen. Leys also build up soil organic matter and the recycling of the soil processes also contributes to the N supply.

Regular soil analysis is recommended to ensure the balance of soil fertility is being maintained.

On grass/clover leys, farm yard manure and slurries are applied to forage crops in the rotation as these crops often have the greatest nutrient off-take particularly when the forage is being cut for conservation.

Slow release mineral fertilisers e.g. Rock P, are permitted if the soil fertility has declined. Lime can be used if the pH has also declined.

On temporary leys there is a maximum application of FYM that can be applied, this limit is equivalent to 170kg N ha year. For unimproved meadows the amount of N applied must not exceed 75 kg N ha year which is equivalent to an application rate of 25 t FYM ha year.

Q: What silage additives can I use?

It is important to get an adequate wilt, excluding air, sheeting over night, double sheeting and weighting on completion.

The following silage additives are permitted: Molasses, bacterial and enzyme additives. The use of these additives is particularly important in wet seasons.

It is important that organic producers check with their certification body if they are uncertain if a particular product is approved.

Q: What are the typical yields?

In established organic systems stocking rates are typically about 25% lower than in a conventional system (1.4 to 1.8 LU/ha is the range for many organic farms).

Grass clover yields should not be seen as comparable with unfertilised grass (zero N yields). Grass clover systems are likely to be receiving about 200 kg N ha year from nitrogen fixation. Research has shown that organic swards, on average, produce 11t DM ha year. (Newton 1995).

Perspective

The aim of organic systems is to work within a closed system, as far as possible, which in terms of organic livestock means relying primarily on home produced feeds. Provided that the stocking rate reflects the carrying capacity of the farm, well-managed grass clover leys can provide sufficient forage and stock should not require supplementary feeding during the summer. Grass clover leys also produce good quality silage; so with good

grassland management and optimising milk and meat from forage organic farming methods offer a profitable livestock production system.

References

EC. 1991. Council regulation (EEC) No.2092/91 of 24 June 1991 (as amended) on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs. *Official Journal of the European Community* **L 198/1**, 22 July 1991.

EC. 1999. Council regulation (EC) No.1804/99 of 19 July 1999 supplementing regulation (EEC) No.2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include Livestock Production. *Official Journal of the European Community* **L 222**, 24 August 1999.

Newton, J.E. (1995) Herbage production from organic farms. *Journal of the Royal Agricultural Society of England* 156, 24-34.

UKROFS. (1999) Standards for Organic Agriculture. MAFF, London.

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