

# **Eight years of organic farming at Pwllpeiran - livestock production and the financial performance of organic upland farms**

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## **ABSTRACT**

Established for 8 years, this project evaluates the practicalities of organic beef and sheep production on an upland farm in an ESA. Grassland productivity, stocking rates and animal performance are closely related to seasonal variations in the clover content of the small area of improved land. Improving sales have been offset by increasing input costs. Subsidy payments assist financial performance, but ESA prescriptions effectively prevent increased production.

*Keywords: organic upland farming; beef and sheep; ESA*

## **INTRODUCTION**

The Pwllpeiran organic unit was established in 1993. The project aim was to evaluate the applicability of organic systems to hill livestock farms with limited or no arable potential. Many farms in upland Wales have a tradition of low fertiliser and agri-chemical inputs and are restricted, through soil type and climatic conditions, to sheep and beef production. It was hypothesised that conversion to organic status might not involve major changes in farming practice, but could bring benefits in environmental terms and through the opportunity to market a premium product.

### **Land area**

The 111.5 ha organic unit lies within the 1120 ha ADAS Pwllpeiran hill farm in the Cambrian Mountains ESA. The unit comprises 47.1 ha semi natural rough grazing, 39.9 ha Mountain re-seeds (Mosaics) and 24.5 ha improved grassland in a similar proportion to the whole farm. The area of improved grassland suitable for forage conservation is only 9.1 ha, less than 10% of the organic total.

### **Stocking**

During the conversion period, livestock for the organic unit were selected from the existing herd and flock at Pwllpeiran. Traditionally, cattle were regarded as a subsidiary enterprise on the higher hill farm and their main function was to act as pasture controllers for the benefit

of the sheep enterprise. At Pwllpeiran, by the 1990s, the herd was primarily Welsh Black since these cows fulfil the role of pasture improvers most successfully. In 1993 a pure-bred herd of 10 Welsh Black cows was established on the organic unit. This hardy breed is well suited to upland organic systems. It calves easily, is well adapted to a grass-based system and can maintain itself on the coarse grasses such as *Molinia* and *Nardus* found in mountain pastures.

Cattle on the organic unit are housed in November and fed big bale silage plus approved concentrates. The herd is spring calving which has many advantages for organic beef production; *inter alia* it minimises forage requirements and avoids potential health problems associated with housed calves.

Although many breeds of sheep have been evaluated at Pwllpeiran, the Hardy Speckle Face was selected for the unit. This ewe is adapted to wet upland conditions and has the potential to produce a larger lamb for the market than the Welsh Mountain. 160 ewes were selected for the organic unit. Since establishment the ewe flock has been closed. Lambing starts in the second week of April. Late lambing means that there is more grass available to the ewe and so lambs suckle more and graze less at the time when *Nematodirus* hatch occurs. There is still some exposure to infestation but this stimulates development of the lamb's natural immunity.

The stocking rate on the organic unit was chosen following comparison with average data for Welsh hill farms. This showed that the Pwllpeiran unit had a larger proportion of semi natural rough grazing than the average. The stocking rate arrived at was 60% of the conventionally farmed area, with a ratio of 16 ewes to 1 cow. This ratio is narrower than on comparable commercial farms and was thought likely to help dilute the worm burden and make best use of the pasture. Lower stocking rates and mixed cattle and sheep grazing were also thought likely to benefit dwarf shrub vegetation, especially heather, which is declining in extent and quality in Wales. Increasing the proportion of cattle would also reduce the rate of bracken spread in vulnerable areas.

The performance of the organic unit at Pwllpeiran has been fully monitored since 1993 with records maintained in respect of grassland and forage, animal performance and health, and financial performance. These records have increasing value for the long term evaluation of livestock production and financial performance of upland organic farms.

## **RESULTS**

### **Grassland**

A white clover percentage >20% is necessary to fix N equivalent to 150 Kg N/ha in upland organic swards. Generally, clover content increased in the improved grassland following

conversion but there was a marked decrease in 1999. By 2001, clover content had recovered to 16% - 20% in the silage fields surveyed.

Managing grass clover swards under upland conditions is difficult, especially in an agri-environment scheme where lime and P & K inputs are restricted and re-seeding is not permitted. Any over-grazing in autumn means clover plants are smaller in spring and less able to compete with grasses. Clover can crash every five to seven years as tap rooted parent plants die, leaving the small plants previously connected to them by stolons. These satellites have little root structure and are less able to cope with stressful conditions, so grazing needs careful management. Clover content does recover, but until it does forage can be in short supply.

At the original stocking rate it was calculated that the unit would be self sufficient for silage at 3.0 t DM /ha. The actual forage yield over the period 1993 - 2001 has fluctuated between 2.4 t/ha and 3.4t/ha. The variation in yield relates very closely to the cyclical changes in clover content of the improved swards and the quantity of FYM applied.

### **Animal performance and health**

The number of suckler cows kept on the organic unit has remained unchanged but in October 1999, 13% more ewes were mated because of earlier indications that the unit could support more. The unit had fully met herbage and forage requirements in 1995-96 and 1996-97. The increase proved unsustainable when clover content declined and silage yields fell. Ewe numbers were reduced back to 161 in 2001. As well as reducing ewe numbers, lambs have been sold as stores instead of finished.

Throughout the period average ewe weight and condition score at tugging have been closely related to herbage and forage availability.

Calf and lamb performance has been similar to conventional management. Daily weight gain from birth to weaning has averaged 0.18 kg/day for lambs, and 0.9 kg/day for calves. Although a clean grazing system could not be established, the use of anthelmintics to control intestinal parasites has fallen for the flock and is not required at all for the herd. One advantage of selling the whole lamb crop as stores in September is that anthelmintic drenching is rarely necessary.

Mineral deficiencies are potential problems on the unit. In the early years of conversion Cobalt deficiency was associated with cases of Pine amongst lambs, and copper deficiency is a potential problem for fertility in the suckler herd. Mineral deficiencies have been treated with permitted supplementation. Dressing the pastures with a nutrient enhancer containing a range of minerals is now undertaken to obviate the need for animal treatment by injection or bolus.

### **Financial performance and marketing**

There was an improvement in the gross margin/ha following conversion. By 1998/99 the unit outperformed the conventional results without taking into account ESA payments. (£184/ha compared with £176/ha). When these were included the comparison was: organic £252/ha and conventional £176/ha. The difference reflected the premium prices commanded by organic lamb and beef and the collapse of the conventional market. ESA payments and the enhancements for hay meadow management have added to the unit's income, but the prescriptions limit production by precluding grassland renovation. The balance of advantages to the organic farm offered by entry into an environmental management scheme needs to be carefully weighed.

Premium prices for organic lamb and beef continued in 1999/2000, but as a result of higher input costs and lower subsidy payments the gross margin/ha fell to £193, the lowest recorded. Financial performance improved in 2000/2001, with a provisional gross margin/ha of £230. This reflected additional Beef Special Premium payments and the effect of the area-based Tir Mynydd scheme which replaced the headage-based Hill Livestock Compensatory Allowance.

The Pwllpeiran unit's performance demonstrates the potential for production of organic lamb and beef, but the long term sustainability of organic production, and the effects of combining organic farming with environmental conservation schemes on the mountain farm are issues yet to be fully resolved.

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