

Maximising feed from the range: Using cover crops

Poultry diets and feeding organic birds

Poultry are particularly sensitive to dietary quality and have very specific requirements for essential amino acids, in particular lysine and methionine. In organic systems these are mainly supplied from organic soya which is imported, often difficult to source and always expensive.

Producing as much feed from the farm as possible is one of the guiding principles of organic systems. However, because of the difficulties in formulating a finely balanced ration and producing enough high quality protein, most producers rely heavily on purchased feed. The high cost of purchased feed is consistently cited as the biggest problem facing organic poultry producers – a situation that will not improve when the derogation to use up to 5% of non-organic ingredients is phased out at the end of 2011.

For these reasons, there is increasing interest in using home-grown feed. The cereal ingredients such as wheat, triticale and oats, can often be grown on the farm, sometimes in combination with a protein crop such as peas. They can either be milled and mixed with a protein balancer or fed as whole grain. The range, too, can make a significant contribution to feeding the birds, and increasing this contribution has been the focus of a small project funded through the Farming Connect Organic Development Programme.

Using covercrops

One of the ways in which the range can be enriched is to sow strips of a cover crop. Ideally they should be grown in strips with $\frac{1}{4}$ acre per 200 birds and laid out between rows of trees, suitably spaced. It is a well established practice among game bird keepers but it has not been widely adopted by poultry producers.

We sowed crops at the Welsh Poultry Centre in Carmarthenshire and at Esgair Forest, a woodland site near Machynlleth. The seed mixture, provided by Kings Seeds, included two categories of plants:

- Seed bearing plants including quinoa, white millet, fodder radish, triticale and kale.
- Plants to attract insects on to the range, which are an important source of protein. These plants included white clover, red clover, birdsfoot trefoil, vetches and phacelia.

The crop at the Welsh Poultry Centre grew well, providing a good seed crop, and although we did not measure specific populations, abundant insect-life. However, the crop was too dense and we had to tread paths into the strip to give allow the birds to penetrate. Breaking the crop up into small scattered plots, rather than a long continuous strip may also improve ranging and access to the crop.

Establishment was less successful at Esgair. This was probably due to low soil fertility and low pH, the latter as a result of the land being under conifers. However, an application of lime in 2010 may well improve conditions for subsequent crops.

We established three small flocks of about 20 Sasso birds on the two sites, each with a different feeding regime as described in Table 1. We tried to make the flocks as comparable as possible by using birds from the same batch of day-olds, using the same feed and slaughtering them at the same time.



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Slaughter weights and costs were recorded and gross margins were calculated for each flock.

Table 1: Characteristics of the flocks

Location	No. of birds	Feeding regime
Esgair Forest	20	Unrestricted access to purchased feed. Access to cover crops on the range
Welsh Poultry Centre	20	Restricted access to purchased feed (80% of usual ration) and access to cover crops on the range
Welsh Poultry Centre	26	Ad lib access to purchased feed. No access to cover crops on the range

Performance of the flocks

In terms of gross margins (GM) (Table 2) the ad lib fed flock at the Welsh Poultry Centre performed best (£6.27/ bird), followed by the WPC flock with access to cover crops (£4.87/ bird) followed by the Esgair flock at £3.38.

At Esgair Forest, the biggest contributor to the low GM was the high predation rate, with nearly 50% of flock being taken. The predated birds incurred significant costs before being taken that were not returned. Reducing the predation rate to 25%, for example, would increase the margin to £4.30.

The lower gross margin of the WPC flock with access to cover crops compared to their ad lib-fed counterparts was partly attributable to weather. During the last two weeks of the birds' life, the period during which most of the meat is put on, very cold weather conditions meant that the birds ranged much less, and therefore spent very little time in the cover crop. This resulted in a lower slaughter weight and therefore a lower output. If the birds were held back until they reached 2.2 Kg (and assuming a proportional increase in the consumption of purchased feed) the GM would increase to £7.82. The contribution of the cover crop could also have been increased if the birds were introduced to, and therefore learned to use, the crop earlier in their lives (i.e. during brooding).

Conclusions

For the reasons discussed above we were not able to show the reduction in the feed costs, and increase in financial performance we were hoping for in this particular trial. However we have learned some important lessons, and if some key issues are addressed we still think cover crops could play an important role in reducing reliance on purchased feed. We hope to do further work this year (2011), taking the following into consideration:

- The seed rate should be reduced to allow the birds to forage better with in the cover crop
- Small patches of cover crop dotted around the range are better than a single strip, both in terms of encouraging range and improving utilisation of the crop
- Birds should be introduced to the cover crop as early as possible
- Growth rates may be slower in flocks that rely more on the range for feed, but lower costs could compensate
- You will gain most benefit from the cover crops in the summer months. When access to the range is restricted, for example during cold snaps in the winter, you will need to provide more purchased feed to maintain growth rates.

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If you would like to get involved in future work on this subject, contact Tony Little, Organic Centre Wales, 01970 621632

Table 2 Gross Margin calculations

	Esgair	WPC (Covercrop)	WPC (No Covercrop)
Output			
Flock size (Original)	20	20	26
Flock size (surviving)	11	19	26
Dead Weight (Flock)	25.96	32.00	59.62
Average dead weight (Kg/ Bird)	2.36	1.68	2.29
Price (£5.00/ kg)	129.80	160.00	298.10
Less Cost of Chicks @ 75p/chick	-15.00	-15.00	-19.50
Total Output	114.80	145.00	278.60
Feed 1kg starter/bird @ 350/t	7.00	7.00	9.10
Finisher feed @ £280/t	45.00	10.64	72.80
Cover crop establish	10.00	10.00	0.00
Heat @ 0.15/bird	3.00	3.00	3.90
Straw & sawdust/bird @0.1/bird	1.10	1.90	2.60
Slaughtering and dressing costs, @ £1/bird	11.00	19.00	26.00
Miscellaneous @ 5p per bird	0.55	0.95	1.30
Total Variable Costs	77.65	52.49	115.70
Gross Margin/ Flock	37.15	92.51	162.90
Gross Margin per Bird	3.38	4.87	6.27