

Feeding maize silage vs wholecrop to growing beef cattle

Ed Green

Ed Green is a fifth-generation farmer managing a 324 ha family farm. He runs 1,300 cattle on custom-feeding contracts with a high-end supermarket. Calves arrive at 150kg liveweight (LW) from dedicated rearing units and leave for dedicated finishing units at 460kg LW.

The farm grows a mixture of wheat, barley, red clover, white clover, grass leys and permanent pasture in Higher Level Stewardship. Until this year, maize had been grown and fed as part of a total mixed ration.



Maize silage

Maize is high in energy and starch, which when offered as part of a balanced diet, should improve daily performance and feed efficiency when compared to a grass silage ration. Cattle fed rations containing maize silage tend to have a higher dry matter intake (DMI) than those fed rations based solely on grass silage.

Table 1: Feed values for different forages

Feed type	Dry matter (%)	Metabolisable energy (MJ/kg DM)	Crude protein (% in DM)	Starch (% in DM)
Maize silage	28 – 35	10.8 – 11.7	8 – 9	25 – 35
Grass silage – first cut	22 – 32	10.5 – 11.5	11 – 15	
Wholecrop cereals	35 – 70	10 – 11.5	9 – 17*	15 – 30

*Crude protein may be towards the higher end of this range for cereals grown with bi-crops (eg peas, clover, vetches) or if high N additives are used

Ed decided to move away from maize because of the loss of yields sustained through pest damage. Badgers attacked the crop while it was growing and starlings gorged on the crop when it was being fed in the sheds. In addition, harvesting the crop in October and November when the weather was often poor caused damage to soil structure which resulted in compaction, rutting and cross compliance issues.

Wholecrop

Ed grew wholecrop wheat and barley for the first time this year, achieving a yield of 30 tonnes/ha. He found many benefits of growing the crop, including an earlier harvesting window which meant the crop was ready to be fed at the beginning of the winter housing period. Furthermore, the weather and ground conditions were drier, resulting in less compaction and wheel rutting at harvest time. This meant that the soil required less cultivation before the next crop was drilled.

Feeding wholecrop



Ed feeds a total mixed ration consisting of 50% wholecrop and 35% red clover silage, with the rest of the mix consisting of a 34% protein blend, chopped straw and minerals.

The tables below show the analysis of last year's wholecrop (Table 2) and red clover (Table 3) crops.

	Analysis
Dry matter (%)	44.2
Crude protein (% in DM)	8.3
ME (MJ/kg DM)	10.2
Starch (% in DM)	30.5

Table 2: Wholecrop analysis, 2015 crop

	Analysis
Dry matter (%)	30
Crude protein (% in DM)	14.8
ME (MJ/kg DM)	12.2

Table 3: Red clover analysis, 2015 crop

The youngest and oldest age groups of cattle are fed a higher proportion of wholecrop in the ration, compared to the middle age group which receive a 50/50 split of wholecrop and red clover silage. Ed increases the proportion of red clover silage fed to the middle aged group to increase the protein content of the ration, to encourage skeletal frame growth rather than laying down fat.

More information on home-grown forages can be found in the Better Returns Programme [Home-Grown Forages Directory](#)