



Underfeeding is often caused by incorrect break size. Knowing the crop yield (see measuring crop yield), expected utilisation, animal requirements and feed quality is vital to set the right break size.

Crop utilisation example

Not all of a forage crop is eaten, particularly in wet weather. Utilisation also depends on animal performance goals. For high weight gain, lower utilisation must be accepted, e.g. maintenance utilisation of kale might be 80-85% (in dry conditions), but needs to be <75% for body condition gain.

Typical winter crop utilisation rates (vary widely)

Feed	Utilisation
Fodder beet	80-90%
Swedes	80-90%
Kale	70-85%
Pasture	80-90%

Stock requirement example

When winter crop yield is measured, a sample of what will be grazed should be sent for ME analysis. Next, you need stock ME requirements, which are available - see table below. In this example, dairy cow ME requirement depends on liveweight, and BCS gain during pregnancy.

Cow ME requirements for 1 body condition score gain in 60 days (MJ ME/cow/day)

Breed	Lwt (kg)	12 wks pre-calving	8 wks pre-calving	4 wks pre-calving	2 wks pre-calving
J	350	86	94	107	85
J	400	97	105	119	94
J x F	450	107	116	132	102
Fr	500	118	127	144	111
Fr	550	128	138	156	119

Example of crop allocation

In this example, 100 cows (450 kg/head LW), 12 weeks pre-calving, are to be break fed kale, with the aim of adding 1 BCS over winter. Kale will comprise 70% of their diet and baleage the rest. The crop yields 14 t DM/ha, utilisation is estimated at 85% and feed quality is 11.5 MJ ME/kg DM. The width of the crop paddock is measured at 200 m.

14,000 kg DM/ha (crop yield)	x	11.5 MJ ME/kg DM (ME of kale)	=	161,000 MJ ME/ha (ME of kale/ha)
161,000 MJ ME/ha (crop yield)	÷	10,000 m2/ha	=	16.1 MJ ME/m2 (ME of kale/m2)
107 MJ ME/cow/day (cow requirement)	÷	85% (utilisation)	=	126 MJ ME/cow/ day (ME allowance)
126 MJ ME/cow/day (allowance)	x	70% (% diet kale)	=	88 MJ ME/cow/day of kale
88 MJ ME/cow/day (kale allowance)	÷	16.1 MJ ME/m2 (kale crop)	=	5.5 m2/cow/day (kale needed)
100 cows	x	5.5 m2/cow/day	=	550 m2/day (break size needed)
550 m2/day	÷	200 m paddock width	=	2.75 m break length