Improving Ewe Efficiency (1); Meeting Benchmarks

Practical Guide

Targeting ewe efficiency is key to more profitable sheep production which in turn could lower the farm carbon footprint.

Lambing percentage (number of lambs reared per ewes mated x 100) is the typical benchmark used by farmers across the country to compare their performance with others.

While this is a useful way to compare year on year performance within a farm, it does not account for the wide range of farm types, different farming systems and labour resources found on Scottish farms. For example, upland sheep production versus lowland; early indoor lambing systems versus outdoor lambing in mid April.

Ewe efficiency is linked to three key technical aspects of sheep production:

- Lambing percentage
- Lamb weight at sale/ transfer
- Ewe weight at mating

This Practical Guide looks at benchmarks to assess flock efficiency. Additional guides in this series focus on maximising performance both pre and post lambing.

Evaluating flock performance: kilos of lamb produced per ewe mated 1 to 1

A more accurate efficiency benchmark is the kilograms of lamb produced (sold or retained) per kilogram of ewe mated. The target for lowland farms is a ratio of 1:1 or 1 kg lamb sold per 1 kg of ewe mated. Expressed as a percentage this is 100%. For example:

- 72 kg ewes (average weight at mating) at lambing percentage of 173%
- Selling lambs at 42 kg liveweight (LW)
- 1.73 lambs/ewe x 42 kg/lamb = **72.66** kg of lambs produced per ewe
- 72 kg (average ewe LW at tupping) = **1.01** this is above the 1:1 ratio) or **101%**

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Websites

www.farmingforabetterclimate.org

www.agrecalc.com

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Evaluating flock performance: carcase weight output

If some of your lambs are sold deadweight, you can either adjust their deadweight to liveweight or use a killing out percentage of 46% to calculate the carcase weight of any lambs sold live, store or retained as breeding replacements. To calculate this benchmark, multiply the lambing percentage by the average carcase weight. For example:

- 172% lambing, selling lambs at average carcase weight of 19.2 kg
- 1.72 x 19.2 = **33 kg** lamb deadweight/ewe mated
- The target for lowland flocks is more than 30 kg. For hill flocks, the target range is 20-25 kg

Lambing percentage

Lambing percentage is dependent on:

- How many ewes get in lamb
- Number of lambs scanned, scanning percentage
- Lamb survival

The scanning percentage reflects the number of eggs shed from the ovaries that survive to 80 days (approx.) and is influenced by season, breed, ewe age, and body condition score at mating.

Adjusted 90 day weaning weight

The "adjusted 90 day weaning weight" benchmark is similar to but offers a **more thorough evaluation of ewe efficiency** than the 1 to 1 calculation, before post-weaning management affects performance.

This benchmark uses the average lamb weaning weight standardised at 90 days (calculated from the mid point of lambing - point at which half of the ewes have lambed). If weaning earlier, add the average lamb daily liveweight gain, multiplied by the difference of days, to the weaning weight. Conversely, if weaning later, subtract the weight gain after 90 days. This benchmark offers producers an accurate figure for the percentage of ewe liveweight weaned. For Lowland target 0.95 (range 0.65-0.85); for Upland aim for 0.85 (range 0.55-0.80).

To calculate, multiply the average lamb weaning weight at 90 days by the weaning percentage (number of lambs weaned per ewes mated) and divide the result by the average ewe weight at tupping. For example, take a flock of 72 kg ewes at tupping, lambing from 1 April onwards, weaning at 176% with an average lamb weight of 31 kg on 16 July (90 days):

$$\frac{31 \text{ kg} \times 1.76}{72} = 0.76 = \textbf{76\%}$$

The advantage of this ewe efficiency benchmark is that they are improved by different factors, such as increasing lamb growth rate to weaning, increasing lambs reared and lighter ewes. As these factors are influenced by maternal genetics, the ewe efficiency calculation can be used to select replacements within different breeds once farm-specific parameters are set.

Body condition score

Aim to have lowland and upland ewes in a condition score of 3.5 at mating. Hill ewes should be ideally in a score of 3.0 at mating.

Reproductive benchmarks for these different flock types are shown below:

Per 100 Ewes Tupped	Hill	Upland	Lowland
Ewes barren	10	5	5
Ewes dead pre-lambing	2	2	2
Ewes dead post-lambing	2	2	2
Ewes to ram	100	100	100
Lambs born	100	145	175
Lambs reared	90	130	160
Lambs reared range	60-145	100-160	130-190