Irish Breed Comparison Studies – a Review

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Research has shown that substantial increases in ewe and ram productivity are achievable through the right combination of breeds. However, the industry still lacks clear breeding policy. This can be seen clearly in the replacement strategy of the BETTER farm data where at least three different breed types were used on every farm and some were using as many as five thus indicating that farmers are confused by the breeding choices that are out there. The aim of this paper is to review some of the Irish studies that have been conducted to date and to thus aid farmers in making breeding decisions.

Ewe Performance

Extensive breed evaluations have been undertaken over a 25 year period in Teagasc using flocks in Blindwell, Belclare, Knockbeg and Athenry. This led to the development of an efficiency index by Seamus Hanrahan. This index takes into account the number of lambs weaned and ewe body size. Ewe body size was included to penalise against heavier ewes that have greater maintenance requirements across their lifetime. The results for the main ewe breed types is summarised in Table 1.

Table 1. Breed of sire ranked on an efficiency index with the Belclare cross ewe used as the base (Hanrahan, 2010).

Breed type	Litter size	Lambs reared per ewe joined	Ewe live weight (kg)	Efficiency index
Belclare cross	2.00	1.70	63	100
Charollais cross	1.86	1.61	67	87
Vendeen cross	1.75	1.54	66	86
Blue Leicester cross	1.85	1.56	70	84
Bleu du Maine cross	1.75	1.50	66	84
Texel cross	1.70	1.49	67	83
Suffolk cross	1.80	1.51	69	82

Number of lambs reared per ewe has been identified as one of the main indicators of profitability on farm; therefore a large amount of research conducted to date has focused on increasing the

prolificacy of the ewe flock through breed selection. Results to date show that on average the Belclare cross ewe rears 0.1 more lambs than their nearest contemporary. If the Belclare cross ewe is compared to the dominant breed type of the Suffolk cross ewe this figure increases to 0.2. Results from research conducted in Northern Ireland have shown that the Blue Leicester crossed with the Scottish Blackface is also a high prolific breed capable of producing 1.99 lambs per ewe lambed (Carson et al., 2004).

Teagasc studies have shown that Belclare cross ewes can consistently wean 1.70 lambs per ewe joined.

Ram Performance

The choice of ram used in a given flock can affect lamb growth rate, the number of days to slaughter and the conformation classification. A comparison of the main terminal sire breeds is summarised in Table 2. Overall results show that Suffolk cross lambs have the highest weaning weight and this resulted in the progeny being drafted for slaughter at a younger age. Texel cross lambs had the highest carcass weight at a fixed fat score but the differences in kill out percentage between the breeds was quite small. A recent study conducted by Hanrahan (2010) involving 45 pedigree Suffolk and 55 pedigree Charollais progeny tested rams has shown that the rams genetic potential had little effect on the progeny weight at 120 days with 80% of the rams tested progeny falling within ±0.5 kg of the overall mean.

When compared to the traditional terminal breeds, Belclare sired lambs were significantly lighter at birth and have lower although non-significant growth rates to weaning (281g/day) compared to the traditional terminal breeds of the Suffolk (288g/day) and Texel (293g/day; Hanrahan, 1999).

Table 2. Terminal sire breeds on their production performance with the Suffolk used as the base (Hanrahan, 1999).

Sire breed	Weaning weight	Sale date	Carcass weight	Carcass conformation	Kill-out rate
Suffolk	100	100	100	100	100
Texel	96	104	102	100	102
Charollais	97	102	101	100	102
Beltex	96	106	98	106	102
Dorset	99	100	100	91	100
Ille de France	95	108	101	103	103
Bleu du Maine	92	107	99	96	100
Rouge de l'Ouest	95	105	100	98	100
Vendeen	94	106	100	98	101

Therefore, in summary research to date has found little overall differences between the main terminal sire breeds that are widely used in Ireland (i.e. Texel, Suffolk and Charollais).

Health Traits

Breeding sheep that are resistant to certain health issues is now achievable; recent research has shown that variation exists within and between breeds for resistance to nematode parasites. In Ireland results have shown that Texel breeds are more resistant to nematode challenges compared to Suffolk breed both as lambs and adult. Good et al. (2006) concluded that the differences in resistance between the two breeds are most likely due to genetic variation and the exploitation of this variation through breeding can be used as a management tool in the future for the control of parasites.

What Breed is Right for Me?

Unfortunately there is no one breed that fits all! The breed of animal used on your farm should however be suitable for your production systems. For example the Belclare cross ewe will lift the lambing output but this may not be suitable for all farmers due to the greater labour requirements at lambing time and the subsequent rearing of triplets. Also the type of ewe that is suitable for high stocking rate systems may not necessarily be the same ewe that is suitable for low stocking rates.

An important question to ask yourself is what is my end goal in my production system and how can I achieve this most efficiently.

Summary

Although this article has focused mainly on breed comparisons it is important to acknowledge that a new national genetic evaluations in operation for sheep in Ireland, the Sheep Value Index. This index will focus in the future on across breed evaluations therefore if farmers are selecting the best genetic merit animal with a high accuracy then selecting on an individual breed will become irrelevant.