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## Update on the Derrypatrick Herd

### (Comparison of continental bred suckler cow breed types)

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#### Summary

- Phase 1 of the Derrypatrick Herd, which evaluated the progeny of four cow breed types, has been completed. This work highlighted the importance of maternal traits in the economic performance of beef suckler herds and contributed to the development of the new maternal breeding index.
- Phase 2 of the Derrypatrick Herd will compare the performance of early and late-maturing sire types finished as heifers and steers or young bulls.
- 2013 was a difficult year for the Derrypatrick Herd due to the very cold/wet spring. This had a significant effect on animal and financial performance and the herd had a calculated gross margin of €919/ha.

#### Introduction

The Derrypatrick Herd at Grange is a 70ha research demonstration herd whose primary objective is to evaluate alternative suckler calf-to-beef production systems. The first phase of the Derrypatrick Herd (2009 to 2012) involved a comparison of four cow breed types; Limousin x Friesian (LF), Charolais x Limousin (CL), Limousin x Simmental (LS) and Charolais x Simmental (CS). This phase is now complete with four crops of progeny produced. During the phase all cows were mated to late-maturing terminal sires and all male progeny were finished as 18-19 month old bulls on *ad-lib* concentrates for 100 days following a 3 month spring grazing period. Heifers were slaughtered at 20 months of age, at the end of their second grazing season. The LF cows produced the highest calf weaning and carcass weight and had the lowest bodyweight, therefore the highest weaning efficiency (Table 1). Reproductive performance (calves/cow/year) was similar across genotypes.

**Table 1** – Reproductive performance and efficiency of 4 cow genotypes over 4 years.

	LF	LS	CS	CL
Weaning weight (kg)	313	287	282	279
Carcass weight (KG)	357	348	352	348
Calves weaned/cow mated/year	0.80	0.81	0.79	0.79
Calf weight weaned (kg)/cow to bull	251	233	223	221
Cow bodyweight (kg)	630	670	723	720
Kg weaned/kg cow liveweight	0.50	0.43	0.39	0.39

## Phase 2

The current phase involves a comparison of late (Charolais and Limousin) and early (Angus) maturing terminal sires and a comparison of steer and bull finishing systems. This began in late 2012 when 50% of the male calves were castrated. In spring 2013, 50% of cows were bred to early or late maturing sires. All replacements for this herd will be purchased based on Replacement Index values, and will come from both dairy and suckler herds. Because of the change in market requirements, all bulls (both EM and LM) will be slaughtered at less than 16 months without a spring grazing period. Steers from early and late-maturing sires will be slaughtered at 22 and 24 months, respectively, and heifers from early and late-maturing sires will be slaughtered at 18 and 20 months, respectively.

## Performance for 2013

Because of poor grass growth in early 2013, the bulls had a longer than planned store period and it was not possible to have a grazing season for these animals. They were therefore built up onto *ad lib* concentrates for indoor finishing. The overall result was that, at 18 months of age, average carcass weight at 358 kg was approximately 42 kg less than expected, and more meal was fed than originally planned (Table 2). In contrast, the excellent grazing conditions later in the season provided the opportunity to graze the finished heifers for one extra month which helped to offset the long store period in early 2013. Consequently, average carcass weight for the heifers was close to target at 304 kg. The gross margin for the Derrypatrick Herd in 2013 was €64,299 or €919/ha.

**Table 2** – Cow breed and calf gender effects on slaughter weight and carcass characteristics in 2013.

	Slaughter age (Months)	Slaughter weight (kg)	Conformation score (1-15)	Fat score (1-15)	Carcass weight (kg)	Kill out %
LF		620	8.4	8.2	346	55.8
CL		604	9.0	7.6	334	55.3
LS		625	9.3	7.2	348	55.6
CS		614	8.9	7.2	340	55.3
Bulls	18	621	10.0	6.9	358	57.6
Heifers	20	563	8.3	7.5	304	54.1
Steers	23	662	8.4	8.1	364	54.9

The above article was reproduced and adapted courtesy of Teagasc.

**Footnote comment from Simon Marsh, Principal Lecturer – Beef Cattle Specialist, Harper Adams University & NBA Board Member.**

Late maturing continental cross-bred cows now account for 75% of suckler cows in Ireland, of which 85% are bred to a continental sire breed (McGee & Crosson, 2015). The majority of the cows are at least  $\frac{3}{4}$  continental bred. Ideally in the above study the Limousin x Friesian should have been compared to a continental x native breed type cow or even a cross-bred native breed type to have more relevance for the UK.

Many suckler herds have opted to breed their own replacements instead of purchasing beef x dairy-

bred heifers. Many reasons are cited including; improved herd bio-security, problems with udders and conformation especially if there is too much Holstein influence. A home-bred replacement policy can also result in improved calf conformation and increased cull values with heavier better shaped cows. The latter could be worth at times over £500 per cow. However the main benefit of a beef x dairy-bred suckler cow is that she can produce a lot more milk as shown in the Teagasc trial with higher calf DLWGs. Being a smaller cow more can be kept per hectare. In attempt to quantify the effect of keeping large cows on stocking rate, modelling has been done on typical farm grassland production and cow energy requirements. A 700kg cow requires 8MJ more energy per day for maintenance compared to a 600kg cow. In the modelling a 100ha farm stocked at 1.4 LSU/ha would stock 140 cows weighing 600kg whereas it would only support a herd size of 130 with 700kg cows unless pasture productivity was significantly improved or additional feedstuffs were purchased. This would result in a reduction of 9 calves weaned per year for the herd which will significantly exceed any potential gains from increased cull values from heavier home bred beef cows. The objective with a home-bred replacement policy must be to maintain cow size, or even reduce it if possible. With bulls selected to breed herd replacements focus on maternal characteristics (use EBVs), especially 200 Day Milk, Calving Ease Daughters, Scrotal Circumference with positive Fat Depth and average or below average EBVs for growth.

It is not the policy of Harper Adams University or the National Beef Association to promote any particular breed. Strengths and weaknesses of every beef breed in the UK can be highlighted. Pick the breed type suitable for your farm and market.

#### Reference:

McGee, M. and Crosson, P. 2015. Aspects of suckler cow efficiency on grass-based production systems: British Cattle Conference, Digest 70: "Meeting Market Demands through Co-operation", 19<sup>th</sup>-21<sup>st</sup> January 2015, pp11-24.