

Derrypatrick Herd: 2017 in review

Matching last year's performance will be a challenge

John Heslin
Teagasc Animal and Grassland Research & Innovation Programme, Grange

The Teagasc Derrypatrick Herd comprises a 100 suckler cow-to-beef research demonstration herd located in Grange, Dunsany, Co Meath on 65ha with a stocking rate of 2.7LU/ha. The primary objective is to evaluate alternative suckler calf-to-beef production systems.

The herd consists of Limousin × Friesian and three-quarter beef-bred Simmental and Limousin cows. Over the previous three years, these cows have been bred to either Angus (early-maturing; EM) or Limousin/Charolais (late-maturing; LM) bulls.

Progeny have been finished as 16-month bulls, 20-month heifers and 24-month steers. As of 2018, all male progeny will be slaughtered as steers, to coincide with a grazing study, which will result in a higher stocking rate (3 LU/ha). Data collection of the grazing and breeding research projects will begin in 2018.

Calving

At the beginning of April 2018, 80% of the herd had calved. Following two sets of twins and a clean bill of mortality, there were 83 live calves from 81 cows. There were a number of assisted calvings following malpresentation but, thankfully, they were all successful. The average calf birth weight was 46kg, while the average calving score was two.

The cows were in a good condition, with an average liveweight and body condition score at calving of 657kg and 2.75, respectively. Target calving interval is 365 days, anything below

this target figure is a bonus. At the time of writing, calving interval averages 356 days.

Winter 2017/18, as we all are well aware, was very challenging at farm level. While fodder was thankfully not an issue for the Derrypatrick Herd, housing arrangements were tested to the limit.

Make-shift creep areas were erected in the slatted shed as ground conditions delayed turn-out. With a good team in place, we were extremely vigilant with calf health this winter.

All calves were vaccinated against respiratory diseases from 10 days of age. At the first sight of dullness or calves off-form, temperatures were checked and the appropriate action taken. So despite remaining

housed for an extended winter, the animals suffered no major health issues.

Breeding

Our 12-week breeding season began on 1 May. The breeding herd grazes in four groups of ~30 and each group is accompanied by a teaser bull. All breeding will be carried out using AI, and the AM:PM rule will be applied. The sires elected for breeding 2018 are outlined in Table 1.

Cows are bred to one of 12 (four from each breed) Charolais, Limousin and Simmental sires, whereas heifers are bred to one of four Angus sires. Aids to heat detection included teaser bulls with chin-ball, tail paint and visual observations (three times daily). The target for breeding 2018 is to achieve a pregnancy rate of at least 90% and to have all heifers in-calf in the first six weeks of breeding.

Animal performance 2017

A summary of 2017 calf performance is shown in Table 2. All male calves were castrated in mid-September. Gradual weaning began on 10 October. On average, cows weaned 43% of their body weight in calf-weight.

Due to poor weather conditions, cows remained indoors after weaning. Calves were offered 1kg/head/



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day of a barley-based concentrate ration from 10 days prior to weaning until housing, four weeks after weaning. Cow liveweight and BCS at weaning were, on average, 668kg and 3.0, respectively.

A summary of slaughter performance of 2017 is presented in Table 3. Having implemented the Teagasc 16-month bull beef system, all bulls were offered a barley-based concentrate ration (2kg/head/d) from weaning. When housed (11 November 2016), bulls were offered first-cut silage (72% DMD) ad-lib plus 2kg/head/d of concentrate.

Concentrate was gradually increased with all bulls receiving ad-lib by the first week of January. Bulls were slaughtered in mid-June 2017 at 16 months of age achieving a lifetime ADG of 1.35 kg with an overall concentrate input of ~1.3t/head.

Finishing heifers and steers were offered a barley-based concentrate from 1 September that gradually increased to 4kg/head/day over a two-week period. The aim was to finish all heifers from grass at 20 months and steers before the second winter. In total, 16 heifers and 12 steers were slaughtered following supplementation at grass.

Due to poor weather conditions, animals (17 heifers and eight steers) were housed on 1 November for a final

finishing period. Some animals were drafted for slaughter on 16 November whereas the remaining animals were slaughtered on 7 December with only a five-week indoor period required.

Steers achieved the targets required for a 24-month steer system, but did so three to four months early. In 2017, a total of 28 cows were culled with chronic lameness and poor performance being the main factors.

Arguably, the best cow in the herd was culled due to chronic lameness; first calving at 23 months, this nine-year-old cow produced seven calves resulting in 2,600kg of beef with an average calving interval of 365 days. At slaughter, this Limousin (Rocky sired) cow weighed 860kg and left a 467kg U-4 carcass.

Economic performance for 2017

The Derrypatrick Herd gross margin for 2017 is €1,285/ha compared with the 2016 gross margin of €1,054/ha. Despite purchasing 18 in-calf cows (to replace 18 cows not in-calf in 2016), gross output was higher in 2017 than 2016 aided by a positive inventory change (cow numbers).

In comparison to 2016, fertiliser costs were €65/ha higher and purchased feed costs were €146/ha lower, resulting in overall direct costs being €59/ha lower in 2017.

Table 1: Sires (2017)

Replacement sires			Terminal sires		
AI code	Name	Breed	AI code	Name	Breed
VMO	Voimo	CH	FSZ	Fiston	CH
CH2218	Bivouac	CH	SNZ	Sylvaner	CH
JSS	Usse	LM	LM4050	Wilodge Goldcard	LM
CWI	Castleview Casino	LM	LM4093	Mullary Intrepid	LM
QCD	Cloondroon Calling	SI	RWV	Raceview Van Halen	SI
SI2152	Curaheen Earp	SI	CQA	Curaheen Vio	SI
ZLL	Lanigan Red Deep Canyon	AA	ZEP	Hawkley Red Zeppelin	AA
RGZ	Tubridmore Gizmo	AA	ZHF	HF Rebel	AA

Table 2: Calf performance (2017)

	Birth WT, kg	Wean WT, kg	Wean age, d	ADG birth-wean, kg	Housing WT, kg	Value €
Heifers	41	275	213	1.11	285	725
Bulls	45	295	210	1.21	311	781

Table 3: Slaughter performance (2017)

	No.	Birth WT, kg	Wean WT, kg	Slaugh-ter WT, kg	Life-time ADG, kg	Carcass WT, kg	Con-for.	Fat	KO%	Age, M
16m bulls										
EM	11	44	375	703	1.40	395	R+	3-	56	16
LM	9	53	352	682	1.30	403	U-	2+	59	16
Heifers										
EM	21	41	320	578	0.94	308	R=	4=	53	19
LM	19	51	326	601	0.92	334	U-	3-	56	20
Steers										
EM	10	46	364	651	1.00	354	R-	3+	54	20
LM	9	53	350	688	1.04	392	U-	3-	57	21
Cows	28	N/A	N/A	751	N/A	391	R-	3+	52	N/A

Increased fertiliser costs were due to investment in soil fertility by using more compound fertiliser. Lower feed costs were due to shorter finishing periods for cull cows, heifers and steers. Replication and improvement of the animal and economic performance outlined above is a key target for 2018.

Research

White clover (Chieftain and Aberherald) was incorporated into half the farm (every second paddock) during 2017. The aim is to evaluate the effect of incorporating white clover into perennial ryegrass swards on herbage production, utilisation, clover persistency and animal performance of a suckler-to-beef system.

Clover was over-sown into existing pastures at a rate of 5kg/ha (2kg/ac) after a tight grazing or silage harvest using an Einbock pneumatic seeder. Fertiliser (0:7:30) was spread at sowing at a rate of five bags/ha (two bags/ac).

To aid clover establishment, pre-grazing herbage yields were typically less than 1,300 kgDM/ha for the next three to four grazings.

Half of the cow herd and its progeny will graze perennial ryegrass-only swards, while the remaining animals will graze mixed swards consisting of white clover and perennial ryegrass.

Breeding 2017

Breeding 2017 was the first year of the high replacement index v high terminal index sire comparison. A team of sires, across breed, are being selected on high maternal traits and high terminal traits for the duration of this comparison.

The calves from these sires will be managed to slaughter in a 20-month heifer or 24-month steer production system. The aim of this study is to determine the effect of selecting high replacement sires in comparison to high terminal sires on animal performance and carcass output.

Within the replacement index, sires were selected on the following traits: milk yield, calving fertility, cow contribution to the replacement index, calving difficulty and overall reliability while maintaining a balanced terminal index. Within the terminal index, sires were selected on: carcass weight, overall terminal index, calving difficulty and overall reliability. Maximum sire calving difficulty used on the cow herd was 8%. All heifers were bred to Angus sires using high maternal and high terminal bulls with the same criteria as above.

Paddocks and animals involved in this programme will be on display at the Teagasc Beef Open Day on 26 June 2018.