

The Derrypatrick herd: Profit

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The Derrypatrick farm is a suckler beef systems research farm established at Teagasc, Grange, Dunsany, Co Meath in 2009. The farm consists of 65ha in a single block with a good network of roadways servicing 79 grazing paddocks. Some areas of the farm are free-draining but much of the land is heavy and difficult to graze very early or late in the year.

Perennial ryegrass dominates much of the swards and 12ha (30 acres) were reseeded this summer with monocultures of Abergain, Glenveagh, Abergreen and Aberchoice sown at 35 kg/ha. In future 10% of the land area will be reseeded each year.

Soil fertility is medium with the most recent soil samples (taken in 2013) showing that 10% of the farm was Index 3 or higher for phosphorus (P) and 46% of the farm Index 3 or higher for potassium (K).

The pH of the Derrypatrick farm was 5.8 in 2013. These soil fertility issues have been addressed over the past two years and the farm is due to be soil sampled again during the winter of 2015.

High grass growth

The Derrypatrick system is based on high grass growth and high levels of utilisation.

Figure 1 summarises the grass growth for the farm for the year to the end of September. So far, the farm has grown an average of 12,992kg dry matter (DM), with 10,593kg DM/ha of this coming from grazed grass and 2,398 kg DM/ha from conserved grass silage.

Each of the 79 paddocks was grazed five times on average – this includes the silage fields. The most productive paddock on the Derrypatrick farm had grown 15.1t DM/ha by the end of September, while the most unproductive paddock had grown just 3.8t. This demonstrates the wide variance between paddocks on the same farm and next year's focus will be on upgrading lower yielding paddocks (towards the right of Figure 1) to ensure that they grow more grass through increasing soil fertility or reseeded.

Silage

One way of reducing the level of concentrates used in a beef system



is to make high-quality silage. Our first-cut silage at 78DMD will mean we will need to restrict suckler cows that come in over-conditioned.

The surplus bales will be fed at the beginning of the winter before pits are opened and they will then be fed to our under 16-month-old bulls to

reduce the amount of concentrates needed to finish them. These surplus bales have the advantage of ensuring quality is kept in the grazed swards during the grazing season and also they result in high-DMD silage which can be fed back to weanlings during winter months.

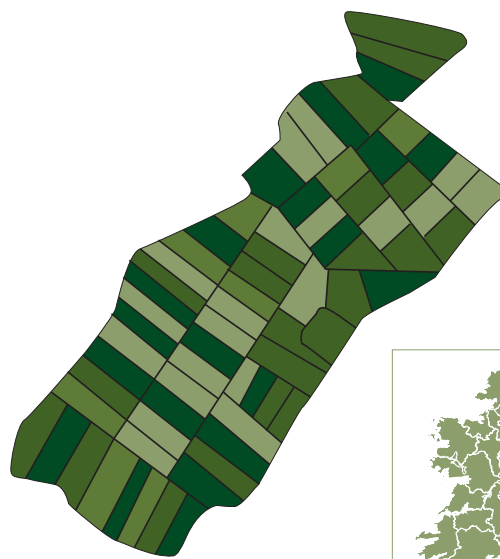
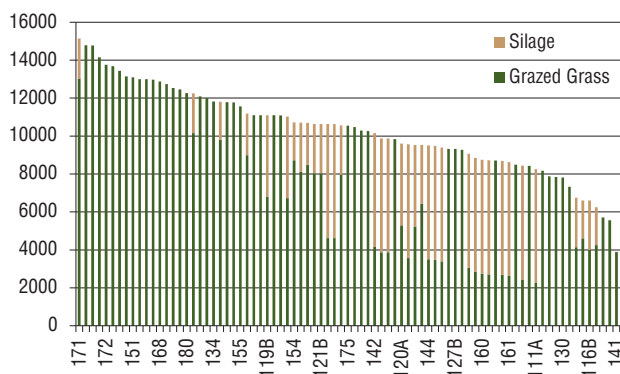
Table 1: Derrypatrick 2015 silage results

	First cut	Second cut	Surplus bales
Cutting date	3 June	3 August	15 June
Dry matter (%)	27.9	25.6	49.4
pH	3.6	3.9	4.7
Protein	11.8	11	11.8
DMD (%DM)	78	72	73

from grazed grass



Figure 1
Derrypatrick grass yields for each paddock up to 30 September 2015 – yield is in kg DM/ha



Financial performance

One of the objectives of the Derrypatrick herd is to demonstrate production systems which generate high levels of profitability. A target gross margin in excess of €1,000/ha was set at the initiation of the project in 2009. Two key principles for achieving the targets set for the herd are:

1. Output of beef per hectare must be high. This is achieved through high output per animal and a high stocking rate.
2. It is vital that this output is generated cost-effectively, which means that a high proportion of lifetime

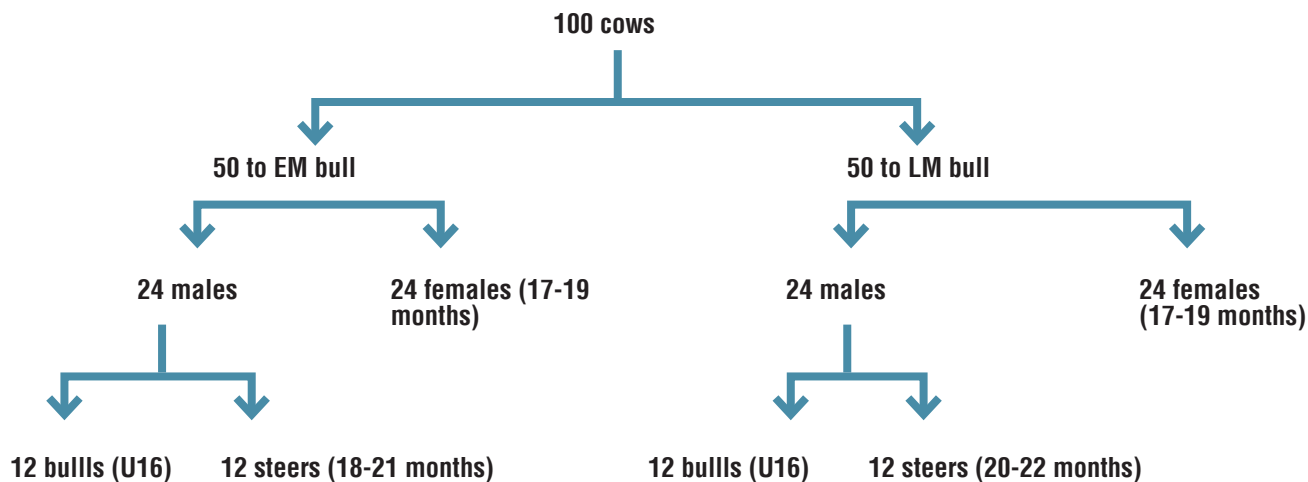
Members of the Teagasc Beef Stakeholder Group on a visit to the Derrypatrick herd.

daily gain is achieved from grazed grass. Currently it is estimated that, on average, grazed grass constitutes less than half of the total feed budget on Irish suckler calf-to-beef farms and total herbage utilised is less than 5t DM/ha. This is considerably lower than the targets set for the Derrypatrick herd, where grazed grass is estimated to account for ~65% of the total feed budget and herbage utilised is ~11t DM/ha. For bull and heifer progeny in the Derrypatrick herd, approximately 50% and 70%, respectively, of slaughter weight will be achieved from grazed grass.


Continued on p16

Figure 3: The farm system

Early maturing sire (EM) versus late-maturing sire (LM). Purchase half replacements from dairy herd and half from suckler herd



The farm system

In 2013, a decision was taken to change the breeding programme from the original cow breed-type comparison study to a study comparing early-versus late-maturing breed sires.

The replacement policy was also changed that year, with half of the replacements now being sourced from the dairy herd as Limousin X Holstein/Friesian while the other half are sourced from suckler herds as heifers that are ranked high on the Replacement Index – they are predominantly Limousin- and Simmental-crossbred heifers.

All heifers are served to either an easy-calving Aberdeen Angus or Limousin bull and all replacements calve at 24 months of age. Replacements are purchased at 8-12 months of age with none bred on the farm (in order to maximise the number of animals finished, thereby providing more carcass data for the breed comparison).

An objective for the Derrypatrick herd over the next four years is that all cows will be four- or five-star on the Replacement Index scale. In order for this to happen, we will need to purchase heifers in the region of €100-€120 to lift the herd average over the next few years

The calving period is from 18th February to 30th April and calving in 2016 will take place over an 11 week period (Table 2). The six week pregnancy rate in the Derrypatrick herd in 2015 was 82.5% with an overall pregnancy rate of 96% (two cows and two heifers were scanned as non-pregnant). Seventy-one mature cows and 26 maiden heifers will calve down in 2016.

Table 2: Replacement Index of Derrypatrick beef suckler herd

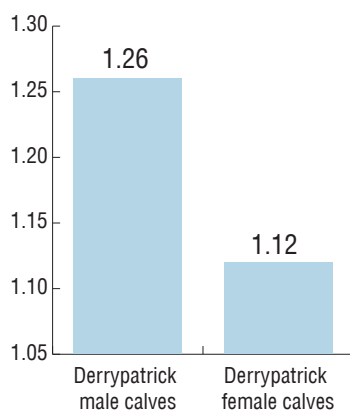
Star rating	n	Value (€)
*	n=13	€13.50
**	n=13	€44.60
***	n=11	€64.60
** **	n=14	€86.50
*****	n=19	€127.50
2016 replacements		€100.80
All cows		€73.60

Terminal sires used are Charolais, Aberdeen Angus and Limousin. The herd is divided evenly between early-maturing sires (Aberdeen Angus) and late-maturing sires (Charolais and Limousin).

All animals are brought to finish, with half (n=25) of the male progeny being finished as bulls under 16 months of age (13 late-maturing and 12 early-maturing). The remaining male calves are finished as steers at 18-22 months of age. Heifers are finished at 17-22 months, with about 75% of the heifers being slaughtered off grass in September/October.

Many of the early-maturing heifers will be slaughtered off grass without any supplementation, while the late-maturing heifers will receive some concentrates at grass six to eight weeks before slaughter. The typical carcass weights expected from this system are: under 16-month-old bulls 360kg to 420kg, heifers 250kg to 350 kg and steers 300kg to 400 kg.

Figure 4
Calf liveweight performance (kg/day) in the Derrypatrick herd



Cull cows

Most of the cull cows (n=13) were finished off grass, with cows getting concentrates from 9 September until slaughter on 29 September. Concentrates were fed to cows and calves to aid the weaning process. Six Aberdeen Angus heifers and four Aberdeen Angus steers were slaughtered directly off grass with no concentrates fed to them. Late-maturing heifers (n=25) have recently been split into two groups, with 15 heifers destined for slaughter off grass and the remainder to be housed for indoor finishing.



Table 3: Breeding and calving dates for the Derrypatrick herd in 2015/16

Cows	Start	End	Days	Weeks
Breeding	08/05/2015	20/07/2015	73	11
Calving	18/02/2016	30/04/2016	73	11
Heifers	Start	End	Days	Weeks
Breeding	14/05/2015	28/06/2015	45	7
Calving	27/02/2016	12/04/2016	45	7

Table 4: Derrypatrick sales performance for 2015

Animal type	Weight (kg)	Conformation	Fat	Carcase	Kill-out	€/kg	Value
Cull cows (20)	805	R=	4-	430	53.4%	3.79	1633
AA bulls (10)	665	R+	3=	380	57.2%	4.35	1655
CH bulls (13)	664	U-	3-	395	59.5%	4.41	1741
AA steers (7)	644	R=	3+	360	55.9%	4.17	1501
AA heifers (20)	569	R-	4-	309	54.2%	4.20	1296

AA=Aberdeen Angus; CH=Charolais

1. Achieve a gross margin in excess of €1500/ha and a net margin in excess of €1000/ha.
2. All paddocks on the Derrypatrick farm had Index 3 for P and K and a pH above 6.2.
3. Grow 15t grass DM/ha.
4. Achieve high utilisation and at least 250 days at grass.
5. Become one of the highest Replacement Index herds in the country.
6. Achieve the best possible breeding and fertility targets.
7. Produce carcasses according to meat industry specifications predominantly off grazed grass.
8. Incorporate a clover research trial on the Derrypatrick farm.
9. Incorporate a breeding comparison trial within the Derrypatrick herd.
10. Host every Knowledge Transfer (KT) discussion group in the country within the next five years.

All steers and heifers for finishing at grass were started on concentrates on 9 September and are being offered 5kg/head/day. The late-maturing heifers, which are predominantly Charolais-sired, currently weigh 563kg, while the late-maturing steers currently weigh 610 kg (30/09/2015). It is hoped that a high proportion of these late-maturing heifers will be slaughtered off grass by the end of October.

The projected gross and net margins for the Derrypatrick herd for 2015 are presented in Table 4. It is apparent that the margin achieved is largely due to the high level of output (24% greater than the top third of the Teagasc eProfit Monitor farms). The gross margin is the best measure of technical efficiency and is projected to

be close to €1,300/ha for the Derrypatrick herd in 2015.

When full costs are considered (including overheads and facilities costs) net margin is expected to exceed €600/ha.

Figure 4 summarises the calf performance on the Derrypatrick farm for 2015 to date. Calf performance targets are 1.25 kg/day for male calves and 1.1 kg/day for female calves so calf performance is on target up to the end of September 2015.

Half of the male calves were castrated at the end of September and weaning is almost complete. The aim will be to keep weanlings outdoors as long as possible with cows aiming to be housed on 1st November and weanlings to be housed on 1 December.

Table 5: 2015 predicted Derrypatrick profit analysis compared with the average and top-third of the 2014 eprofit monitor farms

	Derrypatrick estimate	Average eprofit monitor	Top 1/3 of eprofit monitor
Physical			
Farm size (ha)	65	44	48
Stocking rate (LU/ha)	2.7	1.7	2.2
Liveweight produced (kg/LU)	362	324	360
Liveweight produced (kg/ha)	977	561	775
Financial(€/ha)			
Gross output	€2277	€1242	€1831
Variable costs	€1004	€710	€865
Gross margin	€1273	€532	€966
Fixed costs	€652	€526	€652
Net profit excl. premia	€621	€6	€314



TIP How to learn more

The farm operates in a completely transparent manner with all measurements and data being made available to visiting groups, other interested parties and the farming public.

Weekly farm notes are uploaded onto the website (<http://www.teagasc.ie/beef/derrypatrick-herd/>) so farmers can keep track of progress and management changes on the farm. The herd is also open to the public for pre-arranged farm tours and open days will be arranged on a regular basis. Anyone interested in visiting the herd should contact me at Teagasc, Grange, Co. Meath or adam.woods@teagasc.ie