

Dairy beef finishing systems

There are various dairy-beef production systems which differ depending on breed type, gender and finishing age. Dr Robert Prendiville, a researcher from Teagasc, Ireland, has developed various blueprints for finishing beef calves from the dairy herd and calculated the potential financial returns associated with these.

Research has clearly demonstrated that early life management influences an animal's lifetime performance, therefore, getting it right during the rearing phase is key to a profitable system. Calves should grow at 0.8kg/day during their first grazing season and 0.7kg/day during their first winter on 1.5-2kg concentrate with good-quality grass silage. It is critical youngstock are weighed regularly during this period so that performance can be monitored and management changes can be made where necessary.



Rob has developed blueprints for male Holstein-Friesian and early maturing crossbred calves. These systems are predominantly grass based, therefore, rely on utilising high quantities of pasture. A focus on high output per hectare is fundamental to their profitability.

Blueprints for male Holstein-Friesian Calves

15-month bull system: Spring-born calves are housed in late October/early November following a season at grass, remain indoors and are finished on a diet comprised of concentrates offered *ad libitum* (*ad lib*) with grass silage or straw as a source of roughage. During the finishing period, concentrate input is approximately 1.8t dry matter (DM).

21-month steer system: Spring-born calves are finished off pasture at the end of the second grazing season after receiving concentrate supplementation at grass for 60 days pre-slaughter. Concentrate input during the finishing phase for this system is approximately 350kg DM.

28-month steer system: Animals are at pasture for the second grazing season and are then housed and offered high-quality grass silage *ad lib* for the second winter. During this indoor period, daily liveweight gain (DLWG) is around 0.5kg/day. Steers are then turned out to pasture in late February/early March and slaughtered in June.

Table 1: Animal performance and carcass details for male Holstein Friesian finishing systems

	15 month bull system	21 month steer system	28 month steer system
Daily liveweight gain during finishing period (kg/day)	1.4	1.0	1.2
Carcass weight (kg)	270	280	350
Target classification (conformation / fat)	O= / 2+	O- / 3=	O= / 3= 3+

Blueprints for early maturing calf-to-beef production systems

A high proportion of the beef-cross calves coming from the Irish dairy herd are Angus or Hereford crosses. These early maturing breeds lend themselves well to grass-based production systems.

19-month early-maturing heifer system: Spring-born calves slaughtered off grass during their second grazing season at 19-21 months of age, after receiving 2.5kg (DM) concentrate daily for 60 days pre-slaughter.

21-month early maturing steer system: After their first winter, these cattle are turned out to pasture for the second grazing season and slaughtered off pasture in November, having been fed 2.5kg (DM) concentrate daily for 60 days pre-slaughter.

23-month early maturing steer system: In this system, cattle are at pasture for the second grazing season, housed and offered good-quality grass silage *ad lib*, supplemented with 5-6kg of concentrates daily for 80 days pre-slaughter.

26-month early-maturing steer system: Cattle are at pasture for the second grazing season then housed and offered grass silage *ad-lib* for the second winter. During this period, DLWG is typically 0.5kg/day. Steers are turned out to pasture in late February/early March and slaughtered in June.

Table 2: Cattle performance and carcass quality for early maturing dairy beef production systems

	19 month heifer system	21 month steer system	23 month steer system	26 month steer system
Daily liveweight gain during finishing period (kg/day)	0.8	0.8	1.0	1.3
Carcass weight (kg)	235 - 250	280	300	320
Target classification	O+, 3=	O=, 3-	O+, 3=	O+, 3+

Financial performance

Financial performance for each of the production systems is shown in Table 3. Based on a 40ha farm, the 21 month early maturing steer system was most profitable, followed by the 21 month old Holstein-Friesian steer system. However, further work is required to establish the effect of stocking rate on these systems.

Rob's work has shown that a variety of production systems can be employed on dairy-beef enterprises. The most successful systems are those that optimise carcass output per hectare.

Table 3: Net margin for different beef production systems

Beef production system	Net margin (€)	Net margin (£)
21 month EM steer	32,760	29,271
21 month HF steer	30,960	27,662
26 month EM steer	28,160	25,161
19 month EM heifer	24,780	22,140
23 month EM steer	22,600	20,193
24 month HF steer	20,100	17,959

*Figures based on HF calf price = €100 (£89), Aberdeen Angus calf price = €270 (£241), Hereford calf price = €240 (£214), Beef base price = €4.00/kg (£3.57/kg), Feed price = €255/tonne (£227/t)

Further information can be found in the BRP manuals [Feeding Growing and Finishing Cattle for Better Returns](#) and [Planning grazing strategies for Better Returns](#).

Rob has recorded some short clips on different calf-to-beef production systems, these will be available soon on the AHDB Beef & Lamb YouTube channel, [Beef & Lamb TV](#).