

Production systems for early-maturing crossbred calves

Johnstown Castle, Co. Wexford

Research at Johnstown Castle examined various finishing strategies for early and late spring born Aberdeen Angus and Hereford dairy crossbred heifers and steers. Crossing dairy cows with these early maturing beef breeds is common because of the ease of calving and short gestation traits associated with them.

For beef producers, these early maturing dairy beef crossbred animals offer the potential to achieve a commercially acceptable level of carcass fatness at a young age and are therefore suitable for grass based systems producing saleable carcasses at relatively low slaughter weight.

Early-maturing heifer production systems

Results have shown that spring born early-maturing dairy crossbred heifers (February to April born) should be slaughtered at 19 to 21 months of age before the second winter housing.

Finishing heifers indoors during their second winter was also evaluated. While a greater carcass weight was achieved, winter finishing costs were inevitably incurred and some heifers were over fat at slaughter. An economical appraisal of that system highlighted that finishing heifers indoors was less profitable than finishing heifers at pasture.

Early-maturing steers production systems

Early spring born early-maturing steers have the potential to be slaughtered at the end of the second grazing season. Previously, the blueprint for these steers involved a winter finishing period of 80 to 90 days. While both systems were profitable, finishing steers during the second winter was less profitable than pasture finishing.

Alternative finishing strategies were also investigated for late born steers. Animals were either finished indoors during the second winter or finished during their third season at pasture at 26-months of age. Results showed that steers that were finished indoors had a lighter carcass weight and that the system was less profitable than finishing animals during their third season at pasture.

Performance results of early-maturing heifers and steers

Month of birth	Heifers				Steers			
	February born		April born		February born		April born	
Slaughter age (month)	19	21	19	21	21	23	21	26
Finish	Pasture	Pasture	Pasture	Indoor	Pasture	Indoor	Indoor	Pasture
Liveweight at slaughter (kg)	450	476	446	518	525	607	547	621
Carcass weight (kg)	234	247	234	257	274	308	269	322
Conformation score	O=	O+	O+	O+	O+	O+	O+	O+
Fat score	3-	3=	3-	4-	3+	3+	3+	3+
Kill out proportion (g/kg)	520	518	525	496	521	507	491	519

The blueprints for early-maturing heifers and early and late born early-maturing steers are outlined below.

Early-maturing heifer production system:

After their first winter heifers are turned out to pasture in early-March and slaughtered at pasture at end of the second grazing season between September and November (19 to 21 months of age).

Target carcass weight for this system is 235 to 250kg. Carcass conformation for heifer production systems were predominately 'O=/ O+' with carcass fat classes of '3-/='. Results from Johnstown Castle have shown that all spring born heifers should be slaughtered before the second winter.

February born steer: 21-month early-maturing steer system:

Steers are at pasture for the first grazing season and 'stored' during the first winter on ad-libitum grass silage supplemented with 1.5-2.0kg of concentrate daily depending on silage quality. They are turned out to pasture for the second grazing season and slaughtered at pasture in November.

Average daily gain during the second season at pasture is 0.80kg. The target carcass weight in this system is 280kg. Average carcass conformation score was 'O=' and carcass fat score was '3-'.

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 supplemented with 5-6kg of concentrates daily for 80 days pre-slaughter.

Average daily gain during the finishing phase is 1kg. The target carcass weight is 300kg with a conformation score of 'O+' and fat score '3-'.

April born steer: 26-month early-maturing steer system:

Animals are at pasture for the second grazing season and are then housed and offered ad-libitum grass silage only for the second winter. During this housing period ADG is typically 0.50kg. Steers are then turned out to pasture in March and slaughtered in June.

Average daily gain during the third season at pasture is 1.3kg. The target carcass weight is 320kg with conformation and fat scores of 'O+' and '3+', respectively.

This system is particularly well suited to calves born in late spring (April/May) as winter finishing is avoided and a heavier carcass weight is achieved under grazing conditions.

	21 month EM steer system	23 month EM 'traditional' steer system	26 month EM steer system
Sale Date	November	January	June
Final Weight	525	600	620
Carcass Weight	280	308	320
Confirmation	O=	O+	O+
Fat Score	3+	3+	3+



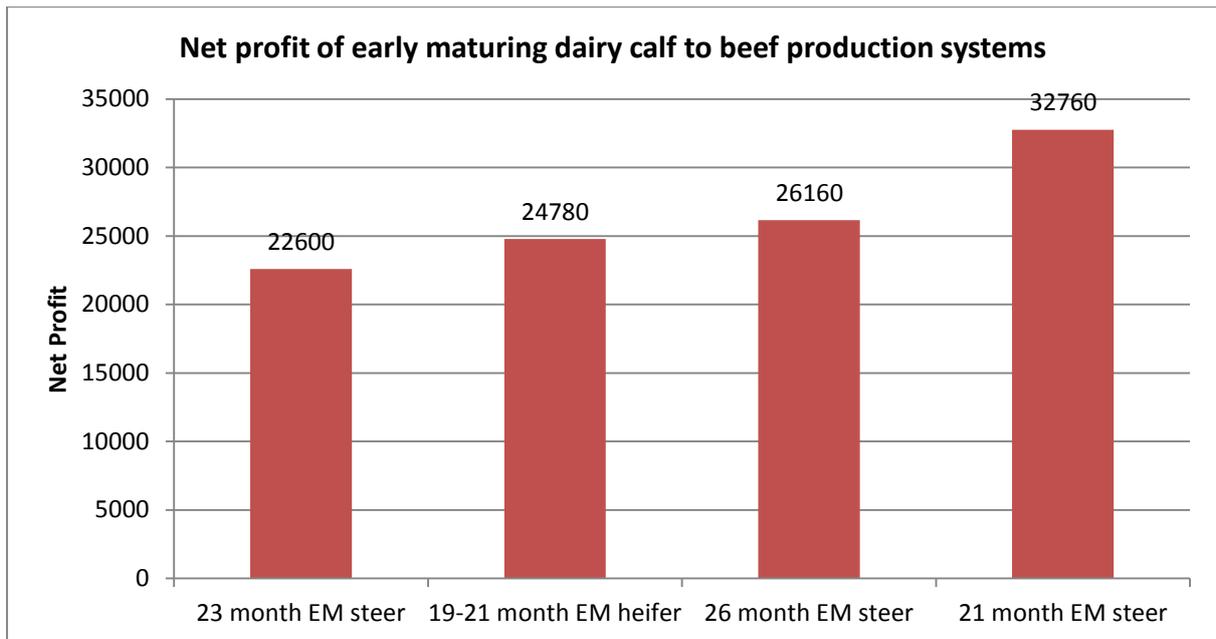
Profitability of early maturing calf-to-beef production systems

The net margin of the production systems described above based are based on a 40 hectare farm model. Price assumptions were:

- Male Holstein-Friesian calf purchase price of €100
- Early-maturing breed heifer calf price of €240
- Early-maturing breed bull calf price of €270
- R3 steer beef carcass price of €4.00
- Finishing concentrate price of €255.

Actual beef price payable depends on carcass grading (animal performance results generated at Johnstown Castle), seasonality (beef price being highest in May and lowest in September) and eligibility for quality assurance bonus. Breed bonuses were included for the early-maturing breed production systems.

The results of the net profit analysis clearly indicated that a large variation in profit exists across production systems. Although the traditional production systems for male dairy calves and early-maturing breed heifer and steer production systems were profitable, grass-based production systems where animals were slaughtered in November before the second winter or in June during their third grazing season were the most profitable.



The net profit analysis of all of the calf to beef production systems investigated at Johnstown Castle, both the male dairy calf and early maturing crossbred calves, can be seen on the following graph.

The 21 month EM steer and 21 month HF steer systems, where they are finished at grass before the second winter, are the most profitable production systems, followed by the 28 month HF steer and 26 month EM steer.

