

## Policy and economics

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# Understanding the economics of beef production

Economics is a social science that deals with the production, distribution and consumption of goods and services. This week's article looks at some of the economics involved in a beef production enterprise

**F**arming is not just a way of life. It is also a business which provides an income for the farmer involved. Therefore, in a way, the economics is the most important factor of this work. Without knowing the economics of the enterprise, the business cannot be fully understood, and profits may suffer.

### How much will an animal eat?

- ➔ Cattle will consume 2% of their body weight in dry matter (DM) daily.
- ➔ A 400 kg bullock will consume 8kg DM.
- ➔ Eating silage with a DM of 24% means the bullock will need 33kg of silage per day, to meet demand.
- ➔ If silage is stemmy with poor DM, then concentrates will need to be fed.
- ➔ 2kg of concentrates (85% DM) will account for 1.7kg of DM and reduce forage requirement to 26.25kg.
- ➔ At €30/t for silage and €280/t for concentrates, daily feed cost would increase from €0.99 to €1.35.

### Calculate the quantity of winter forage needed

Farmer JG buys in 50 weanlings every October. These are then kept and slaugh-

### \*Feed cost

- ➔ 33kg @ €30/t is (33x30)/1000 = €0.99.
- ➔ 26.25kg @ €30/t + 2kg @ €280/t
- ➔ = (26.25 x 30)/1,000 + (2 x 280)/1,000
- ➔ = 0.79 + 0.56
- ➔ = €1.35



Here are some key findings from the Teagasc Grange research centre:

- ➔ Comparing 70% DMD silage to 65% DMD silage, there is a potential saving of 0.75kg/day on meal on a 250kg weanling or 1.75kg/day if you are feeding a 600kg animal
- ➔ With meal costing from 25c/kg or €250/t, Finishing bulls at 8kg/day is equal to €2 per day (100 days is equal to €200/hd).
- ➔ Heifer replacements at 3kg/day is equal to €0.75kg per day (100 days is equal to €75/hd).
- ➔ Silage analysis costs €35.
- ➔ Cut on 21 May when DMD is at its highest (80-75%)

tered at 24 months old. JG also has 100 ewes. See Table 1.

### Total silage requirement for a five-month winter

- ➔ 50 x 6.25 + 50 x 5.5 + 100 x 0.75 = 662.5t of silage.
- ➔ Farmer JG has a silage pit which measures 32m long and 10m wide. It is filled to an average height of 3m.
- ➔ Given that 1t of silage occupies 1.4m<sup>3</sup>, has JG got sufficient silage for the winter?
- ➔ Volume of pit 32 x 10 x 3 = 960m<sup>3</sup>.
- ➔ Weight of silage in the pit 960/1.4 = 685t.
- ➔ JG has an excess of approximately 20t (or 30 round bales; 650kg each).

### Beef production

Farmer JG buys bullocks in October (eight months old) at 350kg and feeds them for slaughter at 24 months old. The average purchase price is 212c/kg. Average kill-out rate is 55%.

Here are the details of JG's enterprise.

- ➔ **First winter:** JG puts the bullocks into sheds for 160 days from the day they arrive. They are turned out to grass on 1 April.



Animals are weighed regularly to check their liveweight gain.

During the winter they are fed silage and 1kg of meal/head/day. They put on an average of 0.55kg per day.

- ➔ **Summer grazing:** the bullocks are grazed on a rotational system for 200 days. They put on an average of 0.8kg per day.
- ➔ **Second winter:** the bullocks are re-housed and fed silage plus 4.75kg of meal/head/day for 125 days. Their average daily liveweight gain (LWG) is 1kg.

- ➔ **Silage:** JG has worked out that a bullock will require 9t of silage over the two winters. JG's silage is well preserved at 20% DM and 72% DMD. It costs €30/t to make.
- ➔ **Grazing costs:** €60 per head.
- ➔ **Health:** dosing, vet and treatments come to €40 per head.
- ➔ **Transport and other costs:** €35 per head.
- ➔ **Meal:** cost is €280/t.
- ➔ **Fixed costs** on the farm amount to €210.

### Calculations

- ➔ **Purchase price:** 350kg at 212c/kg = €742.
- ➔ **Variable costs** on JG's farm: 9t silage @ €30 = €270. Meal at 1kg for 160 days and 4.75kg for 125 days = 1 x 160 + 4.75 x 125 = 753.75kg; 753.75kg @ €280/t = €211.
- ➔ **Total variable costs:** 270 + 211 + 60 + 40 + 35 = €616.
- ➔ **Total costs:** variable costs + fixed costs = 616 + 210 = €826.
- ➔ **Breakeven selling price:** purchase price + total costs = 742 + 826 = €1,568.

### Finishing weight of bullocks

- ➔ They are bought at 350kg.
- ➔ **First winter:** they put on 0.55kg for 160 days = 88kg
- ➔ **Summer grazing** LWG is 0.8kg for 200 days = 160kg.
- ➔ **Second winter:** 1kg /day for 125 days = 125kg.

- ➔ Weight gain is 88 + 160 + 125 = 373kg.
- ➔ Finishing weight is 350 + 373 = 723kg.

### Carcase weight

JG gets a KO% of 55%. Carcase weight is 723 x 55% = 398kg.

### Breakeven price

If farmer JG gets a price of 394c/kg in the factory, the animal is worth 398kg x 394 = €1,568. This is the breakeven price where income = expenditure.

## Questions

1. Name the variable costs in a beef production enterprise. Name some variable costs in other enterprises.
2. What fixed costs are incurred in a beef production system?
3. What is meant by the term "turned out to grass"?
4. Look up current factory prices in the Business of Farming at the back of the *Irish Farmers Journal*. Find the current price of steer which graded at R=3+ in Kepak, Kilbeggan. Calculate how much JG gets for the bullock above, at this current price. What is the implication, for JG, in the springtime when the animals will be sold, if prices remain the same?
5. Which grade and which factory have the best prices? Can JG achieve those grades next spring? Explain your answer. JG farms in the midlands. Will his animals be sold at the factory with the highest price? Explain your answer.

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**Table 1:** How much silage would JG need in storage to feed the 100 cattle and 100 sheep?

Animal type	Silage requirements		Hay	
	Monthly	Winter	Monthly	Winter
Heavy stores	1.25 t	6.25 t	0.35 t	1.75 t
Weanlings (350 kg)	1.1 t	5.5 t	0.3 t	1.5 t
Ewes	0.15 t	0.75 t	0.04 t	0.2 t