# The cost of Commoning on Dartmoor -2021-23

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# Background to the data

Data was collected from sixteen farms who graze livestock on Dartmoor Common land over a three-year period. In 2021, data from 15 farms was collected. Fourteen farms kept cattle, fourteen farm kept sheep and seven farms kept ponies. In 2022 one farm was replaced by a similar size and type of farm due to personal reasons and these fifteen farms provided data again in 2023

The majority of these farms were of mixed tenure with both owner occupied and tenanted land but overall 29% of the land is tenanted. The total farmed area of these farms was 6,727 hectares with more than half being rough grazing and did not change within the three years.

For 2023, on average, these farms kept 2,217 suckler cows and 12,624 ewes. 69% of the cows and 79% of the ewes graze the Commons. The livestock are grazed on the Commons for only part of the year so estimates are required to cover the periods they are grazing in-bye land and when feeding on winter forage. Under Environmental Scheme and other regulations livestock need to be removed for the winter months hence high costs for labour, machinery and buildings.

The costs and output from the livestock grazing the Commons was recorded but standard costs were used where necessary. These standards were calculated using data, principally, from the Farm Business Survey for Less Favoured Area South West of England farms. The details of these estimate are shown in Appendix 1.

The variable costs are those costs which are directly allocatable to the livestock grazing the Commons, brief descriptions are given in Appendix 1. Home grown forage costs are estimates of own grazing and conserved forage, based on per week or big bale equivalents. It was considered too difficult to produce individual per farm figures for these costs.

As is already known and accepted, fixed costs are much more difficult to allocate to individual enterprises, particularly these enterprises, which are based part on the common and part in-bye. Thus, these are based mainly on estimates, as shown in Appendix 1.

A number of the General farming costs have not been included within the scope of this project. Within the Farm Business Survey (FBS) these can be split into three broad types-

1. Water, electric and other general farm costs (55%)
2. Bank charges and professional fees (25%)
3. Share in interest payments (20%)

For the most recent website publication data collected for the crop year 2021 for the Less Favoured Area farms in South West England indicated that these costs amounted to £11,600 for the average farm. The whole farm business covers a number of different income strands that include agri-environmental schemes, diversifications and the Basic Payment Scheme as well as the agricultural strand. The FBS data for 2021 gives a breakdown of the fixed costs using an econometric analysis and 83% of the General farming costs are allocated to agriculture. Spreading this cost over the livestock units kept would add £103 per head extra costs to the cows and for the ewes an extra £10 per head.

Two other business costs also need consideration but have not been included in these calculations, rent and fencing costs.

The costs of spreading FYM and/or slurry is not included within these calculations with any costs off set by the fertiliser/manurial value of the product.

All the data relates to each calendar year and the averages shown are for the whole sample and weighted by the average number of relevant breeding females.

# Results

For this three-year period the size and type of production did not vary much between years. Fertility rates and mortality did not change significantly so the changes in output and inputs is reflected in changes to market conditions.

As compared to 2021 the costs in 2022 were higher due to inflation and the 'energy' crisis caused by world events. The price of fertiliser and gas oil, in particular, were substantially higher. This was reflected in the value of home-grown fodder and the cost of using machinery to feed stock in the winter. In 2023 the costs of fertiliser and gas oil were on average lower. The costs of grazing and silage was lower but the cost of home-grown fodder did not fall indicating higher levels of consumption in 2023 as compared to 2022.

The market prices for cattle improved in 2022, as compared to 2021 so the output increased but with the large increase in costs the margin fell by £15 per cow.

| Per average breeding female (£) | **Cows** | | |
|---|---|---|---|
| | 2021 | 2022 | 2023 |
| Purchases concentrates | 54 | 46 | 43 |
| Purchased fodder | 34 | 31 | 31 |
| Home-grown fodder | 219 | 270 | 270 |
| Vet & Medicine | 14 | 14 | 15 |
| Other livestock costs | 56 | 54 | 57 |
| TOTAL VARIABLE COSTS | 376 | 415 | 416 |
| Labour- paid | 5 | 6 | 6 |
| Labour- unpaid | 151 | 163 | 177 |
| ATV | 30 | 32 | 31 |
| Feeding machinery | 108 | 120 | 115 |
| Own haulage | 3 | 3 | 3 |
| Share of buildings/fixtures | 41 | 38 | 39 |
| TOTAL FIXED COSTS | 337 | 362 | 371 |
| TOTAL COSTS | 713 | 777 | 786 |
| | | | |
| OUTPUT | 376 | 430 | 496 |
| MARGIN | -337 | -348 | -290 |

The totals may not balance due to rounding

In 2023, the small increase in costs is due mainly to the increase in the value of unpaid labour but further increases in the value of cull cows and calves meant an increase in output and margin for the year, being £66 per cow and £58 per cow respectively. The three-year average was a margin of-£325 per cow per year

In 2022, the average number of cows increased by 6% but the total number of births was nearly the same, with the average calving rate of 83%. In 2023 the average number of cows fell by one but four more calves were produced.

Appendix 2 discusses how these figures relate to the published whole farm data.

The average number of ewes kept was similar in all three years but the lambing percentage fell by 3% to 95% in 2022, as compared to 2021. On average, in 2023, there were eight less lambs born.

The value of lambs increased in 2022, as compared to 2021, hence the improvement in output but the margin fell by £3.1 with the increase in costs. In 2023 most of the variable costs increased which along with unpaid labour saw a further increase in total costs per ewe. The value of lambs and cull ewes increased in 2023 so the resulting margin improved back to the level achieved in 2021.

The weighted three-year average margin per ewe per year was -£16.9.

| Per average breeding female (£) | **Ewes** | | |
|---|---|---|---|
| | 2021 | 2022 | 2023 |
| Purchases concentrates | 1.0 | 1.2 | 1.2 |
| Purchased fodder | 0.1 | 0.2 | 0.1 |
| Home-grown fodder | 4.0 | 6.3 | 7.7 |
| Vet & Medicine | 3.6 | 4.1 | 4.4 |
| Other livestock costs | 5.8 | 5.9 | 6.4 |
| TOTAL VARIABLE COSTS | 14.6 | 17.8 | 19.7 |
| Labour- paid | 0.1 | 0.4 | 0.4 |
| Labour- unpaid | 21.8 | 23.6 | 25.3 |
| ATV | 7.9 | 9.0 | 8.5 |
| Feeding machinery | 0.2 | 0.2 | 0.2 |
| Own haulage | 0.8 | 1.2 | 0.8 |
| Share of buildings/fixtures | 1.4 | 1.4 | 1.5 |
| TOTAL FIXED COSTS | 32.3 | 35.8 | 36.6 |
| TOTAL COSTS | 46.9 | 53.6 | 56.4 |
| | | | |
| OUTPUT | 31.0 | 34.6 | 40.5 |
| MARGIN | -15.9 | -19.0 | -15.9 |

The totals may not balance due to rounding

The small sample size of the farms keeping ponies means interpretation of these results needs careful consideration, particularly as there is a large range in size of herd kept by the seven farms.

In 2022 there was a reduction in the number of ponies kept and there were fewer births, which along with a reduction in the average value of the progeny led to a fall in output, as compared to 2021. For 2023 both costs and output are very similar to 2022 and the three-year average per mare was £7.

| Per average breeding female (£) | **Mares** | | |
|---|---|---|---|
| | 2021 | 2022 | 2023 |
| Purchases concentrates | 0.0 | 0.0 | 0.0 |
| Purchased fodder | 2.9 | 3.4 | 3.4 |
| Home-grown fodder | 3.3 | 6.4 | 6.0 |
| Vet & Medicine | 1.4 | 1.5 | 0.7 |
| Other livestock costs | 8.8 | 10.0 | 6.4 |
| TOTAL VARIABLE COSTS | 16.5 | 21.4 | 16.5 |
| Labour- paid | 0.0 | 0.0 | 0.0 |
| Labour- unpaid | 22.9 | 24.7 | 26.5 |
| ATV | 10.0 | 11.2 | 10.7 |
| Feeding machinery | 0.0 | 0.0 | 0.0 |
| Own haulage | 0.0 | 0.0 | 0.0 |
| Share of buildings/fixtures | 0.5 | 0.0 | 0.0 |
| TOTAL FIXED COSTS | 33.3 | 35.9 | 37.3 |
| TOTAL COSTS | 49.8 | 57.2 | 53.8 |
| | | | |
| OUTPUT | 74.2 | 54.4 | 53.5 |
| MARGIN | 24.4 | -2.8 | -0.2 |

The totals may not balance due to rounding

# Appendix 1

## Costs

**Purchased concentrates**- includes feed blocks/buckets as well as rolls/nuts/minerals

**Purchased forage**- includes hay, big bale and clamp silages

**Homegrown feed**- the in-bye grazing is estimated as-

| | 2021 | 2022 | 2023 |
|---|---|---|---|
| | | £ per week | |
| Cows | 2.84 | 3.55 | 2.73 |
| Other cattle | 1.78 | 1.96 | 1.59 |
| | | | |
| Ewes | 0.24 | 0.26 | 0.22 |
| Ewe hogs | 0.18 | 0.20 | 0.17 |
| Lambs | 0.12 | 0.13 | 0.11 |
| | | | |
| Ponies | 0.65 | 0.70 | 0.60 |

These estimates cover the costs of production of the grass based on historic data but does not cover any fixed costs.

The costs of a bale of big bale silage was estimated to be £19 per bale for 2021, £24 per bale in 2022 and £23 in 2023, which covers all the variable costs of producing the grass and an element of fixed costs to make the conserved grass, particularly contracting costs. Hay is estimated to cost £22 per big bale for 2021, £27.50 in 2022 and for 2023 £24 per bale.

**Vet & Medicine**- covers all treatments given to the livestock using the commons including vaccines, anthelminthic and dips

**Other livestock costs**- includes any bedding used by the livestock grazing the Commons, fallen stock, ear tags, scanning, shearing and a share of the dogs kept for livestock husbandry.

**Labour-** an estimate of the work done to keep these specific livestock at either the cost per hour as with paid labour or at a standard for unpaid labour which is close to the manual only labour rate used in the Farm Business Survey. For 2021 the rate used was £11.50 per hour. The equivalent figures used for 2022 and 2023 was £12.10 per hour and £13.00 per hour.

**ATV-** an estimated cost is used for each hour ATVs are used in the husbandry of the livestock on the Commons. This standard cost covers the cost of fuel, repairs and depreciation of a machine and was estimated to be £6.40 per hour for 2021, £7.00 for 2022 and £6.72 for 2023

**Feeding machinery**- an estimated cost is used for each hour machinery is used to feed the livestock on the Commons. This is particularly important during the winter when the livestock were housed. This standard cost covers the cost of fuel, repairs and depreciation of a tractor and loader and was estimated to be £18.00 per hour for 2021, £21.50 for 2022 and £20.20 for 2023. The labour needed is included elsewhere.

**Own haulage-** an estimated cost is used for each mile a truck and livestock trailer are used in the husbandry of the livestock on the Commons. This standard cost covers the cost of fuel, repairs and

depreciation of a machine and was estimated to be £0.70 per mile for 2021, £0.76 per mile for 2022 and £0.73 per mile for 2023.

**Share of building and fixture costs-** an estimate of the costs of buildings and fixtures has been calculated by dividing the capital cost of providing by its expected life. For buildings the expected life has been assumed to be 30 years and fixtures a 10 year life. The buildings include housing and forage storage. The fixtures include handling facilities including races and crushes. For buildings and equipment that are over their life expectancy the cost has still been included with the likely repair cost replacing the depreciation cost. Most of the farmers with buildings on tenanted land will have been constructed by the tenant or a major contribution into the capital cost will have been made by the tenant so this approach still seems valid. If wintering facilities for these livestock are rented separately from land the share of the cost is included within this cost heading.

## Output

The output calculation includes both the value of the progeny and a depreciation cost for the breeding males and females.

The share of any breeding bulls, rams and stallions is calculated by taking the difference between the purchase (or transfer in) and sale (or transfer out) prices during the year, changes to valuation based on numbers at the beginning and end of the year which will also have an element of mortality. A similar calculation for the female breeding stock and replacement animals grazing the commons resulted in the cost of £45 per cow and £12 per ewe for both male and female depreciation in 2023.

The value of calves, lambs and ponies is estimated when these animals are gathered off the Commons in late summer, early autumn or at weaning whichever is earliest. The local store markets for these types of stock are used as a guide to these values.

## Margin

The margin is the difference between the output and costs.

As already noted, there are a number of fixed costs which we have not included in these calculations. These include water, electricity, fencing, insurances, professional fees and rent. Estimates of these costs were consider too difficult to allocate to the enterprises using Dartmoor Commons but are significant, particularly for those businesses dominated by the need to graze the Dartmoor Commons.

# Appendix 2

Published data on the performance of Less Favoured Area (LFA) Cattle and Sheep farms in England is available from the Farm Business Survey (FBS). The FBS is conducted on behalf of, and financed by, the Department for Environment, Food and Rural Affairs and the data collected in it are Crown Copyright. (https://www.farmbusinesssurvey.co.uk).

Defra also publish data from the FBS at Farm accounts in England - GOV.UK (www.gov.uk)

Figure 1- Farm Business Income for Grazing Livestock farms in the LFA

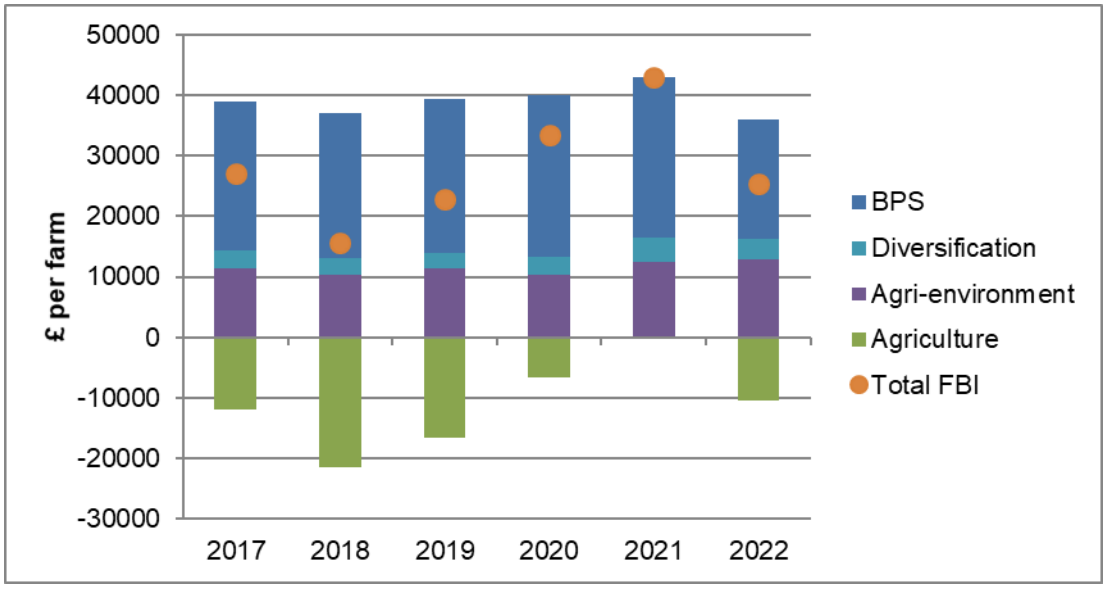


Figure 1 shows the Farm Business Income (FBL) for Grazing Livestock Farms in the LFA over the 2017-2022 period was a loss of over £11,000 per year for the agricultural enterprises and these farm types are dependant on the other income sources to achieve whole farm FBI of an average of close to £28,000 per farm per year. FBI does not include a value for unpaid labour and is closest to a net profit figure.

Being aware of this loss-making agricultural enterprise situation puts into context of the negative margins for the cows and sheep kept on the commons and should not be a surprise to the reader. The methodologies for the FBS and our calculations are not directly comparable but do illustrate the similarity of loss-making activity.

Further analysis of FBS data is also published by Newcastle University in their publication 'Hill Farming in England 2021/2022' which calculates the net margin for LFA suckler cows kept in England at -£394 per cow for the 2021/2022 year.