Lot feeding of beef cattle. 2. Some cost factors

W J O Wilkie
LOT FEEDING OF BEEF CATTLE

2. SOME COST FACTORS

By W. J. WILKIE, B.V.Sc., Senior Animal Husbandry Adviser

BECAUSE of the difficulties that have been experienced in making lot feeding pay, it is essential to examine cost factors in some detail.

Experienced American feeders think in terms of "margins," that is, the difference in cost per lb. of the purchased beast and the return per lb. of the beast sold.

If a 500 lb. steer is bought for £18 15s. (9d. per lb.) live weight, and after gaining 300 lb. is sold at 800 lb. for £40, or 1s. per lb. the profit can either be thought of as 1s. per lb. for the weight gained, plus 3d. per lb. margin on the weight purchased, or, as 1s. 5d. per lb. for the weight gained with no margin on the weight purchased. Either way the difference between buying and selling is £21 5s. and out of this has to come all costs.

These costs and some possible returns are discussed below. This is a monetary approach. Beef cattle gain can also be measured by pounds of feed used. Feed costs in this sense will be discussed later.

CALCULATING CHANCES OF PROFIT FROM LOT FEEDING

The basic cost influencing cattle production in Australia is the cost of paddock fattening, which varies from property to property and from season to season.

The following figures are given as an approximation:

Current Land Costs

Land capable of carrying a beast to grow 300 to 350 lb. from July to November has been costing around £100. This may be 1½ acres at about £60 per acre or 6 to 7 acres at about £15.

If in each case 10 per cent. of the land investment value is taken to cover annual costs (interest, rates, etc.), the gain has cost £10 for this item, which covers the cost of feed.

From this the cost per pound live weight gain can be calculated.

For example at £10

A 300 lb. gain costs 8 pence per pound.

A 350 lb. gain costs 6.9 pence per pound.

Fertiliser and pasture expenses have also to be considered, as have other uses and production from the same land. Cattle fattening may have only taken two-thirds of the usable feed, and the remainder may have been used for grazing sheep or breeding cattle. When other uses are significant the cost of liveweight gain in fattening cattle may be reduced to fourpence or fivepence, a pound, but seldom less, except where relatively few cattle are run to eat feed that would otherwise go to waste.

The above paddock feed costs are admittedly approximate, but are well worth considering as it is against this competition that lot feeding would have to make its way. How difficult this is, is shown below.

Lot Feeding Costs

Costs of Feed

Most successful feeding systems require that cattle introduced from grazing to feed lots should be allowed to "fill up" on hay for a few days, while they settle down to yard conditions. The hay should be appetising. After a few days some grain is offered and over two or three weeks' hay is replaced by grain till the
CONVERSION OF FEED COST PRICES TO PENCE PER POUND

Feed Purchase Cost

<table>
<thead>
<tr>
<th>Feed</th>
<th>Cost per unit</th>
<th>Equivalent value of each of the above in pence per pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hay per ton</td>
<td>£4.13</td>
<td>£9.7</td>
</tr>
<tr>
<td>Oats per bushel</td>
<td>1/8</td>
<td>3/4</td>
</tr>
<tr>
<td>Barley per bushel</td>
<td>2/1</td>
<td>4/2</td>
</tr>
<tr>
<td>Wheat per bushel</td>
<td>2/6</td>
<td>5/-</td>
</tr>
</tbody>
</table>

fattening ration is being fed. This usually consists of about two-third grains or concentrated mixture, and one-third roughage, which may be silage. Any further decrease in the hay or silage part of the ration will require special skill in feeding on the part of the attendant.

All feed costs should be calculated delivered at the feed lot. Examples reduced to pence per pound of feed are:—

Feed costs for cattle gaining at the rate of 1 lb. live weight for each 7½ lb. of feed would be:

HAY @ £10 per ton, one-third of ration: 2½ lb. x 1.07 = 2.68d.

GRAIN @ 2d. per lb., two-thirds of ration: 5 lb. x 2.0 = 10.0d.

12.68d.

Three grains are shown in the table above; oats has a lower energy value than barley or wheat, but is a safer feed, especially when starting cattle on grains; as the animals take to grain feeding, barley may be used. Wheat has the higher energy value and if care is taken can comprise up to half the grain, but if over-used or introduced too quickly, it may cause digestive upsets.

All grains can cause deaths if given too quickly. Further sections of this series will deal more specifically with these and other feeds.

From tables such as the above, feed costs can be estimated. In addition will be the labour and investment costs associated with lot feeding, which should not represent more than 20 per cent. of the total costs of production. At this percentage multiplying the cost of the feeds by 5/4 gives the cost of feeding. In our example:

12.68 x 5/4 = 15.85d. per lb. liveweight gain, or two to three times the cost of paddock fattening.

Table 1.—Cattle purchase price based on liveweight and cost per pound

<table>
<thead>
<tr>
<th>Initial Live Weight (Pounds)</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. At cost per lb. live weight—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/-</td>
<td>£15</td>
<td>£20</td>
<td>£25</td>
<td>£30</td>
</tr>
<tr>
<td>1/6d.</td>
<td>£22.10</td>
<td>£30</td>
<td>£37</td>
<td>£45</td>
</tr>
<tr>
<td>2/-</td>
<td>£30</td>
<td>£40</td>
<td>£50</td>
<td>£60</td>
</tr>
<tr>
<td>B. Gain needed to reach 900 lb.</td>
<td>600</td>
<td>500</td>
<td>400</td>
<td>300</td>
</tr>
<tr>
<td>C. Feed needed for a healthy, thrifty beast on good feed to reach 900 lb.</td>
<td>4,500</td>
<td>3,750</td>
<td>3,000</td>
<td>2,250</td>
</tr>
<tr>
<td>D. Cash cost of feed at pence per lb. of feed—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>£18.15</td>
<td>£15.13</td>
<td>£12.10</td>
<td>£9.80</td>
</tr>
<tr>
<td>2</td>
<td>£37</td>
<td>£31.50</td>
<td>£25</td>
<td>£18.15</td>
</tr>
<tr>
<td>3</td>
<td>£56</td>
<td>£46.18</td>
<td>£37</td>
<td>£28</td>
</tr>
</tbody>
</table>

Note that in Table 1 sections A, B, C, and D. within the same column refer to a beast whose initial weight is shown at the head of the column. To use this table in calculating possible profit add whichever line in A. represents the purchase price to the line in D. which covers the feed costs. Then compare with Table 2.

For example, at a purchase price of Is. per pound live weight, a 400 lb. steer would cost £20. Using home grown feeds valued at 2d. per lb., feeding cost, from line 2 in D., would be £31.5s.; a total of £51.5s., to which would be added transport costs, commission and selling charges. Even at 2s. 3d. per lb. selling price (Table 2) there is little profit. Any increase in purchase price, in feed consumed, or in cost of feed would make the proposition even less attractive.
(For comparison with the figures set out in Table 1.D note that at $7\frac{1}{2}$ lb. of feed per lb. liveweight gain, which is a good feed-lot conversion figure, feed at 2.1 pence per pound would mean a cost of 15.75 pence per pound liveweight gain.)

**Cattle Costs**

Cattle costs were not considered in the estimates of paddock fattening. They are given in the tables below to show how feed costs and cattle costs must be added in calculating possible profits.

There has been no previous experience of lot feeding in Australia on a sufficient scale to allow planning for a particular market. This has to be developed. However, a 900 lb. liveweight beast dressing out at about 490 to 500 lb. usually meets a good demand, and the following figures relate to this sort of finished beast:

**Purchase Cost of Cattle**

All purchases should be calculated on a live weight basis, i.e., at cost per lb.

**Table 2.** Selling price 900 lb. liveweight

<table>
<thead>
<tr>
<th>Carcass Price per lb.</th>
<th>500 lb. carcass at various prices (£ per 100 lb.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>per lb.</td>
<td>Total</td>
</tr>
<tr>
<td>1s. 6d.</td>
<td>150s.</td>
</tr>
<tr>
<td>1s. 9d.</td>
<td>175s.</td>
</tr>
<tr>
<td>2s.</td>
<td>200s.</td>
</tr>
<tr>
<td>2s. 3d.</td>
<td>225s.</td>
</tr>
</tbody>
</table>

The price per lb. is used by lot feeders. Price per 100 lb. is the way cattle prices are often reported in Australia.

By comparing the values in Table 2 with the appropriate cattle and feed costs it can be seen where there is a possibility of profit. For example, in the past few years, light weight young dairy cross steers weighing 300 lb. or a little more have made around £15 to £20. Such cattle have taken two years under usual paddock conditions to reach 900 lb. where we can assume feeding costs to have been around 6d. per lb. gain (about £15 total) making costs at marketing £30 to £35. Such cattle have made 1s. 9d. to 2s. per lb. (£43 15s. to £50) leaving a profit of £8 15s. to £20 or £4 to £10 per year. If any losses were experienced, such as from deaths, or slow growth due to worms, lice or other adverse factors, profit would be correspondingly reduced. Good beef steers would cost more to buy, but would fatten more quickly.

These tables show how narrow is the possible margin of profit in lot feeding beef cattle.

It should be remembered that a 500 to 600 lb. beast if it is to do well in a feed lot and sell well as a fat animal, must not be too old. An age of 10 to 12 months would be ideal. Such animals are not readily found.

**Selling Prices**

The graph shows the pattern of fluctuation and the level of selling prices for first quality ox or heifer export carcasses at Midland Junction over the period 1950 to 1962. This shows how often cattle have reached the levels shown in Table 2.

To summarise, any cattle feeder would be well advised to prepare a budget before buying either cattle or feed. Since a feed lot should have a turnover of its total capacity two to three times a year, he should systematise his methods so that with experience he can pinpoint sources of loss.
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It's a big and busy industry starting with the man on the land and spreading out through a vast network of transport, distribution, marketing and factory processing. The humble vegetable, however, is destined to play an ever larger role on the national food front. It has been stated by Mr. E. R. Hoare, of the C.S.I.R.O. Irrigation Research Laboratory at Griffith, N.S.W., that of all food crops produced in Australia, vegetables will require the largest proportional increase merely to meet the needs of our future population expansion. He estimates that vegetable production will double itself within 30 years...an increase in production value of between £1 million and £2 million each year.

Thus, vegetables are a vital part of the future picture which food production will assume in the Australian economy. There can be no doubt that the increased food production expansion will go hand in hand with irrigation development. This is not mere assertion. Currently, vegetables worth £50 million, at on-farm value, are produced from 1 million acres, most of which are irrigated. This high level of productivity comes from less than 1% of all cultivated land in Australia.

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