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Cattle



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Economics and Management Department

BEEF FINISHING

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and
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Arable by-products: see page 81 — this should read: see page 85.

Paddock grazing: see page 82 — this should read: see page 86.

Health section: see page 79 — this should read: see page 83.

Interest: see page 69 — this should read: see page 73.

On page 63, reference is made to page 70: this should read page 74.

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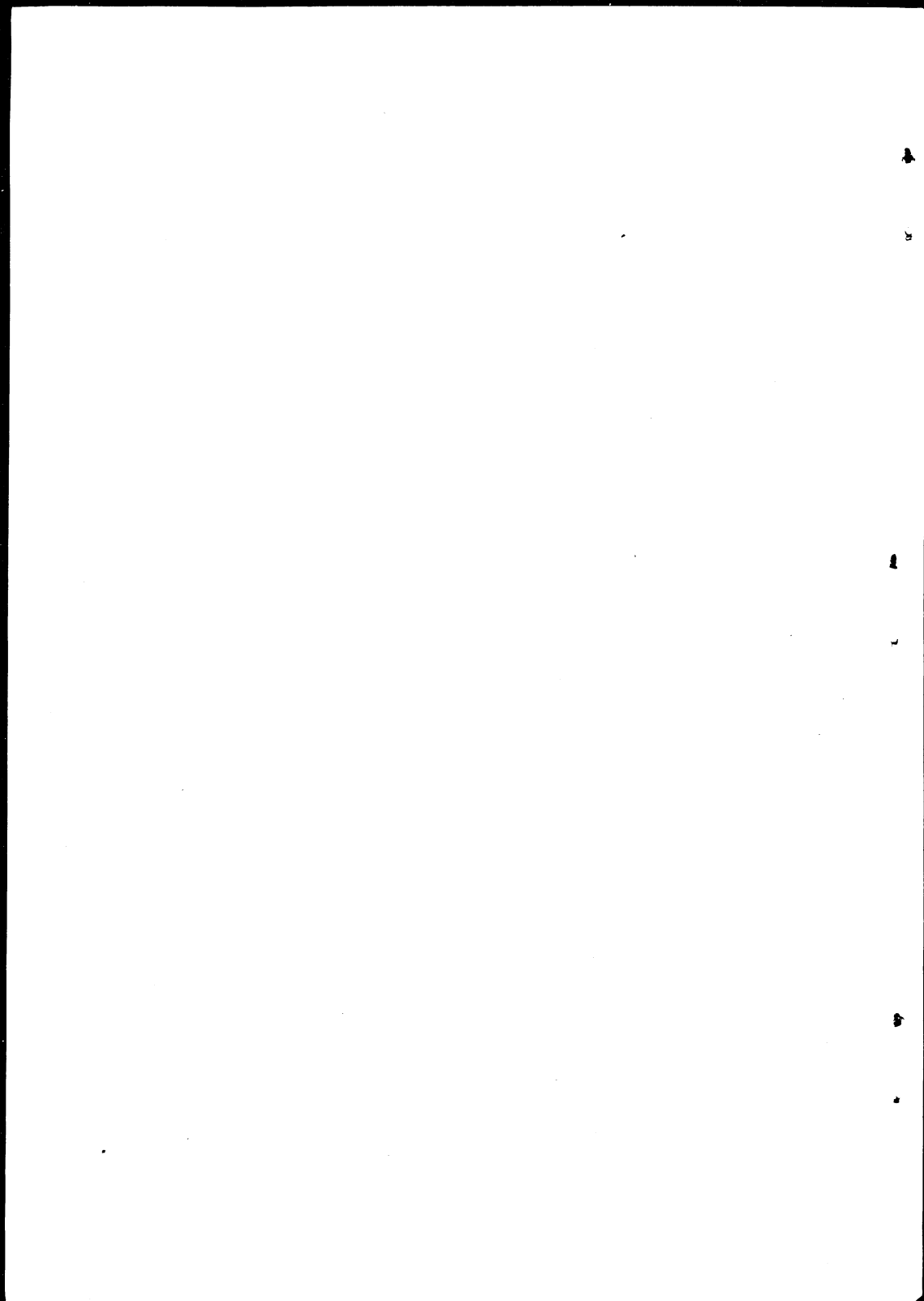
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INTRODUCTION

This bulletin provides husbandry and financial information on 10 beef finishing systems. It has been impossible to include the whole range of beef finishing systems, but those chosen include several basic types commonly found in practice. The data can be used to check the performance of an existing enterprise, to compare alternative systems and to provide guidelines when introducing a new system to a farm. The provision of detailed physical data enables the adjustment of the financial data with changing economic circumstances. When adjusting the cost/price data, however, it is important to consider the length of time between buying and selling in order to estimate a reasonable calf or store price in relation to the final fat price a year or 18 months later. If current prices are used for both calf, store and fat stock prices, the comparison between an 18 month or 2 year system and a shorter winter fattening system will almost certainly be distorted.

The main factors influencing the performance of beef finishing systems are:—

- (1) concentrate price,
- (2) price — both buying and selling,
- (3) liveweight gain,
- (4) stocking rate — intensity of grazing and variation in yields of forage crops for winter keep.

The influence of each of these factors on profitability is considered under each section.

Typical levels of performance have been used in the estimation of the variable costs for each system and current prices have been used for the variable costs of forage (see page 5). A barley price of £50 per ton has been used throughout the bulletin (although a note on the effect of adjusting the price is contained in each section).

The bulletin has been designed so that a farmer's assessment of the future price structure can be put into perspective with regard to each beef system. Alternatively the bulletin can be used to show the price structure necessary to achieve a particular level of return.

In each system the **output figure** is that which must be achieved in order to obtain a **net margin of £40 per acre** where no new buildings are required (see definition below). Although individual businesses will have different objectives, a £40 net margin per acre has been chosen because it could be a reasonable performance for a beef system on many farms when considered in relation to arable crops.

The **target figures** shown in each section indicate the potential return with first class stockmanship and grassland management. It excludes the effects of buying and selling prices as well as fluctuations in forage crop yields, which under good management, are largely a reflection of factors such as soil and climate, which are beyond the farmer's control.

The choice of enterprise

In general the aim of an individual farmer is to maximise the profit of his business using the limited resources of land, capital and court accommodation. The existing farm policy may have been largely determined by technical factors such as rotations and disease risk as well as the past economic climate. Within the boundaries of the technical limitations there is an area of choice which in practice is often made according to the relative contribution of the enterprise gross margin per acre. However, the selection of the livestock enterprise with the highest gross margin per acre may not necessarily lead to the most profitable farm plan.

The importance of capital

Alternative livestock enterprises require different levels of capital invested in stock and, where applicable, new buildings, and therefore the associated charges of interest on working capital, as well as any additional interest and depreciation on new buildings, must be taken into account to give a more accurate assessment.

The term **net margin** as used in this bulletin has been designed to allow for these charges and it is defined as follows:—

If **existing buildings** are used:

NET MARGIN PER ACRE = gross margin per acre

minus

annual interest charge on
working capital.

If **new buildings** have to be provided:

NET MARGIN (NEW BUILDINGS) PER ACRE = gross margin per acre

minus

annual interest charge on
working capital and annual
interest and depreciation
charges on new buildings.

Example

| System | Gross margin /acre | Annual interest charge /acre | NET MARGIN /acre | Annual interest + depr. on new bldgs. /acre | NET MARGIN (new bldgs.) /acre |
|---|-----------------------|------------------------------------|------------------------|--|--|
| | (a) | (b) | (a - b) | (c) | (a - b) - c |
| (2) 9 cwt. stores (180 days) | £ 62 | £ 22 | £ 40 | £ 30 | £ 10 |
| (4) Spring born suckled calves, wintered and finished off grass at 18 months | £ 52 | £ 12 | £ 40 | £ 11 | £ 29 |

The adjustment of a gross margin figure in this way to give a **net margin per acre** is normally useful **only** in comparing livestock enterprises, since the capital involved in crop enterprises in terms of buildings does not necessarily increase pro rata with each unit increase in production.

It is important to remember that the peak capital requirements for livestock may be offset by sales of cash crops as in the case of grain sold immediately after harvest to help finance a winter finishing enterprise. The extent of borrowing will therefore depend on the cash flows from all the enterprises within the farm business.

Labour

Whether or not a specialised stockman is employed depends on the size of the enterprise, the ease of feeding within the buildings available and the type of farming system. In many situations the cattle can be handled by the farmer or by the regular staff with no increase in the wage bill except possibly for occasional overtime and weekend work. The considerable variation between farms makes an allocation of **average** labour cost meaningless but the actual figure must be taken into account when budgeting.

The availability of skilled labour is frequently a serious consideration when choosing any livestock enterprise.

Other factors which could influence the choice of an enterprise include the availability of arable by-products, fodder storage and other resources which may not be fully utilised under the existing farm policy. The selection of a particular livestock enterprise should not be considered in isolation but as an integral part of the whole farm business.

The bulletin is divided into two main sections:—

(1) Systems

This consists of an examination of 10 beef finishing enterprises, concentrating on the main husbandry and financial factors. It illustrates the interrelationships of physical and financial performance.

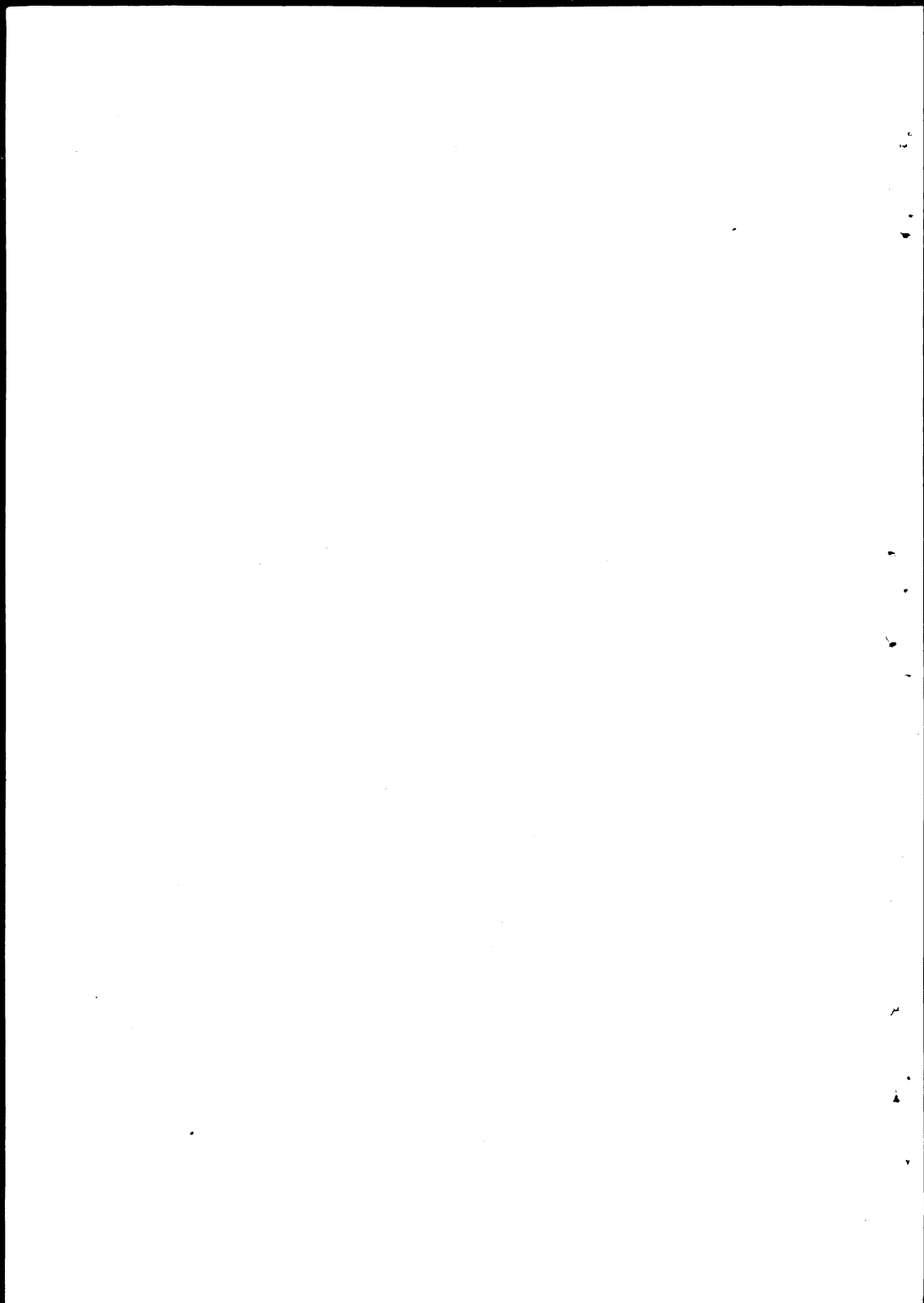
(2) Planning and resource use

The demands of the various systems for the resources of land, buildings and capital are demonstrated. These vary with each system and examples have been constructed to show how this type of data can be used in different farm planning situations.

| —paddocks | | £ |
|----------------------------------|---|-------|
| Seed | | 3.00* |
| Fertiliser— | 1st application (50 units N only) | 3.60 |
| | 2nd application—compound (including 45 units N) | 5.20 |
| | 3rd application (35 units N only) | 2.40 |
| | 4th application (35 units N only) | 2.40 |
| Miscellaneous, including fencing | | 1.40 |
| | | <hr/> |
| | | 18.00 |
| | | <hr/> |

* Relates to annual cost of 4 year mixture.

SYSTEMS



Liveweight gain

2½-3½ cwt per head depending on the type of animal.

Possible disease problems

Transit fever
Stomach and intestinal worms
Husk
Lice
Liver fluke
(See Health section, page 79)

FINANCIAL CONSIDERATIONS

Suckled calves purchased mid October (6 cwt); sold March-April (8.25 cwt).

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £46.

Buying and selling prices per cwt to achieve this output:—

| | £ per cwt | | | |
|---------------|-----------|----|----|----|
| Buying price | 20 | 22 | 24 | 26 |
| Selling price | 20 | 22 | 23 | 25 |

Variable costs per head

| | Acres | £ |
|---|-------------|-------------------|
| Concentrates: | | |
| (Mid Oct. - end Dec. 4-8 lb./day - 8 cwt @ £50/ton) | | 20.00 |
| Miscellaneous, including vet. | | 0.40 |
| Forage: | | |
| swedes—42-56 lb./day — 3.5 tons | 0.14 | 3.00 |
| hay—7 lb./day — 10 cwt | 0.20 | 2.60 |
| | <u>0.34</u> | <u>26.00</u> |
| Gross margin per head | | £20 |
| Gross margin per acre | | £58 |
| Less interest (See page 69) | | £18 |
| NET MARGIN PER ACRE | | <u>£40</u> |

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £6 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices per cwt.

| | | Buying price per cwt (£) | | | |
|---------------------------------|----|--------------------------|-----|-----|------|
| | | 20 | 22 | 24 | 26 |
| | | Net margin per acre (£) | | | |
| Selling price per cwt (£) | 18 | -11 | -48 | -84 | -121 |
| | 20 | 38 | 1 | -36 | -73 |
| | 22 | 86 | 49 | 13 | -24 |
| | 24 | 135 | 98 | 61 | 24 |

The net margins have been adjusted to allow for the increased capital resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| L.W.G./day | L.W.G. over 165 days | Net margin: | |
|------------|-------------------------|-------------|-------|
| | | /head | /acre |
| lb. | cwt. | £ | £ |
| 1.50 | 2.25 | 14 | 40 |
| 1.75 | 2.58 | 20 | 59 |
| 2.00 | 2.95 | 28 | 82 |

(Assuming a selling price of £20 per cwt)

The variation in liveweight gain from 1.5-2.0 lb. per day with animals fed the same ration occurs in practice as a result of variation in stockmanship, environment, health and genetic potential.

TARGET

The significant livestock husbandry factor in this system is **LIVEWEIGHT GAIN**.

Liveweight gain/day
2.0 lb.

Net margin/head
£28

Net margin/acre
£82

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £42 is a reflection of the increased liveweight gain.

(4) Effect of variation in FORAGE CROP YIELDS

| Yields/acre: | | Forage crop acres/head: | | | Net margin: | |
|--------------|------|-------------------------|-------|-------|-------------|-------|
| swedes | hay | swedes | hay | total | /head | /acre |
| tons | tons | acres | acres | acres | £ | £ |
| 15 | 2.0 | 0.23 | 0.25 | 0.48 | 12 | 25 |
| 25 | 2.5 | 0.14 | 0.20 | 0.34 | 14 | 40 |
| 35 | 3.0 | 0.10 | 0.17 | 0.27 | 15 | 56 |

Variation in forage crop yields has a considerable effect on profitability, but under good management, variation in yield is largely a reflection of factors beyond the farmer's control, such as climate and soil.

SYSTEM 2

FINISHING 9 cwt STORES (180 day finishing period)

These cattle will be large framed and at least 18 months of age. If they are to be finished over 6 months, the liveweight gain over this period should be about 2½ cwt.

If this system is making use of hay or silage acres, because of the higher requirement for maintenance it is not possible to carry the same number of animals per acre as on a suckled-calf system.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

| | | | |
|----------|--|---------------|--|
| Ration 1 | 60 lb. swedes 7 lb. hay 5 lb. barley | increasing to | 70 lb. swedes 7 lb. hay 6 lb. barley |
|----------|--|---------------|--|

or

| | | | |
|----------|-------------------------------|---------------|-------------------------------|
| Ration 2 | 63 lb. silage 5 lb. barley | increasing to | 70 lb. silage 6 lb. barley |
|----------|-------------------------------|---------------|-------------------------------|

The amount of concentrates depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Liveweight gain

With a long keep system, the liveweight gain per day should be no more than about 1.5 lb. in early winter. From the turn of the year the animals should be then pushed ahead at 2 lb. per day to be finished from February to the end of March.

Possible disease problems

Transit fever
 Stomach and intestinal worms
 Lice
 Liver fluke
 (See Health section, page 79).

FINANCIAL CONSIDERATIONS

Beef store purchased mid October (9 cwt); sold fat after 180 days (March-April).

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £59.

Buying and selling prices per cwt to achieve this output:—

| | £ per cwt | | | |
|---------------|-----------|----|----|----|
| Buying price | 20 | 22 | 24 | 26 |
| Selling price | 21 | 22 | 24 | 26 |

Variable costs per head

| | | £ |
|-----------------------------------|--------------|-------------------|
| Concentrates: | | |
| 5-6 lb./day — 9 cwt @ £50/ton | | 22.50 |
| Miscellaneous, including vet. | | 0.80 |
| Forage: | Acres | |
| swedes — 60-70 lb./day — 5.5 tons | 0.22 | 4.70 |
| hay — 7 lb./day — 11.25 cwt | 0.23 | 3.00 |
| straw to appetite | | |
| | <u>0.45</u> | <u>31.00</u> |
| Gross margin per head | | £28 |
| Gross margin per acre | | £62 |
| Less interest (See page 69) | | £22 |
| NET MARGIN PER ACRE | | <u>£40</u> |

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £5 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices per cwt.

| | | Buying price per cwt (£) | | | |
|-------------------|----|--------------------------|-----|------|------|
| | | 20 | 22 | 24 | 26 |
| | | Net margin per acre (£) | | | |
| Selling price | 18 | -31 | -73 | -115 | -157 |
| price per cwt (£) | 20 | 20 | -22 | -64 | -106 |
| | 22 | 71 | 29 | -13 | -55 |
| | 24 | 122 | 80 | 38 | -4 |

The net margins have been adjusted to allow for the increased capital resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| L.W.G./day | L.W.G. over 180 days | Net margin: | |
|------------|----------------------|-------------|-------|
| | | /head | /acre |
| lb. | cwt | £ | £ |
| 1.35 | 2.2 | 12 | 27 |
| 1.55 | 2.5 | 18 | 40 |
| 1.75 | 2.8 | 24 | 53 |

(Assuming a selling price of £20 per cwt)

TARGET

The significant livestock husbandry factor in this system is LIVEWEIGHT GAIN

| | | |
|---------------------|-----------------|-----------------|
| Liveweight gain/day | Net margin/head | Net margin/acre |
| 1.75 lb. | £24 | £53 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £13 is a reflection of the increased liveweight gain.

(4) Effect of variation in FORAGE CROP YIELDS

| Yields/acre: | | Forage crop acres/head: | | | Net margin: | |
|--------------|------|-------------------------|-------|-------|-------------|-------|
| swedes | hay | swedes | hay | total | /head | /acre |
| tons | tons | acres | acres | acres | £ | £ |
| 15 | 2.0 | 0.37 | 0.28 | 0.65 | 14 | 21 |
| 25 | 2.5 | 0.22 | 0.23 | 0.45 | 18 | 40 |
| 35 | 3.5 | 0.16 | 0.16 | 0.32 | 20 | 63 |

SYSTEM 3

FINISHING 9 cwt STORES (90 day finishing period)

These are strong, forward store cattle which can be finished over a three month period and must be fed intensively. This system is dependent on obtaining store cattle at the right price

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

Ration 1 60 lb. swedes
 7 lb. hay
 7 lb. barley

or

Ration 2 65 lb. silage
 7 lb. barley

The amount of concentrates depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Liveweight gain

2 cwt in 90 days. (1.75 lb./day)

Possible disease problems

Transit fever
Stomach and intestinal worms
Lice
Liver fluke
(See Health section, page 79).

FINANCIAL CONSIDERATIONS

Forward beef stores purchased mid October (9 cwt), finished after 90 days (January).

Forward beef stores purchased mid to end of January and finished after 90 days (April).

- Two batches: (1) Mid October-mid January (90 day period)
 (2) End January-end April (90 day period)

Output per head

The difference between buying and selling price less commission, haulage and allowance of £1.50 for losses = £31.

Buying and selling prices per cwt to achieve this output:—

| | £ per cwt | | | |
|---------------|-----------|----|----|----|
| | 20 | 22 | 24 | 26 |
| Buying price | 20 | 22 | 24 | 26 |
| Selling price | 20 | 22 | 24 | 26 |

Variable costs per head

| | Acres | £ |
|---------------------------------|-------------|--------------|
| Concentrates: | | |
| 5-9 lb./day — 5.5 cwt @ £50/ton | | 13.75 |
| Miscellaneous, including vet. | | 0.70 |
| Forage: | | |
| swedes — 60 lb./day — 2.5 tons | 0.10 | 2.10 |
| hay — 7 lb./day — 5.5 cwt | 0.11 | 1.45 |
| | <u>0.21</u> | <u>18.00</u> |

| | |
|-----------------------------|-----|
| Gross margin per head | £13 |
| Gross margin per acre | £64 |
| Less interest (See page 69) | £24 |

NET MARGIN PER ACRE £40

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £7 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices per cwt.

| | | Buying price per cwt (£) | | | |
|---------------|----|--------------------------|------|------|------|
| | | 20 | 22 | 24 | 26 |
| | | Net margin per acre (£) | | | |
| Selling price | 18 | -67 | -155 | -243 | -330 |
| per cwt (£) | 20 | 33 | -55 | -142 | -230 |
| | 22 | 133 | 45 | -42 | -130 |
| | 24 | 233 | 145 | 58 | -30 |

The net margins have been adjusted to allow for the increased capital resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| L.W.G./day | L.W.G. over 90 days | Net margin: | |
|------------|---------------------|-------------|-------|
| | | /head | /acre |
| lb. | cwt. | £ | £ |
| 1.60 | 1.30 | 4 | 19 |
| 1.86 | 1.50 | 8 | 40 |
| 2.06 | 1.65 | 11 | 52 |

(Assuming a selling price of £20 per cwt)

TARGET

The significant livestock husbandry factor in this system is LIVEWEIGHT GAIN

| | | |
|---------------------|-----------------|-----------------|
| Liveweight gain/day | Net margin/head | Net margin/acre |
| 2.06 lb. | £11 | £52 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £12 is a reflection of the increased liveweight gain.

(4) Effect of variation in FORAGE CROP YIELDS

| Yields/acre: | | Forage crop acres/head: | | | Net margin: | |
|--------------|------|-------------------------|-------|-------|-------------|-------|
| swedes | hay | swedes | hay | total | /head | /acre |
| tons | tons | acres | acres | acres | £ | £ |
| 15 | 2.0 | 0.16 | 0.14 | 0.30 | 6 | 20 |
| 25 | 2.5 | 0.10 | 0.11 | 0.21 | 8 | 40 |
| 35 | 3.5 | 0.07 | 0.08 | 0.15 | 9 | 60 |

SYSTEM 4

SPRING BORN SUCKLED CALVES WINTERED AND FINISHED OFF GRASS AT 18 MONTHS

This system makes use of small calves from stock rearing and hill farms, weighing from 4–4.5 cwt when they are bought in October. They may be outwintered in dry, sheltered areas of arable farms, but are generally inwintered. The aim in the winter period is to produce a good store animal which will finish off grass. The animals should be fed to achieve a liveweight gain of 1–1.25 lb. per day. If animals are pushed too hard they will tend to fatten, rather than grow, and this will impede growth when they go to grass. Early-maturing types and heifers should not be allowed to grow faster than 1 lb. per day.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

| | | | |
|----------|---|-----------------|---|
| Ration 1 | 35 lb. silage 2-3 lb. barley/ protein mix |] increasing to | [45 lb. silage 2-3 lb. barley/ protein mix |
| | | | |

or

| | | | |
|----------|--|-----------------|--|
| Ration 2 | 7 lb. hay 20 lb. swedes 2-3 lb. barley/ protein mix |] increasing to | [7 lb. hay 35 lb. swedes 2-3 lb. barley/ protein mix |
| | | | |

The amount of concentrates depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Lightweight gain

4.25 cwt over winter and summer period.

Possible disease problems

Transit fever
Stomach and intestinal worms
Husk
Lice
Liver fluke
(See Health section, page 79)

Summer grazing management

Set stocking (typical) $1\frac{2}{3}$ animals per acre
Paddock grazing $2\frac{1}{2}$ -3 animals per acre
(For information on Paddock Grazing see page 82)

In most cases a cereals supplement of about 3 lb. per day should be given during the last few weeks to ensure that the animals fatten off grass.

FINANCIAL CONSIDERATIONS

Suckled calves purchased at 4.25 cwt in autumn, stored during winter and sold fat off grass August-September at around 8 cwt.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £70.

Buying and selling prices per cwt to achieve this output:—

| | £ per cwt | | | |
|---------------|-----------|----|----|----|
| Buying price | 20 | 22 | 24 | 26 |
| Selling price | 20 | 21 | 22 | 23 |

Variable costs per head

Winter period

| | | |
|-------------------------------------|-------|-------|
| Concentrates: | | £ |
| 2.3 lb./day — 150 days — | | |
| 3.25 cwt (15-16% C.P.) @ £65/ton | | 10.55 |
| Silage: | Acres | |
| 35-45 lb./day — 150 days — 2.5 tons | 0.25 | 4.20 |

Summer period

| | | |
|--|-------------|--------------|
| Concentrates: | Acres | £ |
| 3 lb./day during last 4 weeks @ 50/ton | | 1.85 |
| Grazing | 0.60 | 7.10 |
| Miscellaneous, including vet. | | 2.30 |
| | <u>0.85</u> | <u>26.00</u> |
| Gross margin per head | | £44 |
| Gross margin per acre | | £52 |
| Less interest (See page 69) | | £12 |
| NET MARGIN PER ACRE | | <u>£40</u> |

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £1 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices per cwt.

| | | Buying price per cwt (£) | | | |
|---------------------------|----|--------------------------|----|----|----|
| | | 20 | 22 | 24 | 26 |
| | | Net margin per acre (£) | | | |
| Selling price per cwt (£) | 18 | 27 | 16 | 5 | -6 |
| | 20 | 46 | 36 | 24 | 13 |
| | 22 | 64 | 54 | 43 | 32 |
| | 24 | 83 | 73 | 62 | 51 |

The net margins have been adjusted to allow for the increased capital resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| Liveweight gain/day: | | Total L.W.G. | Net margin: | |
|----------------------|--------|--------------|-------------|-------|
| winter | summer | | /head | /acre |
| lb. | lb. | cwt | £ | £ |
| 1.0 | 1.8 | 3.75 | 34 | 40 |
| 1.1 | 2.1 | 4.25 | 44 | 52 |

(Assuming a selling price of £20 per cwt)

(4) Effect of variation in GRAZING DENSITY

In many instances it may be possible to increase the stocking rate during the grazing period by using a paddock grazing system, with additional fertiliser applications, although considerable management skill is required to fatten animals on an intensive system.

The effect of this might be:—

| Grazing density | Total forage acres/head | Net margin: | |
|-----------------|----------------------------|-------------|-------|
| | | /head | /acre |
| animals/acre | acres | £ | £ |
| 1 $\frac{2}{3}$ | 0.85 | 34 | 40 |
| 2 $\frac{1}{2}$ | 0.65 | 34 | 52 |
| 3 | 0.58 | 35 | 60 |

Since grazing acres are the main land use in this system, the effect of grazing intensification has an important effect on profitability.

TARGET

The significant livestock husbandry factors in this system are **LIVEWEIGHT GAIN** and **STOCKING RATE**

| Liveweight gain/day: | | Grazing density | Net margin: | |
|----------------------|---------|--------------------|-------------|-------|
| Winter | Summer | | /head | /acre |
| 1.1 lb. | 2.1 lb. | 3/acre | £45 | £78 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £38 is a reflection of the increased liveweight gain.

SYSTEM 5

SPRING BORN SUCKLED CALVES WINTERED, SUMMERED AND FINISHED OUT OF COURTS AT 2 YEARS OF AGE

This system makes use of spring-born calves from stock rearing and hill farms, weighing around 4 cwt when bought in October. They may be outwintered if suitable dry and sheltered areas are available but are generally inwintered. The aim in the winter, is to produce an animal in good store condition to go to grass. The liveweight gain during this period should be approximately 1 lb. per day. If the animals are pushed too hard they tend to fatten rather than grow and as a result growth is impeded when they go to grass. This is particularly true with early maturing types. The stock will go to the grass in April coming back into the courts during October for winter finishing.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

1st Winter — store:

| | | | | |
|----------|---|-----------------|---|---|
| Ration 1 | 35 lb. silage 2-3 lb. barley/ protein mix |] increasing to | [| 45 lb. silage 2-3 lb. barley/ protein mix |
|----------|---|-----------------|---|---|

or

| | | | | |
|----------|--|-----------------|---|--|
| Ration 2 | 7 lb. hay 20 lb. swedes 2-3 lb. barley/ protein mix |] increasing to | [| 7 lb. hay 35 lb. swedes 2-3 lb. barley/ protein mix |
|----------|--|-----------------|---|--|

2nd Winter — finishing:

| | |
|----------|-------------------------------|
| Ration 3 | 70 lb. silage 6 lb. barley |
|----------|-------------------------------|

or

| | |
|----------|---|
| Ration 4 | 7 lb. hay 65 lb swedes 6 lb. barley |
|----------|---|

The amount of concentrates depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Liveweight gain

5.5 cwt store wintering, summering and finishing in second winter.

Possible disease problems

Transit fever
Stomach and intestinal worms
Husk
Lice
Liver fluke
(See Health section, page 79)

Summer grazing management

Set stocking (typical) — $1\frac{2}{3}$ animals per acre
Paddock grazing — $2\frac{1}{2}$ animals per acre
(For information on Paddock Grazing see page 82)

FINANCIAL CONSIDERATIONS

Suckled calves purchased at 4 cwt in autumn, stored during the winter and summer and fattened out of courts in March-April at 2 years of age weighing approximately 9.5 cwt.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £104.

Buying and selling price per cwt to achieve this output:—

| | £ per cwt | | | |
|---------------|-----------|----|----|----|
| Buying price | 20 | 22 | 24 | 26 |
| Selling price | 19 | 20 | 21 | 22 |

Variable costs per head

1st winter period

| | | |
|----------------------------------|--|-------|
| Concentrates: | | £ |
| 2.3 lb./day — 150 days — | | |
| 3.25 cwt (15-16% C.P. @ £65/ton) | | 10.55 |

| | | |
|-------------------------------------|-------|------|
| Silage: | Acres | |
| 35-45 lb./day — 150 days — 2.5 tons | 0.25 | 4.20 |

Summer period

| | | |
|----------|------|------|
| Grazing: | 0.60 | 7.10 |
|----------|------|------|

2nd winter period

| | | |
|---|--|-------|
| Concentrates: | | |
| 5-6 lb./day — 100 days — 5 cwt barley @ £50/ton | | 12.50 |

| | | |
|-----------------------------------|------|------|
| Silage: | | |
| 65-75 lb./day — 100 days — 3 tons | 0.30 | 5.00 |

| | | |
|-------------------------------|--|------|
| Miscellaneous, including vet. | | 2.65 |
|-------------------------------|--|------|

| | | |
|--|-------------|--------------|
| | <u>1.15</u> | <u>42.00</u> |
|--|-------------|--------------|

| | |
|-----------------------------|-----|
| Gross margin per head | £62 |
| Gross margin per acre | £54 |
| Less interest (See page 69) | £14 |

| | |
|----------------------------|------------|
| NET MARGIN PER ACRE | £40 |
|----------------------------|------------|

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £2 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices per cwt.

| | | Buying price per cwt (£) | | | |
|---------------------------|----------------------|--------------------------|----------------------|----------------------|---------------------|
| | | 20 | 22 | 24 | 26 |
| | | Net margin per acre (£) | | | |
| | | | | | |
| Selling price per cwt (£) | 18 20 22 24 | 31 48 64 81 | 23 40 56 73 | 15 32 48 65 | 7 24 40 57 |

(3) Effect of variation in LIVEWEIGHT GAIN

| Liveweight gain/day: | | | Total L.W.G. | Net margin: | |
|----------------------|--------|------------|--------------|-------------|-------|
| 1st winter | Summer | 2nd winter | | /head | /acre |
| lb. | lb. | lb. | cwt | £ | £ |
| 1.0 | 1.5 | 1.75 | 5.50 | 46 | 40 |
| 1.1 | 1.8 | 2.00 | 6.25 | 61 | 53 |

(Assuming selling price of £20 per cwt)

(4) Effect of variation in GRAZING DENSITY

In many instances it may be possible to increase the stocking by using a paddock grazing system with additional fertiliser applications. Intensification could be applied to a wider range of conditions than for System 4 as the animals are growing at grass, and not being finished.

| Grazing density | Total forage acres/head | Net margin: | |
|-----------------|-------------------------|-------------|-------|
| | | /head | /acre |
| animals/acre | acres | £ | £ |
| 1 $\frac{2}{3}$ | 1.15 | 46 | 40 |
| 2 $\frac{1}{2}$ | 0.95 | 46 | 48 |
| 3 | 0.88 | 47 | 52 |

TARGET

The significant livestock husbandry factors in this system are LIVEWEIGHT GAIN and STOCKING RATE

| Liveweight gain/day: | | | Grazing density | Net margin: | |
|----------------------|---------|------------|--------------------|-------------|-------|
| 1st Winter | Summer | 2nd Winter | | /head | /acre |
| 1.1 lb. | 1.8 lb. | 2.0 lb. | 3/acre | £62 | £71 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £31 is a reflection of the increased liveweight gain.

SYSTEM 6

18 MONTH FRIESIANS – AUTUMN BORN

Calves, born August-October, kept in courts until the spring; summered on grass, and finished out of the courts in their second winter at 18–20 months of age.

Friesians and Friesian crosses (steers and heifers) are most commonly used although other dairy calves can also be used if the price differential is adequate.

Calves can be reared on milk substitute from a few days old, provided that specialised labour and calf rearing premises are available. This can increase the net margin by up to £10 per head, but there is a risk element from disease. An alternative is to purchase weaned calves from a rearer at approximately 12 weeks of age, which is the system outlined here.

Calves below 3.5 cwt at turnout are more liable to suffer checks in growth. To minimise this, concentrates should be given for several weeks. The lighter calves are more prone to checks throughout the summer period, with subsequent lower liveweight gains. Thus, calves weighing at least 400 lb. at turnout should be a definite aim.

Calves born later than October will not normally reach 3.5 cwt at turnout. In attempting to obtain this weight at turnout, calves should not be fed excessively. They should be fed to gain 1.5–1.75 lb per day during the first winter as animals with very high liveweight gains will have a poorer performance at grass.

For further information on calf rearing see ESCA Advisory leaflets 60, 62 and 63.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

First winter:

Ration 1 Good quality hay to appetite, limited quantities of swedes or silage can be given, plus 6 lb. or 15 per cent crude protein concentrate.

Second winter:

Ration 2 50 lb. silage] increasing to [60 lb. silage
 5 lb. barley] [8 lb. barley

or

Ration 3 45 lb. swedes] increasing to [55 lb. swedes
 7 lb. hay] [7 lb. hay
 5 lb. barley] [8 lb. barley

The amount of concentrate depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Liveweights

| | |
|--------------|-----------|
| At turnout | 4.00 cwt |
| At housing | 6.75 cwt |
| At slaughter | 10.00 cwt |

Possible disease problems

Transit fever
Pneumonia
Stomach and intestinal worms
Husk
Lice
Liver fluke
Scouring
(See Health section, page 79)

Summer grazing management

Set stocking (typical) — 2 animals per acre.
Paddock grazing — 3-4 animals per acre.
(For information on Paddock Grazing see page 82)

The feeding value of grass declines markedly in September and supplementation of up to 4 lb. cereals per day should be given. The cattle should be housed around the end of September as they can be severely checked if left out when the weather is getting colder. If checks occur in September, the animals can be difficult to finish at 18-20 months and may have to be kept for at least another 6 months which, at the present time, is less profitable.

FINANCIAL CONSIDERATIONS

Calves purchased November-December at 12 weeks old, wintered, summered and sold fat the following March-April.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £132.

Buying and selling prices to achieve this output:—

| | £ | | | |
|------------------------------------|----|----|----|-----|
| Calf price (net of subsidy) - head | 70 | 80 | 90 | 100 |
| Selling price — /cwt | 21 | 22 | 24 | 25 |

Variable costs per head

£

1st Winter

Concentrates:

5-6 lb./day — 150 days —

8 cwt (15-16% C.P.) @ £65/ton

26.00

Hay:

4-6 lb./day — 150 days — 7 cwt

Acres

0.14

1.80

Summer

Concentrates:

September

2-4 lb./day — 30 days —

0.75 cwt barley @ £50/ton

1.85

Grazing — 2 per acre

0.50

5.90

2nd Winter

Concentrates:

5-8 lb./day — 180 days —

11.25 cwt barley @ £50/ton

28.10

Silage:

50-60 lb./day — 180 days — 4.5 tons

0.45

7.55

Miscellaneous, including vet.

2.80

1.09

74.00

Gross margin per head

£58

Gross margin per acre

£53

Less interest (See page 69)

£13

NET MARGIN PER ACRE

£40

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £5 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices.

| | | Buying price per head (£) | | | |
|---------------------------|----|---------------------------|----|----|-----|
| | | 70 | 80 | 90 | 100 |
| | | Net margin per acre (£) | | | |
| Selling price per cwt (£) | 18 | 12 | 1 | -9 | -20 |
| | 20 | 29 | 19 | 8 | -2 |
| | 22 | 47 | 36 | 26 | 15 |
| | 24 | 64 | 54 | 43 | 33 |

The net margins have been adjusted to allow for the increased capita resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| Liveweight gain/day: | | | Total L.W.G. | Net margin: | |
|----------------------|--------|------------|--------------|-------------|-------|
| 1st Winter | Summer | 2nd Winter | | /head | /acre |
| lb. | lb. | lb. | cwt | £ | £ |
| 1.4 | 1.6 | 1.7 | 7.0 | 34 | 31 |
| 1.4 | 1.8 | 1.8 | 7.5 | 44 | 40 |
| 1.6 | 1.8 | 2.0 | 8.0 | 54 | 50 |

(Assuming a selling price of £20 per cwt)

The most important management factors influencing potential liveweight gain are:—

- purchase of the right kind of calf,
- reduction of stress on calf throughout its life,
- quality of grazing and roughage.

(4) Effect of variation in GRAZING DENSITY

It should be possible in many instances to increase stocking rate during the grazing period by using a paddock grazing system with additional fertiliser applications.

The effect of this might be:—

| Grazing density animals/acre | Total forage acres/head acre | Net margin: | |
|---------------------------------|------------------------------------|-------------|------------|
| | | /head £ | /acre £ |
| 2 | 1.09 | 44 | 40 |
| 3 | 0.92 | 44 | 48 |
| 4 | 0.84 | 45 | 54 |

This assumes that individual animal liveweight gain is maintained at the higher stocking rates. Experience of this system in commercial practice shows this to be true.

Allowance has been made in the above figures for the additional cost involved in paddock grazing.

TARGET

The significant livestock husbandry factors in this system are **LIVEWEIGHT GAIN AND STOCKING RATE.**

| Liveweight gain/day: | | | Grazing density 4/acre | Net margin: | |
|----------------------|---------|------------|------------------------------|--------------|--------------|
| 1st Winter | Summer | 2nd Winter | | /head £55 | /acre £65 |
| 1.6 lb. | 1.8 lb. | 2.0 lb. | | | |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £25 is a reflection of the increased liveweight gain.

SYSTEM 7

18-MONTH FRIESIANS – WINTER BORN

Calves born November-December, in courts until late spring, summered on grass and finished out of courts at 16-18 months of age.

Friesian and Friesian crosses (steers and heifers) are most commonly used although other dairy calves can be used if the calf price differential is adequate.

Calves can be reared on milk substitute from a few days old, provided that specialised labour and calf rearing premises are available. This can increase the net margin by up to £10 per head, but there is a risk element from disease. An alternative is to purchase weaned calves from a rearer at approximately 12 weeks of age, which is the system outlined below.

For further information on calf rearing see ESCA Advisory Leaflets 60, 62 and 63.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

First winter:

Ration 1 Hay to appetite and up to 6 lb. concentrates (15% C.P.)

Second winter:

| | | | | |
|----------|---------------|-----------------|---|---------------|
| Ration 2 | 14 lb. silage |] increasing to | [| 28 lb. silage |
| | 12 lb. barley | | | 16 lb. barley |

The animals must have a high energy ration. The amount of concentrate depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Liveweights

| | |
|--------------|----------|
| At turnout | 3.00 cwt |
| At housing | 4.75 cwt |
| At slaughter | 9.00 cwt |

Possible disease problems

Transit fever
Pneumonia
Stomach and intestinal worms
Husk
Lice
Live fluke
Scouring
(See Health section, page 79)

Summer grazing management

Set stocking (typical) – 3 animals per acre
Paddock grazing – 4-6 animals per acre
(For information on Paddock Grazing, see page 82)

Calves on this system, because of their age on going to grass, should receive 3 lb. of cereals per day for the first month at grass to reduce the stress of changeover.

The feeding value of grass falls off markedly in September and supplementation of up to 4 lb. of cereals per day should be given from mid-August onwards.

The cattle should be housed around the end of September as they can be severely checked if left out when the weather gets colder. If checks occur in autumn, the animals can be difficult to finish at 18 months and may have to be kept for at least another 6 months and this, at present, is less profitable.

FINANCIAL CONSIDERATIONS

Friesian steer calves purchased February-March at 12 weeks old, in courts till mid-May, summered and sold fat from courts the following May-June at 16-18 months of age.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £132.

Buying and selling prices to achieve this output:—

| | £ | | | |
|-------------------------------------|----|----|----|-----|
| Calf price (net of subsidy) – /head | 70 | 80 | 90 | 100 |
| Selling price – /cwt | 24 | 25 | 26 | 27 |

| Variable costs per head | | £ |
|--------------------------------------|-------|------------|
| 1st Spring | | |
| Concentrates: | | |
| 5-6 lb./day – 45 days – | | |
| 2.1 cwt (15-16% C.P.) @ £65/ton | | 6.80 |
| Hay: | | |
| 3.5-4 lb./day – 45 days – 1.5 cwt | Acres | |
| | 0.03 | 0.40 |
| Summer | | |
| Concentrates: | | |
| mid-May – mid-June | | |
| 2-3 lb./day – 30 days – | | |
| 0.66 cwt barley @ £50/ton | | 1.65 |
| mid-August – end September | | |
| 3-4 lb./day – 45 days – | | |
| 1.4 cwt barley @ £50/ton | | 3.50 |
| Grazing: – 3 per acre | 0.33 | 3.90 |
| 2nd Winter | | |
| Concentrates: | | |
| 12-16 lb./day – 240 days – | | |
| 29 cwt barley @ £50/ton | | 72.50 |
| Silage: | | |
| 14-28 lb./day – 240 days – 2.25 tons | 0.23 | 3.85 |
| Miscellaneous, including vet. | | |
| | | 2.40 |
| | <hr/> | <hr/> |
| | 0.59 | 95.00 |
| | <hr/> | <hr/> |
| Gross margin per head | | £37 |
| Gross margin per acre | | £62 |
| Less interest (See page 69) | | £22 |
| | | <hr/> |
| NET MARGIN PER ACRE | | £40 |
| | | <hr/> |

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £14 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices.

| | | Buying price per head (£) | | | |
|---------------|----|---------------------------|-----|-----|-----|
| | | 70 | 80 | 90 | 100 |
| | | Net margin per acre (£) | | | |
| Selling price | 18 | -42 | -61 | -81 | -99 |
| per cwt (£) | 20 | -14 | -33 | -52 | -71 |
| | 22 | 15 | -4 | -23 | -42 |
| | 24 | 44 | 25 | 6 | -13 |

The net margins have been adjusted to allow for the increased capital resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| Liveweight gain/day: | | | Total L.W.G. | Net margin: | |
|----------------------|--------|--------|--------------|-------------|-------|
| 1st Spring | Summer | Winter | | /head | /acre |
| lb. | lb. | lb. | cwt | £ | £ |
| 1.4 | 1.4 | 2.0 | 6.5 | 24 | 40 |
| 1.5 | 1.5 | 2.1 | 7.0 | 34 | 58 |

(Assuming a selling price of £20 per cwt)

(4) Effect of variation in GRAZING DENSITY

In many instances it may be possible to increase the stocking rate during the grazing period by using a paddock grazing system, with additional fertiliser applications.

| Grazing density animals/acre | Total forage acres/head | Net margin: | |
|---------------------------------|----------------------------|-------------|------------|
| | | /head £ | /acre £ |
| 3 | 0.59 | 24 | 40 |
| 4 | 0.51 | 23 | 45 |
| 5 | 0.46 | 23 | 50 |
| 6 | 0.43 | 25 | 58 |

TARGET

The significant livestock husbandry factors in this system are **LIVEWEIGHT GAIN** and **STOCKING RATE**.

| Liveweight gain/day: | | | Grazing density /acre | Net margin: | |
|----------------------|---------|---------|-----------------------------|-------------|-------|
| 1st Spring | Summer | Winter | | /head | /acre |
| 1.5 lb. | 1.5 lb. | 2.1 lb. | 6/acre | £35 | £81 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £41 is a reflection of the increased liveweight gain.

SYSTEM 8

18-MONTH HEREFORD X FRIESIAN — SPRING BORN

Calves born February-March, are in courts until end of June and then grazed until end of September. They are wintered as stores and finished off grass at 18-20 months of age.

Friesian and Friesian crosses (steers and heifers) are most commonly used although other dairy calves can be used if the price differential is adequate.

Calves can be reared on milk substitute from a few days of age, provided that specialised labour and calf rearing premises are available. This can increase the net margin by up to £10 per head, but there is a risk element from disease. An alternative is to purchase weaned calves from a rearer at approximately 12 weeks of age, which is the system outlined below.

Calves go on to silage foggage at the end of June in the first summer which provides clean grass and reduces the risk of worm infestation.

For further information on calf rearing see ESCA Advisory Leaflets 60, 62 and 63.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

First spring:

Ration 1 Before going to grass, hay to appetite plus 6 lb. concentrates (15% C.P.)

Winter:

| | | | | | |
|----------|--|---|---------------|---|-------------------------------|
| Ration 2 | 30 lb. silage 4 lb. concentrate (14% C.P.) |] | increasing to | [| 45 lb. silage 5 lb. barley |
|----------|--|---|---------------|---|-------------------------------|

or

| | | | | | |
|----------|---|---|---------------|---|---|
| Ration 3 | 25 lb. swedes 5 lb. hay 4 lb. concentrate (14% C.P.) |] | increasing to | [| 35 lb. swedes 6 lb. hay 5 lb. concentrate (12% C.P.) |
|----------|---|---|---------------|---|---|

The amount of concentrates depends on the quality of the roughage fed.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Summer grazing management

| | 1st year | 2nd year |
|------------------------|----------------------|---|
| Set stocking (typical) | 3 animals per acre | 1 $\frac{2}{3}$ animals per acre |
| Paddock grazing | 4-6 animals per acre | 2 $\frac{1}{2}$ -3 $\frac{1}{2}$ animals per acre |

(For information on Paddock Grazing, see page 82)

Calves should receive up to 4 lb. cereals per day while on grass during the first summer.

For six weeks before expected time of finishing in the second summer they should receive 4 lb. cereals per day.

Liveweights

| | |
|-----------------------|---------|
| At turnout | 2.5 cwt |
| At housing | 3.5 cwt |
| At turnout (2nd year) | 6.0 cwt |
| At slaughter | 9.0 cwt |

Possible disease problems

Transit fever
Pneumonia
Stomach and intestinal worms
Husk
Lice
Liver fluke
Scouring
(See Health section, page 79)

FINANCIAL CONSIDERATIONS

Calves purchased end May at 12 weeks old, grazed June-September, wintered and sold fat off grass August-September the following year, around 9 cwt.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £110.

Buying and selling prices to achieve this output:—

| | £ | | | |
|-------------------------------------|----|----|----|-----|
| | 70 | 80 | 90 | 100 |
| Calf price (net of subsidy) — /head | 70 | 80 | 90 | 100 |
| Selling price — /cwt | 20 | 21 | 22 | 24 |

| Variable costs per head | | | £ |
|--------------------------------------|----------|--|-------|
| 1st Summer: | | | |
| End May-June | | | |
| Concentrates: | | | |
| 6 lb./day — 28 days — | | | |
| 1.5 cwt (15-16% C.P.) @ £65/ton | | | 4.90 |
| Hay: | Acres | | |
| 4 lb./day — 28 days — 1 cwt | 0.02 | | 0.25 |
| End June-end September | | | |
| Concentrates: | | | |
| 3-4 lb./day — 3 cwt barley @ £50/ton | | | 7.50 |
| Grazing: | | | |
| 3/acre on silage foggage (a) | | | — |
| Winter: | | | |
| Concentrates: | | | |
| October-December | | | |
| 4 lb./day — 90 days — | | | |
| 3.25 cwt (14% C.P.) @ £60/ton | | | 9.75 |
| end December — mid April | | | |
| 5 lb./day — 105 days — | | | |
| 4.75 cwt barley @ £50/ton | | | 11.90 |
| Silage: | | | |
| 30-45 lb./day — 195 days — 3.25 tons | 0.44 (b) | | 7.40 |
| 2nd Summer: | | | |
| Concentrates: | | | |
| 4 lb./day — 42 days | | | |
| 1.5 cwt barley @ £50/ton | | | 3.75 |
| Grazing: | 0.60 | | 7.10 |
| Miscellaneous, including vet. | | | 2.45 |
| | 1.06 | | 55.00 |

| | |
|-----------------------------|-----|
| Gross margin per head | £55 |
| Gross margin per acre | £52 |
| Less interest (See page 69) | £12 |

| | |
|----------------------------|------------|
| NET MARGIN PER ACRE | £40 |
|----------------------------|------------|

Grassland management

(a) 0.33 acres — cut once for silage, foggage providing summer grazing from the end of June.

0.11 acres — cut twice for silage, foggage available for grazing in August-September.

(b) 0.44 acres

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £3 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices.

| | | Buying price per head (£) | | | |
|---------------|----|---------------------------|----|----|-----|
| | | 70 | 80 | 90 | 100 |
| | | Net margin per acre (£) | | | |
| Selling price | 18 | 23 | 12 | 2 | -9 |
| per cwt | 20 | 40 | 29 | 19 | 8 |
| (£) | 22 | 57 | 46 | 36 | 25 |
| | 24 | 74 | 63 | 53 | 42 |

The net margins have been adjusted to allow for the increased capital resulting from higher buying prices.

(3) Effect of variation in LIVEWEIGHT GAIN

| Liveweight gain/day: | | | Total L.W.G. | Net margin: | |
|----------------------|--------|------------|--------------|-------------|-------|
| 1st Summer | Winter | 2nd Summer | | /head | /acre |
| lb. | lb. | lb. | cwt | £ | £ |
| 1.4 | 1.5 | 1.65 | 6.5 | 32 | 30 |
| 1.4 | 1.5 | 2.00 | 7.0 | 42 | 40 |
| 1.5 | 1.5 | 2.30 | 7.5 | 52 | 49 |

(Assuming a selling price of £20 per cwt)

(4) Effect of variation in GRAZING DENSITY

In many instances it may be possible to increase the stocking rate during the grazing period by using a paddock grazing system, with additional fertiliser applications, although considerable management skill is required to fatten animals on an intensive system.

| Grazing density: | | Total forage acres/head | Net margin: | |
|------------------|-----------------|----------------------------|-------------|-------|
| 1st year | 2nd year | | /head | /acre |
| animals/acre | | acres | £ | £ |
| 3 | 1 $\frac{2}{3}$ | 1.06 | 42 | 40 |
| 4 | 2 $\frac{1}{2}$ | 0.86 | 42 | 49 |
| 5 | 3 | 0.79 | 43 | 54 |
| 6 | 3 $\frac{1}{2}$ | 0.74 | 44 | 59 |

TARGET

The significant livestock husbandry factors in this system are LIVEWEIGHT GAIN and STOCKING RATE.

| Liveweight gain/day: | | | Grazing density | Net margin: | |
|----------------------|---------|------------|--------------------|-------------|-------|
| 1st Summer | Winter | 2nd Summer | | /head | /acre |
| 1.5 lb. | 1.5 lb. | 2.3 lb. | 6/acre | £54 | £73 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £33 is a reflection of the increased liveweight gain.

SYSTEM 9

2 YEAR FRIESIANS – WINTER BORN

Calves born November-January, housed until late spring, summered on grass and store wintered to graze a second summer and housed beginning October. Finished out of courts at about 2 years of age.

Friesian steers are most commonly used although other milk breeds and crosses can also be used, if the price differential is adequate.

Calves can be reared on milk substitute from a few days old provided that specialised labour and calf rearing premises are available. This can increase the net margin by up to £10 per head but there is a risk element from disease. An alternative is to purchase weaned calves from a rearer at approximately 12 weeks of age, which is the system outlined below.

For further information on calf rearing see ESCA Advisory Leaflets 60, 62 and 63.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

First Winter:

Ration 1 Hay to appetite and up to 6 lb. concentrates
(15% C.P.)

Second Winter:

Ration 2 35 lb. silage
4 lb. concentrate] increasing to [45 lb. silage
(14% C.P.)] 5 lb. barley

or

Ration 3 30 lb. swedes
5 lb. hay
4 lb. concentrate] increasing to [35 lb. swedes
(14% C.P.)] 6 lb. hay
5 lb. concentrate
(12% C.P.)

or

Ration 4 70 lb. silage
5 lb. barley] increasing to [80 lb. silage
6 lb. barley

Third Winter: (contd.)

| | | | |
|----------|---|---------------|--|
| Ration 5 | 70 lb. swedes 7 lb hay 5 lb. barley | increasing to | 80 lb. swedes 8 lb. hay 6 lb. barley |
|----------|---|---------------|--|

The amount of concentrates depends on the quality of roughage fed. Straw is given to appetite.

Minerals and Vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Summer grazing management

| | 1st year | 2nd year |
|------------------------|----------------------|---|
| Set stocking (typical) | 3 animals per acre | 1 $\frac{2}{3}$ animals per acre |
| Paddock grazing | 4-6 animals per acre | 2 $\frac{1}{2}$ -3 $\frac{1}{2}$ animals per acre |

(For information on Paddock Grazing, see page 82)

Calves on this system, because of their age on going to grass, should receive 3 lb. of cereals per day for the first month at grass to reduce the stress of changeover.

They should be housed by the end of September as they can be severely checked if left out when the weather gets colder particularly in the first year at grass.

Liveweights

| | |
|-----------------------|-----------|
| At turnout (1st year) | 2.50 cwt |
| At housing | 4.00 cwt |
| At turnout (2nd year) | 6.50 cwt |
| At housing | 9.25 cwt |
| At slaughter | 11.00 cwt |

Possible disease problems

Transit fever
Pneumonia
Stomach and intestinal worms
Husk
Lice
Liver fluke
Scouring
(See Health section, page 79)

FINANCIAL CONSIDERATIONS

Friesian steer calves purchased March-April at 12 weeks old, in courts until mid-May, summered, wintered, grazed the second summer and fattened out of courts January-February at 2 years of age and weighing approximately 11 cwt.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £160.

Buying and selling price to achieve this output:—

| | £ | | | |
|------------------------------------|----|----|----|-----|
| | 70 | 80 | 90 | 100 |
| Calf price (net of subsidy) —/head | 21 | 22 | 23 | 24 |
| Selling price — /cwt | | | | |

Variable costs per head

£

1st Spring:

Concentrates:

5-6 lb./day — 45 days —

2.1 cwt (15-16% C.P.) @ £65/ton

6.80

Hay:

3.5-4 lb./day — 45 days — 1.5 cwt

Acres

0.03

0.40

Summer:

Concentrates:

mid-May — mid-June

2-3 lb./day barley — 30 days —

0.66 cwt @ £50/ton

1.65

Grazing — 3 per acre

0.33

3.90

1st Winter:

Concentrates:

October-December

4 lb./day — 90 days —

3.25 cwt (14% C.P.) @ £60

9.75

end December — mid-April

5 lb./day — 105 days —

4.75 cwt barley @ £50

11.90

Silage:

35-45 lb./day — 195 days — 3.5 tons

0.35

5.85

2nd Summer:

Grazing:

0.70

8.25

| Variable costs (cont) | Acres | £ |
|-------------------------------------|-------|------------|
| 2nd Winter: | | |
| Concentrates: | | |
| 5-6 lb./day – 100 days – | | |
| 5 cwt barley @ £50/ton | | 12.50 |
| Silage: | | |
| 70-80 lb./day – 100 days – 3.5 tons | 0.35 | 5.85 |
| Miscellaneous, including vet. | | 3.15 |
| | 1.76 | 70.00 |
| Gross margin per head | | £90 |
| Gross margin per acre | | £51 |
| <i>Less</i> interest (See page 69) | | £11 |
| NET MARGIN PER ACRE | | £40 |

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £2 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices.

| | | Buying price per head (£) | | | |
|---------------|----|---------------------------|----|----|-----|
| | | 70 | 80 | 90 | 100 |
| | | Net margin per acre (£) | | | |
| Selling price | 18 | 23 | 16 | 9 | 2 |
| per cwt (£) | 20 | 35 | 28 | 21 | 15 |
| | 22 | 48 | 41 | 34 | 27 |
| | 24 | 60 | 53 | 46 | 40 |

(3) Effect of variation in LIVEWEIGHT GAIN

| Liveweight gain/day: | | | | | Total L.W.G. | Net margin: | |
|----------------------|---------------|---------------|---------------|---------------|-----------------|-------------|-------|
| 1st Spring | 1st Summer | 1st Winter | 2nd Summer | 2nd Winter | | /head | /acre |
| lb. | lb. | lb. | lb. | lb. | cwt | £ | £ |
| 1.4 | 1.4 | 1.5 | 1.7 | 1.8 | 9.0 | 70 | 40 |
| 1.5 | 1.5 | 1.5 | 2.0 | 2.2 | 10.0 | 90 | 51 |

(Assuming a selling price of £20 per cwt)

(4) Effect of variation in GRAZING DENSITY

In many instances it may be possible to increase the stocking rate during the grazing period by using a paddock grazing system, with additional fertiliser applications.

| Grazing density: | | Total forage acres/head | Net margin: | |
|------------------|---------------|----------------------------|-------------|-------|
| 1st Summer | 2nd Summer | | /head | /acre |
| animals/acre | | acres | £ | £ |
| 3 | 1½ | 1.76 | 70 | 40 |
| 4 | 2½ | 1.38 | 71 | 51 |
| 5 | 3 | 1.26 | 73 | 58 |
| 6 | 3½ | 1.19 | 74 | 62 |

TARGET

The significant livestock husbandry factors in this system are LIVEWEIGHT GAIN and STOCKING RATE.

| Liveweight gain/day: | | | | | Grazing density | Net margin: | |
|----------------------|---------------|---------------|---------------|---------------|--------------------|-------------|-------|
| 1st Spring | 1st Summer | 1st Winter | 2nd Summer | 2nd Winter | | /head | /acre |
| 1.5 lb. | 1.5 lb. | 1.5 lb. | 2.0 lb. | 2.2 lb. | 6/acre | £94 | £79 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £39 is a reflection of the increased liveweight gain.

SYSTEM 10

2 YEAR FRIESIANS — SPRING BORN

Calves born February-March housed until the end of June and then grazed until September. They are wintered and grazed the following year and finally fattened out of courts in March-April at about 2 years of age.

Calves can be reared on milk substitute from a few days of age, provided that specialised labour and calf rearing premises are available. This can increase the net margin by up to £10 per head, but there is a risk element from disease. An alternative is to purchase weaned calves at approximately 12 weeks of age, which is the system outlined below.

At the end of June in the first summer the calves go on to silage foggage, which provides clean grass and reduced the risk of worm infestation.

For further information on calf rearing see ESCA Advisory Leaflets 60, 62 and 63.

HUSBANDRY CONSIDERATIONS

Possible daily rations per head

1st Spring — before going to grass:

Ration 1 Hay to appetite plus 6 lb. concentrates
(15-16% C.P.)

1st Winter:

Ration 2 30 lb. silage
4 lb. concentrate } increasing to [45 lb. silage
(14% C.P.) } 5 lb. barley

or

Ration 3 25 lb. swedes
5 lb. hay
4 lb. concentrate } increasing to [35 lb. swedes
(14% C.P.) } 6 lb. hay
5 lb. concentrate
(12% C.P.)

2nd Winter:

Ration 4 80 lb. silage
6 lb. barley } increasing to [60 lb. silage
5 lb. barley

or

2nd Winter: (contd.)

| | | | |
|----------|--|---------------|--|
| Ration 5 | 60 lb. swedes 7 lb. hay 5 lb. barley | increasing to | 80 lb. swedes 7 lb. hay 6 lb. barley |
|----------|--|---------------|--|

The amount of concentrates depends on the quality of the roughage fed. Straw is given to appetite.

Minerals and vitamins

Rations should be supplemented as necessary.

Arable by-products

See page 81.

Summer grazing management

| | 1st year | 2nd year |
|------------------------|----------------------|---|
| Set stocking (typical) | 3 animals per acre | 1 $\frac{2}{3}$ animals per acre |
| Paddock grazing | 4-6 animals per acre | 2 $\frac{1}{2}$ -3 $\frac{1}{2}$ animals per acre |

(For information on Paddock Grazing see page 82)

Calves should receive up to 4 lb. barley per day while on grass during the first summer.

Liveweights

| | |
|-----------------------|----------|
| At turnout (1st year) | 2.5 cwt |
| At housing | 3.5 cwt |
| At turnout (2nd year) | 6.0 cwt |
| At housing | 8.5 cwt |
| At slaughter | 11.5 cwt |

Possible disease problems

Transit fever
Pneumonia
Stomach and intestinal worms
Husk
Lice
Liver fluke
Scouring
(See Health section, page 79)

FINANCIAL CONSIDERATIONS

Calves purchased end of May at 12 weeks old, grazed June-September, wintered and grazed the following year and fattened out of courts March-April at approximately 11.5 cwt.

Output per head

The difference between buying and selling price less commission, haulage and an allowance of £1.50 for losses = £167.

Buying and selling prices to achieve this output:—

| | £ | | | |
|-----------------------------------|----|----|----|-----|
| Calf price (net of subsidy)—/head | 70 | 80 | 90 | 100 |
| Selling price — /cwt | 21 | 22 | 22 | 23 |

Variable costs per head

£

1st Summer:

May-June

Concentrates:

6 lb./day — 28 days —

1.5 cwt (15-16% C.P.) @ £65/ton

4.90

Hay:

4 lb./day — 28 days — 1 cwt

Acres

0.02

0.25

end June-end September

Concentrates:

3.4 lb./day — 3 cwt barley @ £50/ton

7.50

Grazing:

3/acre or silage foggage (a)

—

1st Winter:

Concentrates:

beginning October-end December

4 lb./day — 90 days —

3.25 cwt (14% C.P.) @ £60/ton

9.75

end December-mid April

5 lb./day — 105 days —

4.75 cwt barley @ £50/ton

11.90

Silage:

30-45 lb./day — 195 days — 3.25 tons

0.44 (b)

7.40

2nd Summer:

Grazing:

0.60

7.10

2nd Winter:

| | | |
|-------------------------------------|-------|------------|
| Concentrates: | | |
| 5-6 lb./day — 180 days— | Acres | £ |
| 9 cwt barley @ £50/ton | | 22.50 |
| Silage: | | |
| 60-80 lb./day — 180 days — 5.5 tons | 0.55 | 9.20 |
| Miscellaneous, including vet. | | 2.50 |
| | <hr/> | <hr/> |
| | 1.61 | 83.00 |
| | <hr/> | <hr/> |
| Gross margin per head | | £84 |
| Gross margin per acre | | £52 |
| Less interest (See page 69) | | £12 |
| | | <hr/> |
| NET MARGIN PER ACRE | | £40 |
| | | <hr/> |

Grassland management

(a) 0.33 acres—cut once for silage, foggage providing summer grazing from the end of June.

0.11 acres—cut twice for silage, foggage available for grazing in August-September.

(b) 0.44 acres.

0.55 acres cut twice provides silage for the second winter and the foggage is grazed by the bullocks until the end of October. (In some situations there may be some surplus foggage.)

(1) Effect of variation in CONCENTRATE PRICE

Each £5 increase or decrease in the concentrate price will alter the net margin by approximately £3 per acre.

(2) Effect of variation in BUYING AND SELLING PRICE

The following table shows the net margins per acre for different buying and selling prices.

| | | Buying price per head (£) | | | |
|---------------|----|---------------------------|----|----|-----|
| | | 70 | 80 | 90 | 100 |
| | | Net margin per acre (£) | | | |
| Selling price | 18 | 22 | 14 | 7 | 0 |
| per cwt (£) | 20 | 36 | 28 | 21 | 13 |
| | 22 | 50 | 43 | 35 | 28 |
| | 24 | 64 | 56 | 49 | 42 |

(3) Effect of variation in LIVEWEIGHT GAIN

| | | Liveweight gain/day: | | | | Total L.W.G. | Net margin: | |
|------------|------------|----------------------|------------|--|-------|--------------|-------------|--|
| 1st Summer | 1st Winter | 2nd Summer | 2nd Winter | | /head | | /acre | |
| lb. | lb. | lb. | lb. | | cwt | £ | £ | |
| 1.4 | 1.5 | 1.7 | 1.8 | | 9.5 | 64 | 40 | |
| 1.5 | 1.5 | 1.9 | 1.9 | | 10.0 | 74 | 46 | |

(Assuming a selling price of £20 per cwt)

(4) Effect of variation in GRAZING DENSITY

In many instances it may be possible to increase the stocking rate during the grazing period by using a paddock grazing system, with additional fertiliser applications,

| Grazing density: | | Total forage acres/head | Net margin: | |
|------------------|-----------------|-------------------------|-------------|-------|
| 1st year | 2nd year | | /head | /acre |
| animals/acre | | acres | £ | £ |
| 3 | 1 $\frac{2}{3}$ | 1.61 | 64 | 40 |
| 4 | 2 $\frac{1}{2}$ | 1.41 | 64 | 45 |
| 5 | 3 | 1.34 | 65 | 49 |
| 6 | 3 $\frac{1}{2}$ | 1.30 | 66 | 51 |

TARGET

The significant livestock husbandry factors in this system are **LIVEWEIGHT GAIN** and **STOCKING RATE**.

| Liveweight gain/day: | | | | Grazing density | Net margin: | |
|----------------------|---------------|---------------|---------------|--------------------|-------------|-------|
| 1st Summer | 1st Winter | 2nd Summer | 2nd Winter | | /head | /acre |
| 1.5 lb. | 1.5 lb. | 1.9 lb. | 1.9 lb. | 6/acre | £76 | £58 |

This target relates to assumed yields of forage (page 5) and the increase in net margin per acre of £18 is a reflection of the increased liveweight gain.

SUMMARY OF FINANCIAL RESULTS

Net margin of £40 per acre

To obtain a net margin of £40 per acre for each of these systems requires a range of gross margins from £51 to £64 per acre.

If new buildings are required the net margin of £40 per acre is substantially reduced depending on the relative demand for buildings. The net margin (new buildings) range from £8 to £30 per acre. The annual charges for new buildings are discussed in detail on page 70.

Target performance

The higher net margin reflects above average husbandry performance, namely liveweight gain and grassland management.

Factors excluded from target data

(1) Marketing

The main causes of variation in buying and selling prices in many cases are related to factors beyond the farmer's control.

(2) Forage crop yields

Above average yields have not been included in the target figures. Variation in forage crop yields has a considerable effect on profitability but, under good management, variation in yield is largely a reflection of factors beyond the farmer's control, such as climate and soil.

If favourable marketing conditions are combined with abnormally high yields of forage crops and first class husbandry performance, it is possible to produce very high "target figures" which would be irrelevant for comparative purposes.

The effect of high forage crop yields has been demonstrated in the sections on winter fattening where winter forage is relatively more important than in systems which also utilise summer grazing.

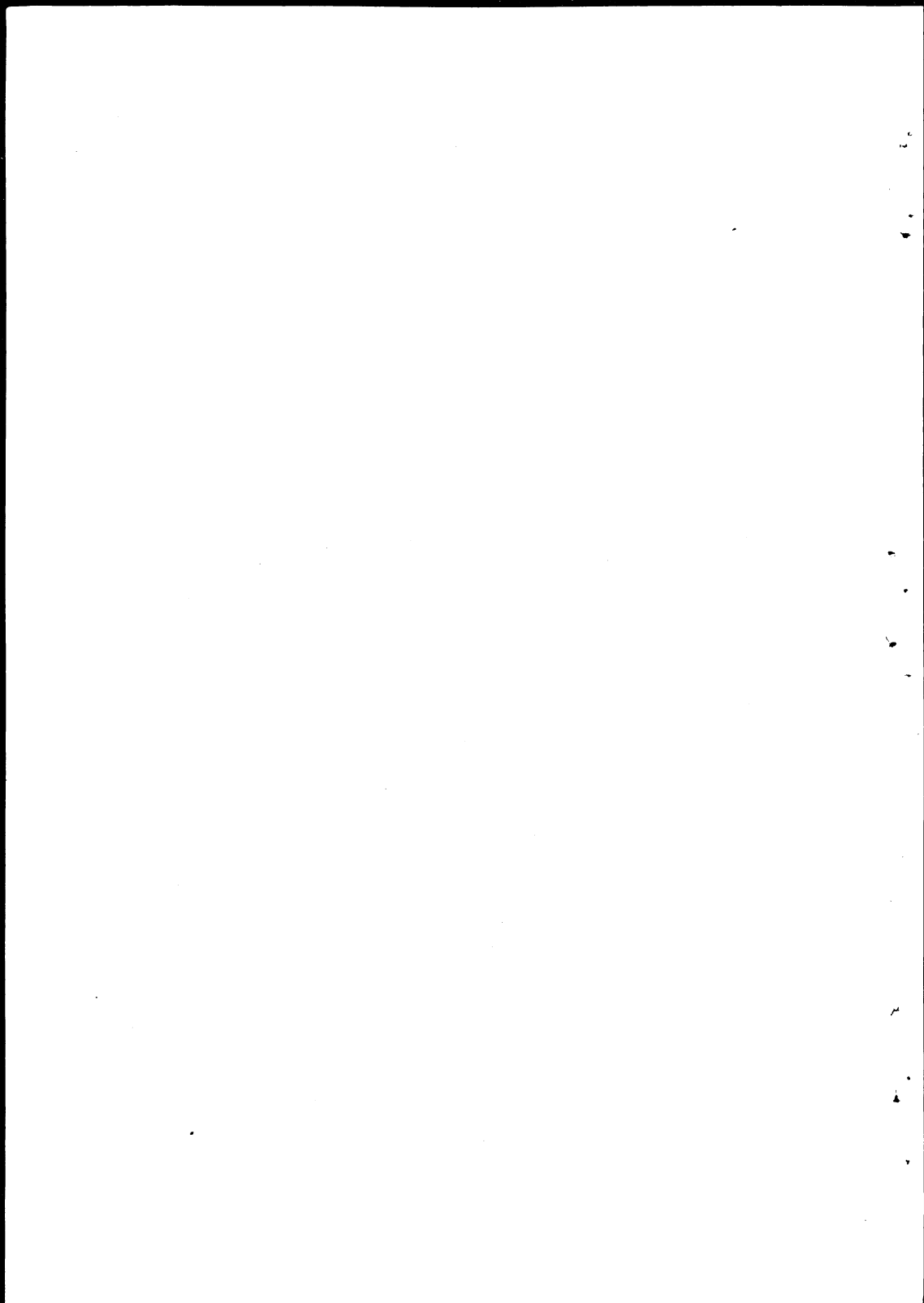
NET MARGIN OF £40 PER ACRE

| System | Gross margin /acre | Acres /head | Annual interest on working capital/acre | Net margin/acre: existing buildings | Annual interest + depn. on new buildings | Net margin/acre: new buildings |
|--|--------------------|-------------|---|-------------------------------------|--|--------------------------------|
| | £ | | £ | £ | £ | £ |
| (1) Winter finishing suckled calves | 58 | 0.34 | 18 | 40 | 32 | 8 |
| Finishing 9 cwt stores: | | | | | | |
| (2) –180 days | 62 | 0.45 | 22 | 40 | 30 | 10 |
| (3) –90 days (2 batches) | 64 | 0.42 | 24 | 40 | 32 | 8 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 52 | 0.85 | 12 | 40 | 11 | 29 |
| (5) Spring born suckled calves finished from courts at 2 years of age | 54 | 1.15 | 14 | 40 | 20 | 20 |
| 18 month Friesians: | | | | | | |
| (6) –autumn born | 53 | 1.09 | 13 | 40 | 18 | 22 |
| (7) –winter born | 62 | 0.59 | 22 | 40 | 30 | 10 |
| (8) 18 month Hereford x Friesians – spring born | 52 | 1.06 | 12 | 40 | 10 | 30 |
| 2 year Friesians: | | | | | | |
| (9) –winter born | 51 | 1.76 | 11 | 40 | 14 | 26 |
| (10) –spring born | 52 | 1.61 | 12 | 40 | 15 | 25 |

TARGET PERFORMANCE

| System | Gross margin /acre | Acres /head | Annual interest on working capital/acre | Net margin/acre: existing buildings | Annual interest + depn. on new buildings | Net margin/acre: new buildings |
|--|-----------------------|----------------|--|--|--|-----------------------------------|
| | £ | | £ | £ | £ | £ |
| (1) Winter finishing suckled calves | 100 | 0.34 | 18 | 82 | 32 | 50 |
| Finishing 9 cwt stores: | | | | | | |
| (2) – 180 days | 75 | 0.45 | 22 | 53 | 30 | 23 |
| (3) – 90 days (2 batches) | 76 | 0.42 | 24 | 52 | 32 | 43 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 90 | 0.58 | 18 | 72 | 16 | 56 |
| (5) Spring born suckled calves finished from courts at 2 years of age | 85 | 0.88 | 18 | 67 | 26 | 41 |
| 18 month Friesians: | | | | | | |
| (6) – autumn born | 78 | 0.84 | 17 | 61 | 24 | 37 |
| (7) – winter born | 103 | 0.43 | 30 | 73 | 41 | 32 |
| (8) 18 month Hereford x Friesians – spring born | 85 | 0.74 | 18 | 67 | 15 | 52 |
| 2 year Friesians: | | | | | | |
| (9) – winter born | 90 | 1.19 | 16 | 74 | 20 | 54 |
| (10) – spring born | 70 | 1.30 | 14 | 56 | 19 | 37 |

PLANNING AND RESOURCE USE



RELATIONSHIP OF COURT ACCOMMODATION TO LAND USE

The following table shows the building requirements for the various systems and their relationships to land use.

| System | Court area /head (sq ft) | No. of cattle /1000 sq ft | Forage acreage /head | Court area /acre (sq ft) | Forage acreage occupied/ 1000 sq ft court space |
|--|--------------------------------|------------------------------------|----------------------------|-----------------------------------|--|
| (1) Winter finishing of suckled calves | 40 | 25 | 0.34 | 118 | 8.5 |
| (2) Finishing 9 cwt stores: —180 days | 50 | 20 | 0.45 | 111 | 9.0 |
| (3) —90 days (batches) | 50 | 20 | 0.42 | 119 | 8.4 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 35 | 29 | 0.85 | 41 | 24.6 |
| (5) Spring born suckled * calves wintered, summered and finished from courts at 2 years of age | 85 | 12 | 1.15 | 74 | 13.5 |
| (6) 18 month Friesians: * —autumn born | 75 | 13 | 1.09 | 69 | 14.0 |
| (7) —winter born | 65 | 15 | 0.59 | 110 | 8.9 |
| (8) 18 month Hereford x Friesians —spring born | 40 | 25 | 1.06 | 38 | 26.5 |
| (9) 2 year Friesians * —winter born | 90 | 11 | 1.76 | 51 | 19.5 |
| (10) —spring born | 90 | 11 | 1.61 | 56 | 17.9 |

* In practice anyone operating these systems will normally have a continuous cycle of production and will have to winter cattle under one year old and cattle over one year old at the same time. For example 2 year Friesians (spring born):

- (1) young calves purchased 12 weeks of age in May will utilise accommodation vacated by older cattle;
- (2) cattle under one year old in the first winter will occupy 40 square feet per head of court accommodation;
- (3) cattle over one year old in the second winter will require 50 square feet per head.

Total requirements for the complete system would therefore be 90 sq. ft. per head.

The relationships of court accommodation to forage acres is critical in deciding the choice of system. The systems can be grouped as follows:—

Systems with heavy demands on court accommodation in relation to forage acres

- | | |
|---|---|
| (1) Winter finishing suckled calves |] 110-119 square feet court accommodation per acre. |
| (2) Finishing 9 cwt stores — 180 days | |
| (3) Finishing 9 cwt stores — 90 days (2 lots) | |
| (7) 18 month Friesians — winter born | |

Systems with less demand on court accommodation in relation to forage acres

- | | |
|---|---|
| (5) Spring born suckled calves wintered, summered and finished from courts at 2 years of age |] 51-74 square feet court accommodation per acre. |
| (6) 18 month Friesians — autumn born | |
| (9) 2 year Friesians — winter born | |
| (10) 2 year Friesians — spring born | |

Systems with least demand on court accommodation in relation to forage acres

- | | |
|---|---|
| (4) Spring born suckled calves wintered and finished off grass |] 38-41 square feet court accommodation per acre. |
| (8) 18 month Hereford x Friesians — spring born | |

CAPITAL

WORKING CAPITAL

The amount of capital required by each system has been estimated from the variable cost data shown in each section, together with the purchase price of cattle, and an allowance for the receipt of calf subsidy where applicable. The forage variable costs have not been included in the assessment of capital because of the problem of timing.

The **peak capital** represents the maximum capital requirements up to the point of sale, taking the beef system in isolation from the rest of the farm business. The figure can be used for comparing the variation in demand for peak capital of the various enterprises.

The **average capital** is provided so that an interest charge can be readily calculated assuming that all capital is borrowed.

When an enterprise is operational for less than a year the interest charge is related to the **time period** and is the **actual interest paid in any one financial year**.

e.g. for **Winter finishing suckled calves**:

Working capital (£ per head on a monthly basis)

| Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------|------|------|------|------|------|------|-----|------|------|------|-------|
| | | | | | | | | | | | |
| | 129 | 133 | 137 | 142 | 147 | | | | | | |

└ Peak capital £147 per head
└ Average capital £135 per head
└ Interest charge £135 @ 10% for
 5½ months

= £ 6 per head

When an enterprise is operational for more than a year the capital requirements for the complete production period are totalled on a calendar month basis and the interest calculated for 12 months.

e.g. for 18 month Friesians – autumn born:

Although the 18 month beef production cycle runs for more than a year, the system necessitates the purchase of calves and sale of bullocks annually when the system is operated on a regular basis. The interest charge of the system therefore applies to a 12 month period.

Working capital (£ per head on a monthly basis)

Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.

Calf during 1st winter

Stirk at grass

75 80 86 92 98 103 103 95* 95 95 98

Bullock in 2nd winter

102 106 112 117 122 127

monthly
totals =

102 181 192 193 214 225 103 103 95 95 95 98

Peak capital £225 per head
 Average capital £141 per head
 Interest charge £141 @ 10% for
 12 months

= £14 per head

* Calf subsidy received.

WORKING CAPITAL REQUIREMENTS

| System | Peak capital requirements: | | Average capital: | | Interest charge @ 10% per annum: | |
|--|----------------------------|-------|------------------|-------|----------------------------------|-------|
| | /head | /acre | /head | /acre | /head | /acre |
| | £ | £ | £ | £ | £ | £ |
| (1) Winter finishing suckled calves | 147 | 432 | 135 | 397 | 6 | 18 |
| (2) Finishing 9 cwt stores: -180 days | 204 | 453 | 191 | 424 | 10 | 22 |
| (3) -90 days (2 batches) | 198 | 471 | 189 | 450 | 10 * | 24 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 110 | 130 | 104 | 122 | 10 | 12 |
| (5) Spring born suckled calves wintered, summered and finished from courts at 2 years of age | 211 | 184 | 158 | 138 | 16 | 14 |
| (6) 18 month Friesians: -autumn born | 225 | 206 | 141 | 129 | 14 | 13 |
| (7) -winter born | 238 | 403 | 130 | 220 | 13 | 22 |
| (8) 18 month Hereford x Friesians -spring born | 213 | 201 | 132 | 125 | 13 | 12 |
| (9) 2 year Friesians: -winter born | 212 | 121 | 187 | 106 | 19 | 11 |
| (10) -spring born | 217 | 138 | 186 | 118 | 19 | 12 |

* 2 batches at £5 per head

CAPITAL REQUIREMENTS FOR NEW BUILDINGS

The following table shows the relative requirements of court area, forage acreage, capital cost and annual charges associated with new buildings.

| System | Capital cost of new building: ¹ | | Annual charges per acre: interest ² depreciation ³ total | | |
|--|--|-------|---|----|----|
| | /head | /acre | @ 10% | | |
| | £ | £ | £ | £ | £ |
| (1) Winter finishing of suckled calves | 72 | 212 | 11 | 21 | 32 |
| (2) Finishing 9 cwt stores: -180 days | 90 | 200 | 10 | 20 | 30 |
| (3) -90 days (2 batches) | 90 | 214 | 11 | 21 | 32 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 63 | 74 | 4 | 7 | 11 |
| (5) Spring born suckled calves wintered, summered and finished from courts at 2 years of age | 153 | 133 | 7 | 13 | 20 |
| (6) 18 month Friesians: -autumn born | 135 | 124 | 6 | 12 | 18 |
| (7) -winter born | 117 | 198 | 10 | 20 | 30 |
| (8) 18 month Hereford x Friesians -spring born | 72 | 68 | 3 | 7 | 10 |
| (9) 2 year Friesians: -winter born | 162 | 92 | 5 | 9 | 14 |
| (10) -spring born | 162 | 100 | 5 | 10 | 15 |

- (1) Net cost after deducting 20% grant.
- (2) Interest charged on average capital invested.
- (3) Buildings depreciated over 10 years.

THE USE OF THE DATA IN PLANNING

The data used must relate to a given situation and reflect the level of financial performance likely to be achieved. This should be achieved from the potential of the land, husbandry skills and aptitudes of the farmer in relation to the resources available.

This is illustrated in the following example:—

A farmer has 6,000 square feet of cattle accommodation and wishes to select a beef enterprise from several systems that he would be prepared to operate. The first step is to review the potential financial performances. The results are assumed to be as follows:—

| System | Net margin/acre |
|---|-----------------|
| | £ |
| (1) Winter finishing suckled calves | 35 |
| (5) Spring born suckled calves wintered, summered and finished from courts at 2 years old | 30 |
| (6) 18 month Friesians — autumn born | 30 |
| (10) 2 year Friesians — spring born | 30 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 25 |

The farmer wishes to devote 50 acres to his beef enterprise. Further appraisal of these systems is shown in Table 1.

TABLE 1: 50 acres and 6000 sq. ft. court accommodation

| System | No. of cattle | Court space sq ft | Net margin /acre | Total net margin | Peak capital |
|--|---------------|-------------------|------------------|------------------|--------------|
| | | | £ | £ | £ |
| (1) Winter finishing of suckled calves | 147 | 5880 | 35 | 1750 | 21,600 |
| (6) 18 month Friesians —autumn born | 46 | 3440 * | 30 | 1500 | 10,300 |
| (5) Suckled calves wintered, summered and finished from courts at 2 years of age | 43 | 3655 * | 30 | 1500 | 9,200 |
| (10) 2 year Friesians —spring born | 31 | 2800 * | 30 | 1500 | 6,900 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 59 | 2350 * | 25 | 1250 | 6,500 |

* These systems have considerable surplus court space which may be utilised to make a further contribution to farm profit.

The winter fattening suckled calf system gives the highest total net margin and would make the greatest contribution to farm profit. The court space is virtually completely used by this system whereas with the others there is considerable surplus accommodation. This could also contribute to farm profit by using it for other purposes such as grain or potato storage or a non land-using livestock enterprise. The choice in this situation is very straightforward as no additional accommodation has to be provided.

Tables 2 and 3 demonstrate how the choice of an enterprise can change. If the land to be devoted to a beef enterprise is increased from 50 acres to 100 and 150 acres respectively, the results will be different.

TABLE 2: 100 acres and 6000 square feet of court accommodation

| System | Number of cattle | Acres | Court space: | | Net margins: | | Total net margins | Peak capital (livestock only) |
|--|------------------|-------|-----------------|------------|-----------------|------------|-------------------|-------------------------------|
| | | | existing bldgs. | new bldgs. | existing bldgs. | new bldgs. | | |
| | | | sq. ft. | sq. ft. | £ | £ | £ | £ |
| (10) 2 year Friesians —spring born | 62 | 100 | 5600* | — | 3000 | — | 3000 | 13,800 |
| (6) 8 month Friesian —autumn born | 80 | 87 | 6000 | — | 2610 | — | 2766 | 20,600 |
| | 12 | 13 | — | 900 | — | 156 | | |
| (5) Spring born suckled calves wintered, summered and finished from courts at 2 years of age | 71 | 82 | 6000 | — | 2460 | — | 2640 | 18,400 |
| | 16 | 18 | — | 1360 | — | 180 | | |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 118 | 100 | 4100 * | — | 2500 | — | 2500 | 13,000 |
| (1) Winter finishing of suckled calves | 150 | 51 | 6000 | — | 1785 | — | 1932 | 43,200 |
| | 144 | 49 | — | 5750 | — | 147 | | |

* These systems have surplus court space which may be utilised to make a further contribution to farm profit.

TABLE 3: 150 acres and 6000 square feet of court accommodation

| System | Number of cattle | Acres | Court space: | | Net margin: | | Total net margin | Peak capital (livestock only) |
|--|------------------|-----------|----------------|------------|----------------|-----------|------------------|-------------------------------|
| | | | existing bldgs | new bldgs | existing bldgs | new bldgs | | |
| | | | sq ft | sq ft | £ | £ | £ | £ |
| (10) 2 year Friesians —spring born | 67 26 | 108 42 | 6000 — | — 2340 | 3240 — | — 630 | 3870 | 20,700 |
| (4) Spring born suckled calves wintered and finished off grass at 18 months of age | 176 | 150 | 6000 | — | 3750 | — | 3750 | 19,500 |
| (6) 18 month Friesians —autumn born | 80 58 | 87 63 | 6000 — | — 4350 | 2610 — | — 756 | 3366 | 30,900 |
| (5) Spring born suckled calves wintered, summered and finished from courts at 2 years of age | 71 59 | 82 68 | 6000 — | — 5010 | 2460 — | — 680 | 3140 | 27,600 |
| (1) Winter finishing suckled calves | 150 291 | 51 99 | 6000 — | — 11640 | 1785 — | — 297 | 2082 | 64,800 |

Table 2 shows a significant alteration in the relative contribution to the profit from the various systems and the winter finishing of suckled calves now gives the lowest return, with the 2 year Friesians – spring born system being the most attractive. This is a reflection of the reduction in net margin per acre where new buildings have to be provided and some enterprises require more buildings per acre than others; their net margins being more severely reduced as a result.

In Table 3, where 150 acres are being utilised by a beef enterprise, further change in the relative order of financial performance is shown. The two year Friesians – spring born system still remains the best prospect but the enterprise which was the least attractive in Table 1, namely spring born suckled calves finished off grass, is a very close second. This enterprise, which had the lowest net margin per acre, is also the least demanding on buildings in relation to land use and no new buildings had to be provided.

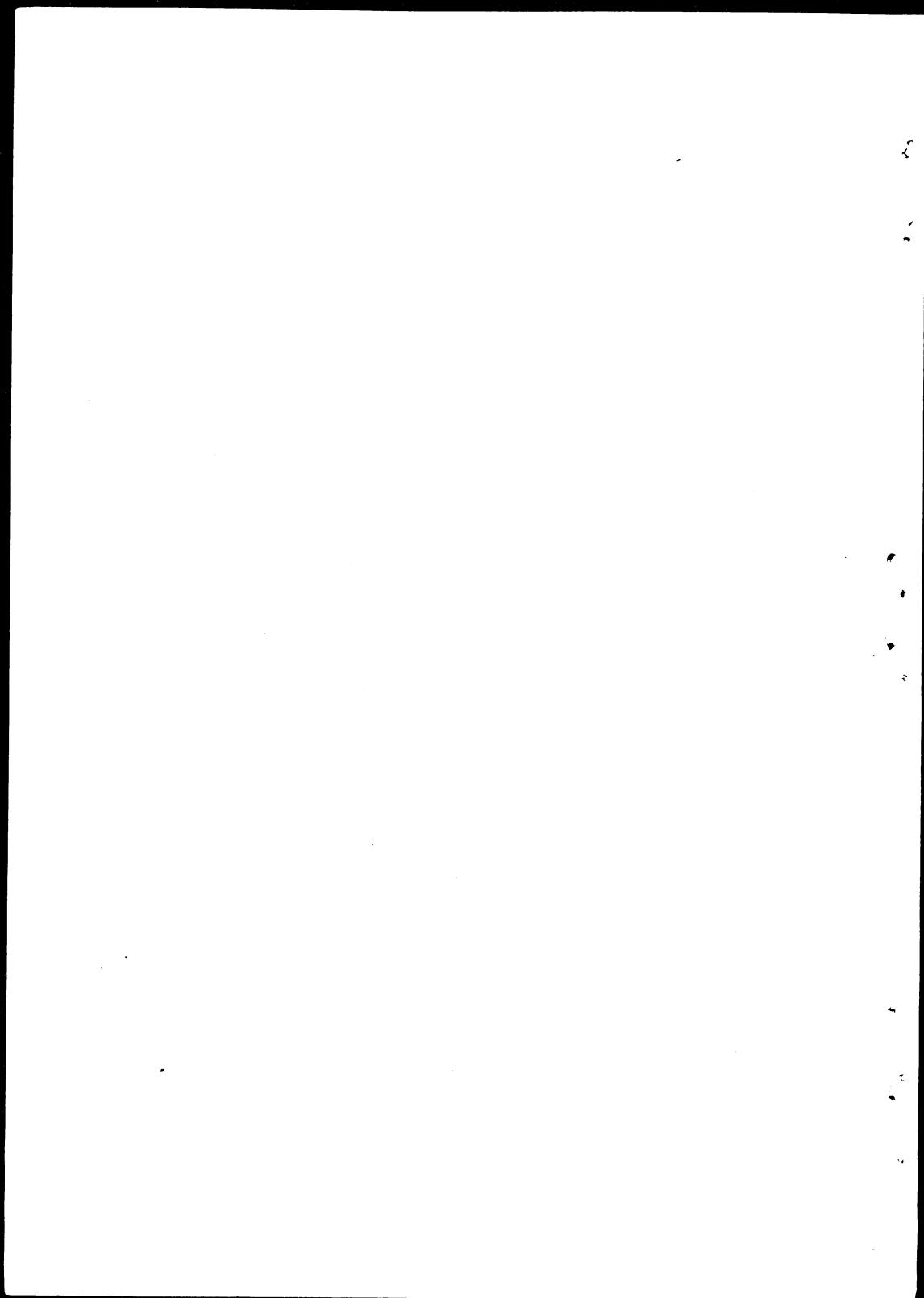
These three tables demonstrate that choice of enterprises cannot always be simply decided on a net margin per acre basis alone, but the effect of the cost of provision of new buildings must be considered where this becomes necessary. This is frequently overlooked in farm planning.

Peak capital

The figures for peak capital in each table gives an indication of the wide range of peak demand for capital in livestock and feed, but gives no indication of the duration of this demand. In any business the peak capital can only be determined by constructing a cash flow statement for the whole business which allows for the demands and contributions of other enterprises.

It is essential to examine alternative systems which have less demand on court space even where the gross margin per acre is relatively low, before expanding an existing system which requires additional building accommodation.

**SUPPLEMENTARY
TECHNICAL DATA**



HEALTH

Transit fever

This occurs frequently in bought-in suckled calves, as a result of the stress of transit and marketing.

It primarily manifests itself as a respiratory disorder, with raised temperatures, nasal discharge and pneumonia.

Badly ventilated, draughty accommodation, particularly if the animals are overcrowded, will considerably increase the incidence.

Treatment and control measures are best carried out by a veterinary surgeon.

Pneumonia

This is a particular problem in young calves. Housing should be adequately ventilated, draught-free, without excessive fluctuations in temperature and overcrowding should be avoided, otherwise the animals will be predisposed to the disease. Prevention, including the possible use of vaccines, and treatment of any outbreaks, should be discussed with your veterinary surgeon.

Stomach and intestinal worms

These cause parasitic gastro-enteritis. All cattle can be effected by worms but the worst outbreaks are generally with younger animals intensively stocked at grass, when severe scouring can occur. Prevention consists of strategic dosing with anthelmintics before an outbreak is anticipated. These outbreaks occur most frequently in July. If the system can be planned to allow removal of animals after dosing on to foggage this would be advantageous. For the selection of the most effective anthelmintic and the correct time for dosing, consult your veterinary surgeon. Cattle bought-in during the autumn can be carrying heavy worm burdens and, if this is suspected, advice should be taken and dosing carried out.

Lungworm — "Husk"

This can be a serious problem in some areas and most commonly occurs in younger animals from wetter districts, particularly if the grass has been grazed by cattle in previous years.

In areas where this problem occurs regularly an oral vaccine should be used as a preventative measure. This gives a good degree of protection. Two doses, one month apart, should be given at least 14 days before going to grass.

Strategic dosing with anthelmintics which are effective against the larval stage can be used in areas with moderate incidence. Removal of stock to clean grass after dosing is beneficial.

Where outbreaks of coughing occur in groups of animals, veterinary advice should be sought immediately.

If the larval intake is high, and adult lungworms are allowed to develop, the subsequent lung damage is often permanent, leading to unthriftiness and possibly death.

This problem is most likely to occur with the 18-month beef systems, among the young calves on the grass.

Bought-in cattle, particularly smaller suckled calves, may be affected. If suspected, advice should be sought and they should be dosed before going into the courts.

Lice

These parasites cause much irritation in affected cattle. Heavy infestations can cause anaemia, and if animals are already anaemic due to some other factor such as cobalt or copper deficiency, the anaemia may be made more severe.

This is a much commoner problem than is generally realised and is a frequent cause of animals failing to thrive. All animals should be examined before housing and treated if necessary.

Liver fluke

Cattle coming from certain high rainfall areas may be affected with liver fluke. If suspected, a faeces sample should be examined for the presence of fluke eggs and, if confirmed, dosing should be carried out.

In known fluke districts, wet areas should be drained or fenced off, and the area treated with molluscicides to kill the host snails. Stock should also be dosed as necessary.

In practice, fluke are frequently found in the smaller bought-in suckled calves from wetter areas and, if suspected, veterinary advice should be taken and treatment carried out.

Scouring in calves

For young calves, particularly while on liquid feeding, this can be a serious problem. It may be simply a nutritional scour or may be caused by an enteric infection. Infections of this type require veterinary advice and identification of the casual organism and its susceptibility to antibiotics is essential to provide proper curative measures.

PREVENTATIVE TREATMENT in a livestock enterprise is well worth while and veterinary advice on this aspect should be sought.

ARABLE BY-PRODUCTS

Arable by-products can be fed to most classes of cattle except young calves and depending on price, can provide useful substitutes for forage crops and in the case of the larger type of finishing animal, barley. This is particularly true of farms with a large potato acreage with a considerable tonnage of brock which in some years has no saleable value and could, in fact, be a liability as it must be disposed of somehow. On farms such as this, it may be the key factor in the selection of a finishing enterprise.

Substitution rates on a starch equivalent basis

| | | | | |
|----------|---|--------|---|--------------|
| Potatoes | — | 4.0 lb | = | 10 lb swedes |
| | | | = | 1 lb barley |
| Carrots | — | 8.0 lb | = | 10 lb swedes |
| Draff | — | 4.5 lb | = | 10 lb swedes |
| | | 4.5 lb | = | 1 lb barley |

Draff is a high protein food in comparison with swedes or barley and this must be taken into account in the assessment of a complete ration.

STRAW REQUIREMENTS — BEDDING

| | | |
|--------------------------|---|-----------------|
| Wintering suckled calves | — | 10 cwt per head |
| 9 cwt stores — 180 days | — | 15 cwt per head |
| 9 cwt stores — 90 days | — | 7 cwt per head |
| 18-month beef systems | — | 15 cwt per head |

These figures are only a guide, as the actual amount for bedding depends on the type of accommodation and the quality of straw.

FEED ANALYSES

| Feed | Dry matter | Starch equivalent | Digestible crude protein |
|-------------------------|------------|-------------------|--------------------------|
| Hay | 80 | 30 | 0.3 |
| Silage | 24 | 10 | 1.5 |
| Barley | 84 | 68 | 7.0 |
| Swedes | 10 | 6.5 | 0.9 |
| Straw | 85 | 18 | — |
| Potatoes | 24 | 18 | 1.1 |
| Carrots | 13 | 8.8 | 0.8 |
| Draff (Brewer's grains) | 22 | 15 | 3.5 |

The analyses given above are commonly found, but there is considerable variation, especially with silage.

PADDOCK GRAZING

At least 6 paddocks are necessary to permit a satisfactory rotation.

Manuring

A possible manuring policy could be:— 60 units of nitrogen per acre applied in March and then 60 units of nitrogen in a compound fertilizer after the first grazing. Forty units to 60 units of nitrogen should be applied after each subsequent grazing. The amount of nitrogen applied depends on the district, number and type of stock being carried. Phosphate and potash applications should be related to the soil requirements.

Fencing

Plain or barb high-tensile wire can be used with posts 20 feet apart. If necessary, one strand of wire can be electrified.

Management

Adequate grass should be available at all times. Stock respond to the availability of fresh grass in a new paddock, but after a few days, when the grass becomes depleted, liveweight gain per day begins to fall. Cattle should not be made to remain on paddocks until they are completely bared, otherwise animal performance will suffer and this is particularly important when animals are being finished. In practice it is better to move cattle a day earlier rather than a day later. If, because of drought, the paddock acreage becomes insufficient to carry the stock, it should be supplemented from grass set aside for cutting.

Good management of this system requires considerable skill and judgement.

