



**Better Returns  
Programme**

# 2: Target Ram Selection for Better Returns

**Select the right ram • Care for rams • Increase your profits**





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**BRP is grateful to all those who have commented  
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**Better Returns  
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**ENGLISH BEEF &  
LAMB EXECUTIVE**

The Better Returns Programme has been set up to help England's sheep industry achieve better financial returns. Already, we have produced a booklet - *Target lamb selection for better returns* - that addresses how to select lambs to match market needs.

A key issue that affects the value of lambs sent to market is the selection and use of terminal sires. That is what this book addresses.

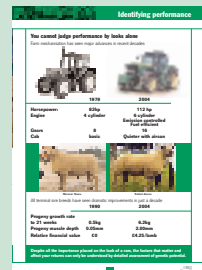
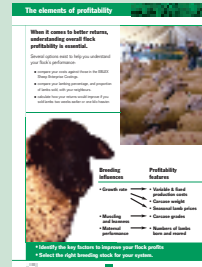
Over recent decades, a great deal of research has gone into understanding how the terminal sire can influence lamb quality. It is very clear that choosing rams demands much more than a visual assessment. This book takes you through the factors that we can currently assess to help you make your choices. And, given the investment that rams represent, we also provide guidance on how to look after rams once you have bought them.



David Raine  
Chairman  
Better Returns  
Programme  
Steering Group

## Contents

- 2 The elements of profitability
- 3 Improving performance
- 4 How breeding improves profitability
- 5 Breeding indexes
- 6 The growth factors
- 7 Carcase quality
- 8 Maternal performance
- 10 Maximising performance
- 12 Contacts
- 13 The Better Returns Checklist



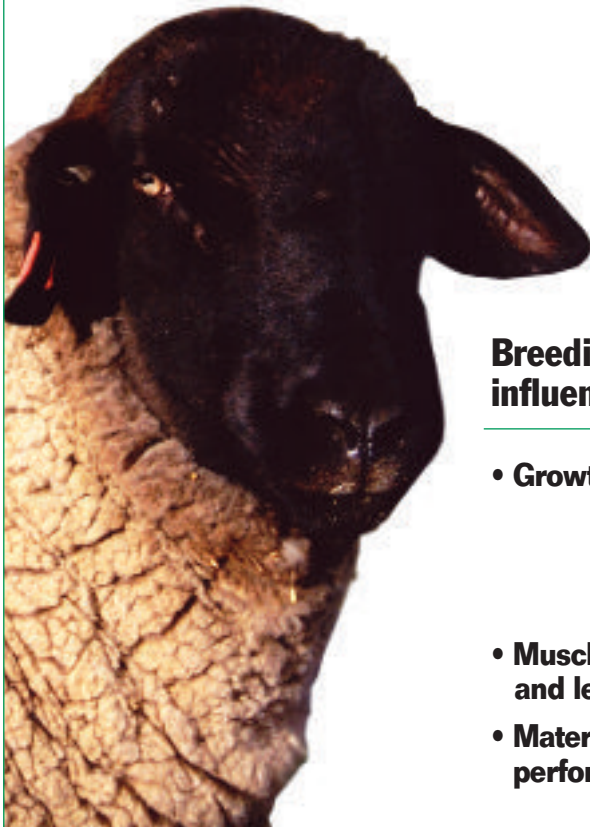
**Choose the right stock ram, care for it correctly  
- it can be worth an extra £1,000 during its lifetime.**



## When it comes to better returns, understanding overall flock profitability is essential.

Several options exist to help you understand your flock's performance:

- compare your costs against those in the EBLEX Sheep Enterprise Costings.
- compare your lambing percentage, and proportion of lambs sold, with your neighbours.
- calculate how your returns would improve if you sold lambs two weeks earlier or one kilo heavier.



### Breeding influences

- Growth rate
- Muscling and leanness
- Maternal performance

### Profitability features

- Variable & fixed production costs
- Carcase weight
- Seasonal lamb prices
- Carcase grades
- Numbers of lambs born and reared



- Identify the key factors to improve your flock profits
- Select the right breeding stock for your system.

## Farm mechanisation has seen major advances in recent decades



**1979**



**2004**

**Horsepower  
Engine**

82hp  
4 cylinder

112 hp  
6 cylinder  
Emission controlled  
Fuel efficient

**Gears  
Cab**

8  
Basic

16  
Quieter with aircon

## Terminal sire breeds have seen dramatic improvements in just a decade



Reference sire 1990



Reference sire 2004

**1990**

**2004**

**Progeny growth rate  
to 20/21 weeks**

+0.5kg

+6.2kg

**Progeny muscle depth**

+0.05mm

+2.00mm

**Relative financial value**

£0

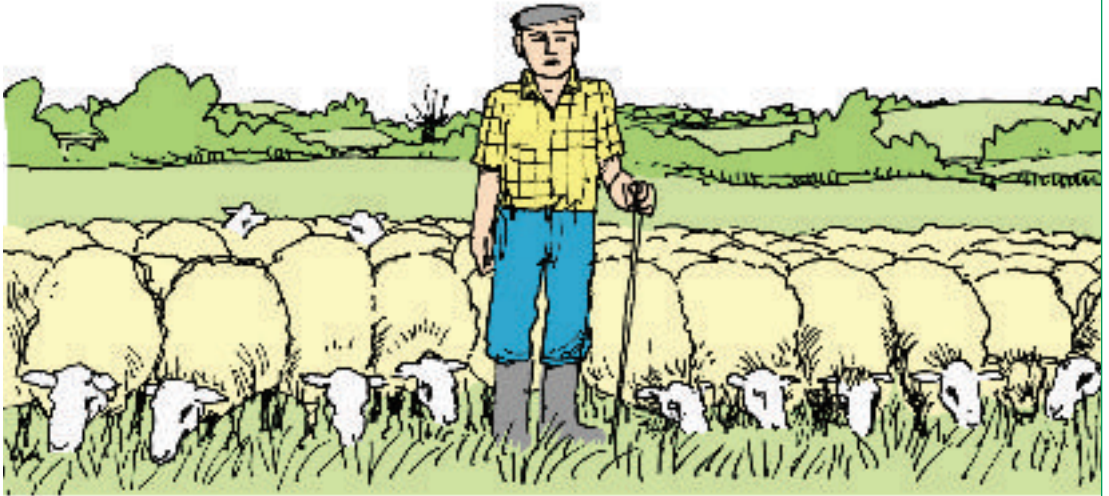
£4.25/lamb

Comparison of Estimated Breeding Values adjusted to 2004 levels.

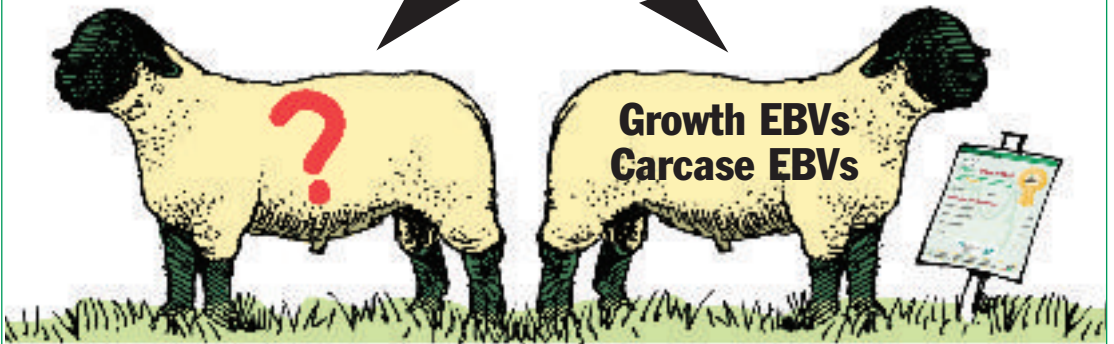
**Despite all the importance placed on the look of a ram, the factors that matter and affect your returns can only be understood by detailed assessment of genetic potential.**

# How breeding improves profitability

Husbandry, nutrition and management all affect profitability. However, the maximum potential of your lamb crop will be limited by the genetic potential of your ewes and - crucially - your ram.



**gamble**      **?**      **informed decision**



**expect to produce**  
**£££**

**expect to produce**  
**£££**

Selecting a ram need not be a lottery. Expertise now exists to measure a number of economically important traits. These predict the potential superiority - or inferiority - of stock. These measurements are called Estimated Breeding Values (EBVs) which can be combined to create a breeding index.

**You cannot judge performance by looks alone.**



## Maternal index

## Terminal sire index

EBVs

EBVs

**Eight week weight**

**Litter size**

**Maternal ability**

**Eight week weight**

**Scan weight**

**Muscle depth**

**Fat depth**

Indexes are produced by Signet's Sheepbreeder Service.

A total of five different breeding indexes exist. Each one is designed to meet specific breeding objectives:

- Terminal sire index** - helps increase growth and lean carcass weight while minimising any increase in carcass fat.
- Maternal index** - helps improve maternal performance of the lowland ewe.
- Hill index** - helps increase financial performance of the hill ewe.
- Welsh index** - helps improve maternal ability and carcass traits of Welsh hill breeds.
- Longwool index** - helps improve carcass quality, without jeopardising maternal qualities.

**Each index provides a valuable guide.**

**However, you need to understand individual EBVs to optimise your choice of ram for your particular system...**

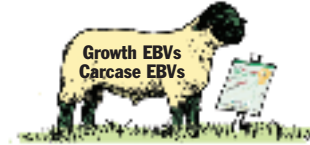




## Why growth matters

### High growth rates can enhance:

- **Size of lambs sold.**  
Higher EBVs for growth means heavier carcasses can be produced at a constant fat class when slaughtered at a constant age.
- **Timing of lamb sales.**  
Faster growth rates enable lamb finishing to be targetted more easily at periods of high market returns.
- **Proportion of lambs sold off grass.**



**Weeks to slaughter**

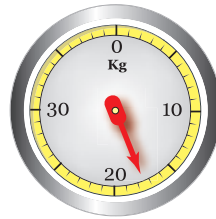
**18 weeks**

**16 weeks**

### High growth rates can reduce:

- **Cost of production.**  
Faster finishing can reduce variable costs, especially feed, labour and veterinary costs.

**Improved growth rates can be worth £3-4/lamb.**



## How growth rate is measured

Lambs are weighed at eight weeks and at scanning. There are two EBVs for growth:

### 8 week weight EBV(kg)

**Estimates breeding potential from birth to 8 weeks.**

#### Example

A ram with an EBV of +3kg is estimated to produce lambs which are 1.5kg heavier at 8 weeks than a ram with an EBV of 0.

### Scan weight EBV(kg)

**Estimates breeding potential for growth from birth to 20/21 weeks old.**

#### Example

A ram with an EBV of +4kg is estimated to produce lambs which are 2kg heavier at 20/21 weeks than a ram with an EBV of 0.

## Remember

The potential for high growth rates:

- is only realised by good management - adequate feed and good flock health.
- will increase the carcase size and reduce time to slaughter.
- is important in all systems including extensive flocks and store lamb production.



## Why quality matters

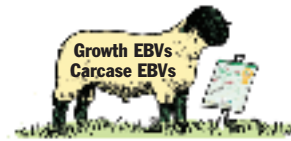
Carcase quality is a key determinant of consumer acceptability - and hence price.

Ensuring carcasses meet market specifications will have a major influence on profit.

## Carcase classification



R3H



U3L



## How it is measured

Ultrasound scans measure muscle and fat depth across the loin as lambs approach 21 weeks of age. These two measurements are used to calculate two EBVs:

Muscle depth EBV(mm)	Fat depth EBV(mm)	
<p><b>A direct assessment of muscle depth across the loin. This is a good predictor of total lean meat yield.</b></p> <p><b>Example</b> Compared to a ram with an EBV of 0mm, a ram with an EBV of +1mm is expected to produce lambs with an extra 0.5mm of eye muscle depth at 20/21 weeks.</p>	<p><b>Negative values indicate a potential to produce either:</b></p> <ul style="list-style-type: none"> <li>- leaner carcasses</li> <li>- heavier carcasses without being over-fat.</li> </ul> <p><b>Example</b> Compared to a ram with an EBV of 0mm, a ram with an EBV of -1mm is expected to produce lambs with a back fat thickness that is 0.5mm leaner at 20/21 weeks.</p>	

## Remember

- Selecting a high muscle depth EBV can enhance carcass conformation.
- Fat depth EBV will influence how quickly lambs can be finished for slaughter.
- Where flocks produce too many overfat lambs, select a negative fat depth EBV.



## Why maternal performance matters

The number of lambs reared and sold is a key influence on flock profitability. While influenced by many management factors, selective breeding can lead to more productive ewes in a flock.

Rams pass on maternal traits to their female progeny. These traits are important in closed flocks and cross-bred ewe production.



## How it is measured

Maternal traits of rams are assessed through recorded female relatives from grand-dams to progeny.

There are two maternal EBVs:

<b>Maternal ability EBV(kg)</b>	<b>Litter size EBV(extra lambs/ewe)</b>
<p><b>Assessed as the maternal component of the 8 week weight. It reflects how milking ability influences lamb growth at this age.</b></p> <p><b>Example</b> A ram with a maternal EBV of +0.5kg is expected to produce ewes with above average maternal characteristics resulting in their lambs being 0.25kg heavier at 8 weeks than lambs from ewes sired by a ram with an EBV of 0kg.</p>	<p><b>Determined from lambing data which records lamb numbers born and reared per ewe.</b></p> <p><b>Example</b> A ram with a litter size EBV of +0.5 lamb/ewe is expected to produce ewes which will have, on average, 0.25 more lambs than ewes from a ram with an EBV of 0 lambs/ewe.</p>

## Remember

- A detailed recording system is vital to identify more productive female lines.
- Where producers breed their own replacement ewes, a ram's breeding potential will deliver benefits for several generations.
- Where most of the lamb crop is destined for slaughter, maternal EBVs must be balanced against growth and carcase quality EBVs.

## Buying recorded rams

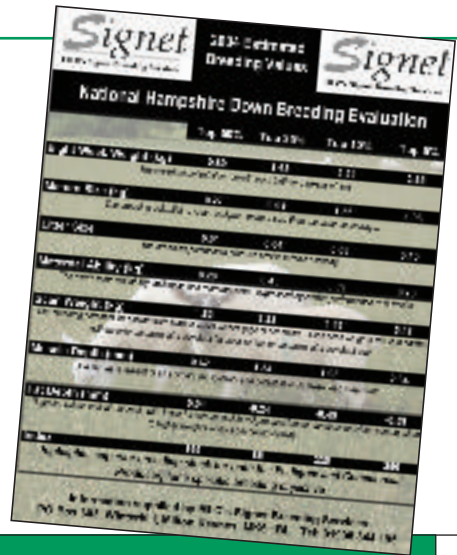
MLC's Signet Breeding Services record the performance of over 600 flocks a year to identify the leading bloodlines amongst 40 different breeds of sheep.

A Breeder's Directory which details recorded flocks in your region is on the website: [www.signetfbc.co.uk](http://www.signetfbc.co.uk)

Signet now publishes a breed benchmark showing the relative performance of recorded animals within the breed. Recorded rams can be bought on farm or at auction.

Additional support for ram buyers:

Tel: 01908 844 195 or e-mail: [signet@mlc.org.uk](mailto:signet@mlc.org.uk)



### On-farm sales

#### Advantages

- ✓ Lower bio-security risk.
- ✓ May be more time to examine performance records and discuss needs.
- ✓ Breeders can explain their breeding and management systems.
- ✓ Purchases can be made any time.

### Auctions

#### Advantages

- ✓ Greater range of recorded rams available.
- ✓ Competitive bidding.
- ✓ Sale cards and published information show if sellers have recorded stock.
- ✓ Opportunity to compare stock from different flocks.

## Remember

- Take a "breed benchmark" to compare EBVs across the breed.
- Speak to vendors about performance data on display.
- Ask for the most recent EBVs and index for the ram you plan to buy.
- Ask where the ram ranks compared to the rest of the recorded population.
- Check if it has been scanned with ultrasound.

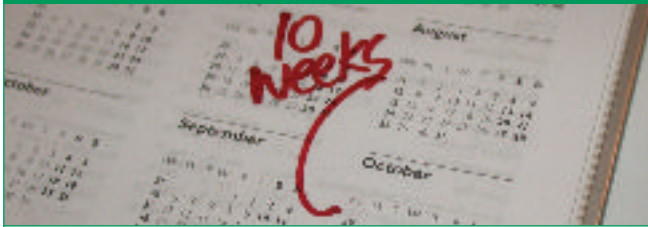
Many breed societies actively encourage breeders to publicise the EBVs of their stock at national pedigree sales. These sales provide commercial buyers with a good opportunity to source recorded rams early in the season, although competition for show winning bloodlines may be high.

Breed societies can provide details of sales in your area.

## Plan ahead to maximise tuppung performance

Semen production takes approximately seven weeks, thus rams' testicles need to be in tip top condition almost two months before tuppung. Early preparation is vital to ensure each ram provides plenty of active, fertile sperm.

### 10 weeks before tuppung:



**a) Assess ram condition - aim for condition score 3.5 as tuppung starts.**

**b) Palpate testicles for:**

- Tone-testicles should be firm and springy, not hard, soft or spongy.



**Rams testicles should be as firm as a clenched bicep**

- Testicles should slide freely within scrotum.
- The epididymis (at the bottom of each testicle) should be very firm and prominent.
- Size - the bigger the testicles, the more sperm produced. Boost testicle size and tone by up to 50% by feeding 170 grams of by-pass protein daily (eg whole lupins at 500 - 700 grams per day for 8 weeks).
- If you have doubts about lumps in testicles, epididymis or spermatic cord, consult your vet.



spermatic cord

epididymis



**c) Conduct a thorough physical examination:**

- Expose prepuce and examine for any ulcers or infection
- Look for lesions on the scrotum
- Trim feet, footbath if required.
- Observe brisket for signs of ulcers or lesions.
- Check teeth and mouth, look more closely if the ram is in poor condition.
- Consider replacing rams over five years old.



**d) Shear rams - helps to reduce heat stress during the summer.**

**e) Vaccinate to boost protection against clostridia and pneumonia.**

**f) Treat for worms and/or external parasites if required.**

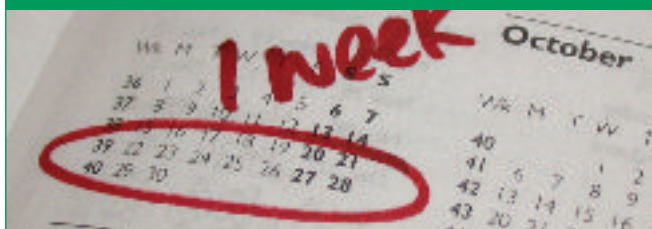
**g) Consider zinc and selenium supplements.**

Research has shown zinc and selenium supplements improve semen quality, even when the status of these elements was considered normal.

**h) Ensure all rams have access to shade during summer months**

**i) Keep rams healthy and stress-free during the 10 weeks prior to tupping.**

**The week before tupping:**



Repeat b - c.

If in doubt your vet can conduct a semen examination to assess fertility.

**By preparing your rams and selecting only the best, you will improve lambing and profitability. Best returns from a ram with high genetic potential can only be realised by paying attention to the animal's health and fitness in the months before tupping.**



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<p><b>MLC</b> PO Box 44, Winterhill House, Snowdon Drive, Winterhill, Milton Keynes MK6 1AX</p> <p><b>Signet Breeding Services</b> Samuel Boon</p> <p><b>Authentication Services</b> John Heal Steve Powdrill</p> <p><b>Economics Services</b> Joanne Knowles</p> <p><b>Meat Technology Unit</b> Mike Owen</p> <p><b>Beef and Sheep Technical Department</b> Duncan Pullar</p>	<p>Tel: 01908 677577</p> <p>Tel: 01908 844195 Fax: 01908 844236</p> <p>Tel: 01908 844134 Tel: 01246 540049</p> <p>Tel: 01908 844268</p> <p>Tel: 01908 844110</p> <p>Tel: 01908 844347</p>	<p>www.mlc.org.uk</p> <p>www.signetfbc.co.uk * samuel_boon@mlc.org.uk</p> <p>www.mlcclassification.org.uk john_heal@mlc.org.uk steve_powdrill@mlc.org.uk</p> <p>www.mlceconomics.org.uk joanne_knowles@mlc.org.uk</p> <p>mike_owen@mlc.org.uk</p> <p>duncan_pullar@mlc.org.uk</p>
<p><b>Defra</b> <b>Department for Environment, Food &amp; Rural Affairs</b> Nobel House, 17 Smith Square, London SW1P 3JR</p>	<p>Tel: 020 7238 6000</p>	<p>www.defra.gov.uk</p>
<p><b>National Sheep Association</b> The Sheep Centre, Malvern, Worcestershire, WR13 6PH</p>	<p>Tel: 01684 892661</p>	<p>www.nationalsheep.org.uk enquiries@nationalsheep.org.uk</p>
<p><b>National Farmers Union</b> Agriculture House, 164 Shaftesbury Avenue, London, WC2H 8HL</p>	<p>Tel: 020 7331 7200</p>	<p>www.nfuonline.org nfu@nfuonline.com</p>
<p>Contacts for breed societies and breeding groups can be obtained from the National Sheep Association and Signet Breeding Services</p>		

# The Better Returns Checklist

Relative Importance ✓✓ Very Important ✓ Important	Scan Weight EBV	Muscle Depth EBV	Fat Depth EBV
<b>Flock profitability would increase* if...</b>	Positive Values = heavier and faster growth	Positive Values = better muscular conformation	Negative Values = leaner carcasses
<b>1. Carcase weights increased.</b>	✓✓	✓✓	✓
<b>2. Lambs were sold earlier, while prices are potentially high.</b>	✓✓	✓✓	
<b>3. More lambs graded as E, U and R.</b>	✓	✓✓	
<b>4. Less lambs graded fat class 4H and 5.</b>	✓✓		✓✓
<b>5. More lambs were finished off grass.</b>	✓✓	✓	Avoid very low -ve values
<b>6. Lambing date was delayed to reduce production costs eg feeding and housing ewes.</b>	✓✓	✓	✓
<b>7. Lamb production costs were reduced, eg lamb creep feed and health care.</b>	✓✓	✓	✓
<b>8. Under extensive conditions, lambs were easier to finish at a specific carcass weight.</b>	✓✓	✓	Avoid very low -ve values
<b>9. Store lambs were bigger at the time of sale.</b>	✓✓	✓	

\* Dependant on the production system and breeds involved





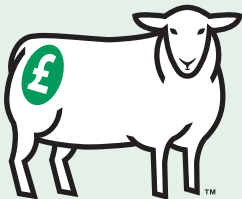
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For a range of other technical information visit

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