#### **BETTER RETURNS PROGRAMME** Calf rearing notebook





## Why collect data?

Do you know how well your calves are performing and your costs of production? Collecting records and then analysing them is the best way to understand how your livestock and therefore your business is performing.

In calf rearing, daily liveweight gain is one of the most important indicators of efficiency and getting it right is essential for long term performance and profitability of any enterprise.

More and more units are regularly monitoring body weights and this is an extremely useful way of ensuring animals are performing appropriately and can be a useful pointer to potential issues in the system.

Monitoring growth can be achieved in a number of ways. The gold standard would be to weigh the animals but using weigh bands or measuring an animal's height can be used as a quick guide.

As well as monitoring growth, it is important to be aware of any disease problems on the farm. This notebook will help you keep a record of calves showing signs of ill health, cases of disease and losses.



Figure 1: Checking weight using weigh band (photo supplied by Tim Potter)

# Key performance indicators

A key performance indicator, or KPI, is a performance measurement calculated from farm data to identify the unit's strengths and weaknesses. The following seven KPIs have been identified for assessing calf rearing units.

КРІ	Definition	Example	Target
Calf liveweight at weaning (kg)	Average calf weight at weaning (kg)	85kg	>Double birthweight
Daily liveweight gain to weaning (kg/day)* <i>KPI specific for dairy herds</i>	(Average calf weight at weaning (kg) – birth weight (kg)) / Average calf age at weaning (days)	(85-40) / 56 = 0.8kg/day	>0.7kg/day
Daily liveweight gain to weaning (kg/day)* <i>KPI specific for specialist calf rearers</i>	(Average calf weight at weaning (kg) – purchase weight (kg)) / Average days on unit prior to weaning	(85-55) / 40 = 0.75kg/day	>0.7kg/day
Daily liveweight gain post weaning (kg/day)*	(Average calf weight (kg) – weaning weight (kg)) / (Average calf age – Average weaning age (days))	(137-85) / ( 98-56) = 1.2kg/day	>1kg/day
Calf mortality (%) For dairy producers it is useful to split this KPI into deaths before 24 hours and those after	(Number of calf deaths / Number of calves born or purchased) x 100	(1/60) x 100 = 1.6%	<2%
Incidence of pneumonia (%)	(Number of calves with pneumonia / Number of calves born and purchased) x 100	(5/40) x 100 = 12.5%	<15%
Incidence of scours (%)	(Number of calves with pneumonia / Number of calves born and purchased) x 100	(4/40) × 100 = 10%	<10%

\*Daily liveweight gain is also known as average daily gain

Depending on your system, these KPIs can be calculated for each batch of calves or for the total number of calves reared throughout the year.

#### Colostrum intake

Calves are born without antibodies that are essential to prevent disease. Colostrum is the sole source of these antibodies, so it is important that all calves receive sufficient, good-quality colostrum as soon as possible after birth.

Calves need a first feed of three litres within two hours of birth, followed by another similar sized feed within six to 12 hours of birth. High-quality colostrum contains at least 50g/litre of the antibody Immunoglobulin G (IgG). Colostrum quality can be tested using a colostrometer or refractometer, it is impossible to tell by eye.



#### Top Tip:

Blood testing calves can indicate whether they have received adequate colostrum. Ask the vet to take blood samples within one week of birth. Samples can be tested for either the actual antibody level (IgG) or the total protein (TP) in the blood.

Quality of colostrum management	Blood IgG (g/L)	Blood TP (g/L)
Good	>12	>55
Marginal	10–12	50–55
Poor	<10	<50

At least 80% should be in the "Good" category. If less, revise colostrum management.

Calf ear tag	Date of birth	Calf sex	Calf weight (kg)	Dam ear tag or brand number	Sire ID & breed	( Tir	Colostrum Volume? ne after birth?	Colostrum testing results
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#### Sourcing calves for beef rearing systems

Successful calf rearing begins with sourcing the correct calves for the system. It is important calves have the best start in life as disease in the early stages can have long-term impacts on performance.

Buy calves that are:

- Known to have received adequate colostrum at birth
- Well grown for their age (at least 50kg at two weeks old)
- Of known disease status
- Seven days old or more

- Healthy with a dry navel
- Alert and bright-eyed
- Showing reasonable conformation

Calves frequently become dehydrated during transport and will benefit from being offered two litres of warm electrolytes on arrival.

If their Bovine Viral Diarrhoea (BVD) status is unknown, calves should be tested for BVD antigen to identify any persistently infected (PI) calves. PI cattle have a high likelihood of dying in their first year. Their weights are lower than healthy counterparts and the incidence of pneumonia can increase by 43% in healthy cattle sharing airspace with a PI.



BVDFree England is an industry-led scheme aiming to eliminate BVD virus from all cattle herds in the country by 2022. More information can be found at **bvdfree.org.uk** 

## Milk replacer

Traditionally, the recommendation to feed calves 10% of body weight was translated into feeding two litres of milk twice daily. This does not provide sufficient energy to growing calves.

The exact amount of feed depends on calf liveweight, target growth rate, environmental conditions and the nutritional composition of the product being fed. Current advice for most beef situations is to feed a minimum of 750g/day of calf milk replacer, which can be achieved by feeding different concentrations as shown in Table 1.

Mixing rate (g/l)	Litres fed/day										
	5	6	7	8							
150	750	900	1,050	1,200							
140		840	980	1,120							
130		780	910	1,040							
125		750	875	1,000							

#### Table 1. Daily quantity of milk replacer supplied per calf (g)

Note: Always follow the instructions provided with the calf milk replacer



It is a legal requirement to feed calves under 28 days old at least two liquid feeds per day. All calves must be provided with fresh, clean water from birth. Water is fundamentally important to rumen development and optimal growth. Calves will drink one litre of water per day during the first week of life, increasing to nearly three litres by 3–4 weeks of age.

#### Vaccines

Vaccinations are a wise investment, as outbreaks of disease are often unpredictable and can have major financial implications for a farm business.

Vaccinations have very specific storage requirements. All vaccines must be kept refrigerated at all times until they are used. The fridge temperature should be between 2°C and 8°C. This should be checked regularly using a thermometer, as a recent survey found that many farm fridges were either too warm or too cold.

The middle of the fridge generally has the most constant temperature, so this is the best place to store medicines. Keep bottles in their boxes as this helps protect medicines from light.

Live vaccines are especially fragile. If they become too hot or are frozen for any length of time, the organisms in the vaccine will be destroyed and the vaccine will not work.

Leaving a live vaccine in a hot vehicle for just 30 minutes is enough to render it ineffective. Vaccines have to be used quickly after the bottle is broached.

Check the label for information on storage guidelines, including how to store and how long a product can be used after the bottle is first opened.



#### Preventative medicine and vet records

Record medicine usage that aims to prevent the occurrence of disease or infection, eg vaccinations.

Drug used	Drug	Animal or batch of animals treated		Date	Reasons for	Deceme	Longth of treatment
	number	ID	Number treated	used	treatment	Dosage	Lengur of treatment

#### Preventative medicine and vet records

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## Identify common problems early

Signs of good health and vigour

• Bright • Playful • Curious • Keen to drink milk Look for early signs of disease

Quiet • Slow to stand
Still drinking milk

Late signs of disease • Dull • Reluctant to stand unaided • Off milk





• Severe discharge with pus • Frequent coughing/wheezing High temperature

(>39.5°C or 103° F)



• Clear eyes and nose • No cough

Normal temperature (38–39°C or 100–102°F)



• Discharge from eyes and nose • Cough on movement High temperature (>30.5°C or 103°F)

#### Identify common problems early





• Clean hindquarters • Well formed faeces Normal temperature (38–39 °C or 100–102 °F)



• Dirty hindquarters • Loose faeces Variable temperature



Information supplied by Volac.



• Wet hindquarters • Hair loss • Dehydrated • Watery faeces Variable temperature

#### Protocol for standard treatments

Plan standard treatments, such as those for pneumonia and scours. Complete with your vet during herd health planning. Remember treatment might not be a medicine, it could be a calf coat or re-hydration therapy.

Disease or condition	Signs to look for	Treatment			
		Option 1			
		Option 2			
		Option 1			
		Option 2			
		Option 1			
		Option 2			
		Option 1			
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Disease or condition	Signs to look for		Treatment
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		Option 2	
		Option 1	
		Option 2	
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		Option 1	
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		Option 1	
		Option 2	

Recorded treatments administrated to individual or groups of animals after diagnosis.

Drug used	Drug batch number	Animal ear tag	Date used	Reasons for treatment	Dosage	Length of treatment

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Drug used	Drug batch number	Animal ear tag	Date used	Reasons for treatment	Dosage	Length of treatment

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Make a note of any calves that require additional attention, eg that has not drunk its milk or is looking off colour.

Date	Ear tag	Reason for additional attention	Date & time	Action taken

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#### Calf deaths

Recording calf deaths will help calculate an accurate mortality figure. Remember to record any stillbirths.

Date of death	Calf ear tag	Batch number (if applicable)	Age at death	Reason	BCMS informed (√)

# Calf deaths

Date of death	Calf ear tag	Batch number (if applicable)	Age at death	Reason	BCMS informed (√)

Measuring the growth rate of youngstock provides useful information on how well they are growing. It is also an indirect method of monitoring the efficiency of feed conversion. Meeting growth targets ensures maximum return on your investment.

The benefits of monitoring growth include:

- Achieving target growth rates for breeding
- Identifying underperforming and sick calves
- Identifying problems within your system
- Maximising growth efficiency cost effectively

In calf rearing, daily liveweight gain (DLWG) (also known as average daily gain) is one of the most important indicators of performance.

 $\mathsf{DLWG} = (\mathsf{finish} \ \mathsf{weight} \ (\mathsf{kg}) - \mathsf{start} \ \mathsf{weight} \ (\mathsf{kg})) \ / \ \mathsf{age} \ (\mathsf{days}) \ (\mathsf{or} \ \mathsf{days} \ \mathsf{between} \ \mathsf{weighings})$ 

Work out a monitoring system that fits your system. Weighing can be timed to coincide with other routine procedures and measuring just a few times through the rearing phase will provide enough information to monitor progress. As a minimum, aim to measure each individual calf at:

Birth or purchase
Weaning
Sale

Birth weight or purchase weight should be recorded as this will create a baseline figure to calculate DLWG



This table has been left blank so that it can be populated with relevant headings to suit your system and weighing pattern.

























#### For more information contact:

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