



Calf Health For Lifetime Performance

SUPPORTED BY VOLAC

The 2017 CalfCare farmer events are being run by Animal Health Ireland and Teagasc, supported by Volac in conjunction with the following Co-Ops



REASONS FOR THE CalfCare EVENTS

Teagasc and AHI, supported by Volac, have successfully run a series of CalfCare events each spring for the past four years. The focus at the events is to remind farmers of the key essentials in the care of their calves from birth and refresh their skills before the spring calving season.

A changing industry

With the removal of milk quotas the procedures around newborn calf management have acquired even greater importance because of the profound and rapid change that is taking place in our industry:

- An increased number of calves born on dairy farms - over 280,000 additional calves born in 2015 compared to 2005;
- The earlier sale of calves - with greater specialisation in dairying we expect that more calves will be sold at 2-3 weeks of age;

The increasingly seasonal nature of calf births and sales - 20%, 40% and 17% of dairy calves are born in January, February and March, respectively. Thus there is a requirement to remind farmers of best practice in relation to calves intended to be reared on farm as well as those destined for sale off farm.

Scope for further improvement in rearing replacement heifers

The ICBF database has collated the most recent data relating to the age at which replacement heifers calve. Data for the 2007 and 2013 born dairy replacement heifers are presented in Table 1.

Table 1. Number of Irish dairy replacement heifers born in 2007 and 2013 and age category at calving.

	2007 born	2013 born
Total number of dairy heifers born	249,126	383,741
% that have calved by 26 months	49%	54%
% that never calved	23%	20% est.

The target is to calve dairy replacement heifers for the first time at 22-24 months of age. The records in Table 1 above show that the number of dairy replacement heifers born on Irish dairy farms has increased by over 50% during the past 6 years. It also shows that while the proportion calving at the appropriate age is increasing and the percentage failing to calve declining, considerable scope exists for further improvement in both the proportion calving and in the proportion calving at an earlier age. Liveweight is a key component of successful heifer rearing. The data in Table 2 outlines the target liveweights for different heifer breeds and crossbreeds at the point of calving at 24 months of age. Target liveweights for intermediate stages of the replacement heifers lifecycle for calving at 24 months of age are also presented in Table 2. To calculate the target liveweight multiply the % of pre calving liveweight by the target pre-calving weight. E.g. for a Holstein Friesian heifer, the target liveweight at 15 months of age is 330 kg (60% of the 550 kg pre-calving weight).

Table 2. Intermediate liveweights as a percentage of target pre-calving liveweight of spring-born replacement heifers calving at 24 months of age.

Age	% of pre-calving liveweight	HoL.-Fr.	NZ Fr./Br. Fr.	Jersey X Fr.
6 months	30%	165	158	147
9 months (pre-housing)	40%	220	210	196
15 months (at breeding)	60%	330	315	294
21 months (pre-housing)	90%	495	473	441
Target pre calving weight	100%	550	525	490

The target liveweights detailed in Table 2 are not the average liveweights of the heifers in each category. They are the minimum figure for the individual heifers – the average may be higher. Aim to rear as uniform a group of heifers as possible – this may mean splitting the heifers into lighter and heavier groups and giving the lighter animals priority feeding. The data in Table 3, taken from the Moorepark on-farm fertility study, shows the effect of age and weight at first calving on milk and reproductive performance during their first lactation. The milk yield of heifers calving at 2 years of age was intermediate compared to heifers calving at a younger or older age. No difference in empty rate was observed between the age groups.

Table 3. Effect of age and liveweight at first calving on milk production and reproductive performance during the first lactation.

		C. Date	Yield (litres)	Fat %	Protein %	Preg. Rate 1st Service	Empty Rate (%)
Age	< 2 years	6th Feb	5,604	3.87	3.38	50	11
	2 years	13th Feb	5,734	3.86	3.37	56	11
	> 2 years	5th Mar	5,819	3.85	3.37	54	10
Weight	< 530kgs	11th Feb	5,518	3.86	3.36	53	10
	530-600kg	19th Feb	5,686	3.85	3.37	55	9
	> 600kgs	23rd Feb	5,953	3.87	3.38	52	13

The data in Table 3 also indicates that heavier heifers produce more milk. However, heifers calving at over 600kgs had a higher empty rate at the end of the first breeding season compared to lighter calving heifers. Age at first calving had no carryover effect on milk production or reproductive performance in second lactation. Weight at first calving had a significant effect on milk yield in the second lactation. Underweight heifers (less than 530kg at first calving) produced significantly less milk of poorer composition in the second lactation compared to heifers calving at 530 to 600kg. Reproductive performance in the second lactation was unaffected by weight at first calving. However, weight rather than age at first calving appears to have a more long-term impact on animal performance.

STOCKMANSHIP

Stockmanship has been defined as the knowledgeable and skillful handling of livestock in a safe, efficient, effective, and low-stress manner. In reality it's much more than this and there are three important elements to good stockmanship:

1. A comprehensive, herd health management programme;
2. An environment that provides protection and comfort appropriate for the species;
3. Adequate, well designed facilities that enables low stress handling.

At these events we're going to focus on health and the calf's environment. Key elements to both are:

- The first feed;
- Calf accommodation;
- Signs of health.

The first feed

1. Getting the right amount of colostrum into calves as early as possible is the secret to good calf management. Calves that get enough colostrum are less likely to get sick and will thrive better.
2. Use milk from the
 - **1st milking to feed calves**
 - **Feed within 2 hours of birth**
 - **Feed 3 litres colostrum.**

First milking Colostrum ("biestings") is the first milk that the cow produces. It is richer than normal milk in many respects, but especially in its content of immunoglobulins (antibodies). These antibodies are proteins that are built by the immune system to prevent infectious diseases. The quality of colostrum is defined by the concentration of antibodies which varies between cows. **Colostrum contains almost twice as much milk solids as normal milk. Much of this extra material is immunoglobulin, but colostrum is also an important source of energy, vitamins and minerals.**

The second and subsequent milkings of a dairy cow do not contain enough antibodies to 'kick-start' the calf's immune system. All milk collected after the first milking should not be considered as colostrum but as transition milk. Transition milk is milk that is not saleable from the first eight milkings.

Fed within two hours of birth

Shortly after birth, the calf's ability to absorb large proteins whole (such as antibodies) begins to decline. Studies have shown, that the calf's ability to absorb antibodies halves after six hours and by 24 hours of age they are unable to absorb any more antibodies.

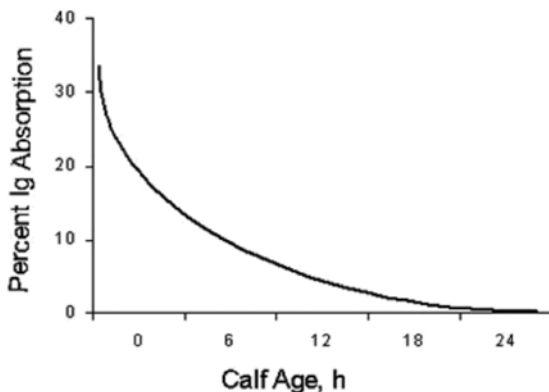


Figure 1. Percentage of immunoglobulin absorbed by calf age (hours after birth).

THREE LITRES OF COLOSTRUM

Three litres of colostrum is the recommended quantity to feed. The reason for this is because research has found that feeding 8.5% of the new born calf's body weight as colostrum shortly after birth provides optimal quantities of antibodies and thus optimal protection to the young calf. With increasing herd size, just as much attention must be given to calves destined for sale as for the heifer calves that will be kept for rearing on the farm. Later born calves in particular are at risk of acquiring diseases.

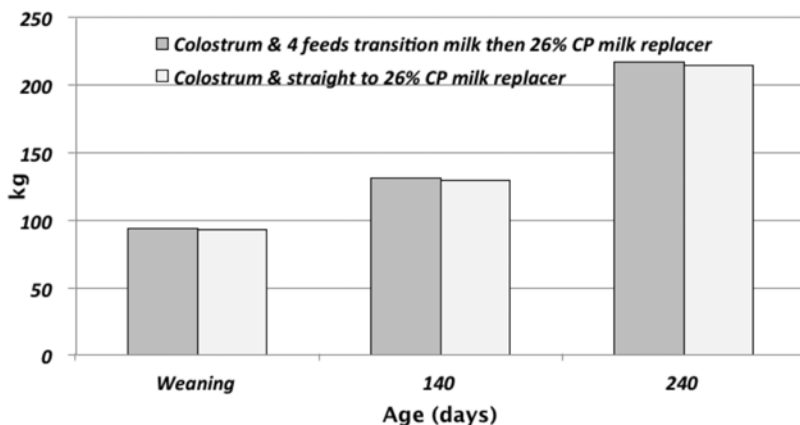
A Teagasc survey reported that 90% of Irish dairy farmers store colostrum. Colostrum has traditionally been stored in a freezer, as this prevents changes in quality and growth of bacteria. However, defrosting colostrum can take more than an hour and if completed incorrectly it can render the colostrum useless. A good practice to follow is to submerge the sealed, frozen container in a bath of warm (not hot, body temperature) tap-water until it thaws completely, stirring occasionally. Thawing time will vary depending on container size.

About one in five farmers store colostrum at room temperature or in a refrigerator for up to one week. Storing colostrum at warmer temperatures (e.g. room temperature) does not affect the quality (i.e. the antibody level) of colostrum, but bacterial numbers increase and the pH reduces. Calves fed colostrum with extremely high levels of bacteria absorb fewer antibodies which can have implications for their health and wellbeing.

The good news is that although it is ideal to feed each calf its own mother's colostrum this is not always possible. Once colostrum from healthy, disease free cows is collected in clean churns/buckets and stored within 3 – 6 hours of collection it can be stored in a fridge for up to two days. The absorption of antibodies from this colostrum will be the same as that which was fed fresh to calves. It is important that colostrum is refrigerated as soon as possible as bacterial growth is highest in the first six hours after collection.

Another strategy to overcome this difficulty is to commence milk replacer feeding immediately after the first feed of colostrum. An experiment carried out in Moorepark in spring 2015 showed that once the colostrum 123 rule is strictly adhered to, there was no difference in their weight gain pre or post weaning compared to calves which were fed colostrum and four feeds of transition milk before moving to milk replacer (Figure 2). This suggests that in well managed systems where the transfer of disease may be an issue, milk replacer can be offered immediately after colostrum. Where disease levels are high, continuing to include transition milk in the young calf's diet will help to protect them from acquiring such infections.

Figure 2. Effect of timing of milk replacer feeding on body weight at weaning, 140 days and 240 days of age.



ACCOMMODATION

- The young calf will spend up to 80% of its time lying down so a dry bed is essential
- A minimum floor fall of 1 in 20 is required. Place water bowls and feeders at the lower end of the sloped floor to ensure that the bedding remains dry.
- An inlet and outlet allowance of 0.08 square metres/calf must be provided.
- A roof pitch of 22° (a rise of 1 in 2.5) gives the best performance under 'stack effect' and 'wind effect' ventilation.
- Allow a total floor space of 1.5 square metres/calf with a cubic air capacity of 6-8 cubic metres/calf.
- Where the number of calves on the farm has increased through herd expansion or a delay in the sale of surplus calves, use temporary shelters to relieve overcrowding indoors.

You have a good idea now of the number of calves you will have at peak this coming spring - have you thought through how they will be accommodated?

Temporary accommodation options:

- Outdoor shelters (see picture 1, next page);
- Calf hutches;
- Temporary pens in hay sheds.

Figure 1. Outdoor calf shelter suitable for 20 calves. Outdoor calf shelter suitable for 20 calves.



Dimensions: Length 3.7m; width 2.1m; front height 1.52m; back height 1.45m; 0.2m above ground.

Teagasc research with rearing calves outdoors in such shelters from 4-5 weeks of age found no difference in calf daily liveweight gain compared to calves reared indoors. Indeed the liveweight gain of calves reared in overcrowded houses would be substantially less particularly if an outbreak of disease occurred. However some form of shelter must be provided. One of the biggest factors affecting the success of outdoor rearing is the weather at turnout. Check the forecast and make sure that calves are turned out when a few dry days are forecast. It doesn't matter if it is cold, it just needs to be dry. Make sure strong healthy calves are turned out and if some calves are not thriving there is no problem returning them inside.

IDENTIFY COMMON PROBLEMS EARLY

Scours



Signs of good health & vigour

- Bright
- Playful
- Curious
- Keen to drink milk



- Clear eyes & nose
- No cough
- Normal temp. (38-39°C)



- Clean hindquarters
- Well-formed faeces
- Normal temp. (38-39°C)



Respiratory



Look for early signs of disease

- Quiet
- Slow to stand
- Still drinking milk



- Discharge from eyes & nose
- Cough on movement
- High temp. (>39.5°C)



- Dirty hindquarters
- Loose faeces
- Variable temp.



Late signs of disease

- Dull
- Reluctant to stand unaided
- Off milk



- Severe discharge with pus
- Frequent coughing wheezing
- High temp. (>39°C)



- Wet hindquarters
- Hair loss
- Dehydrated
- Watery faeces
- Variable temp.



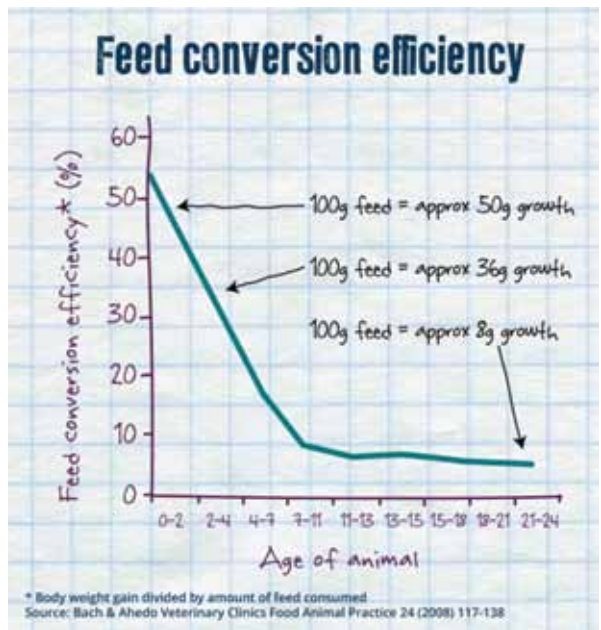
FEEDING THE PRE-WEANED CALF FOR LIFETIME PERFORMANCE

A calf's future success in the beef or dairy industries depends on the treatment it receives from birth. The impact of early nutrition lays down the foundation of performance later in life. How calves are treated and fed during the milk feeding phase of the rearing cycle can have a huge impact on the lifetime performance.

Global studies show that dairy heifer calves fed higher quality nutrients up to eight weeks of age produce more milk during their first lactation. American research demonstrated that a kilogram of pre-weaned average daily gain (A.D.G.) is worth 1,500 litres of milk in the first lactation. Therefore by increasing A.D.G. from 500g to 800g/day, would result in an increase of 450 litres milk in the first lactation. The same research also showed that while genetic selection for milk yield can provide an additional 65 – 110 kg of milk per lactation, pre-weaning nutrition management can yield 4 – 8 times more milk per lactation.

FEED CONVERSION EFFICIENCY

A calf's milk feeding period is a golden opportunity to maximise growth. Feed conversion efficiency (the animals relative ability to turn nutrients into growth), peaks during this period at around 50% compared with less than 10% from 11 months to calving. The calf's ability to use feed efficiently declines with age and because liquid milk is more nutritious and digestible than concentrate, feed efficiency is highest during the milk feeding period. What's more, prior to puberty heifer growth focuses more on bone and muscle, whereas in later life heifers gain more fat and are therefore less efficient.



Targets for the pre-weaning stage

- Liveweight gain < 750 g/ day
- Low Mortality < 3%
- Low number of treatments – target less than 10%
- Doubling birth weight in 8 weeks

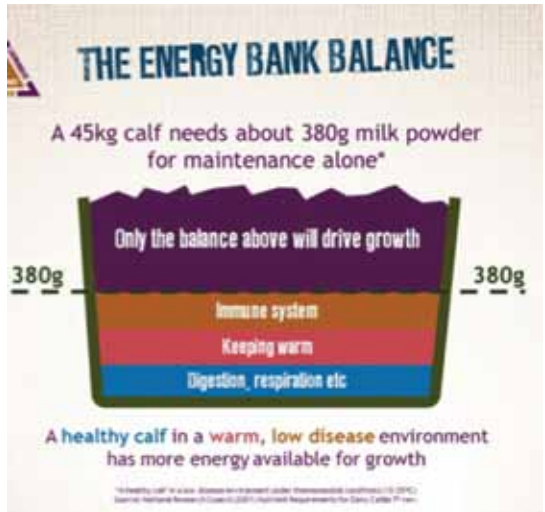
How much milk or milk replacer to feed

Recommended calf pre-weaning daily liveweight gain depends on expected mature liveweight of the cow as detailed in Table 4.

Table 4. Recommended pre-calving, mature, calf daily gain and calf weaning weights of different breeds and crossbreeds.

Breed	Heifer pre-calving wt. (kg)	Mature cow weight (kg)	Calf live wt gain (g/day)	Calf weaning wt. (kg)
Holstein Friesian	550	600	750	90-95
NZ or Br. Friesian	525	575	725	85-90
F1 (Friesian X Jersey)	490	550	700	80-85

Traditionally we underfed calves milk/ milk replacer with 2/2.5 Litres of 10% concentration am and pm, which was only enough for maintenance and immune function. To achieve the 750g target ADG, we need to feed the same level of solids as the desired weight gain – so if we require a daily live weight gain of 750g we must feed 750g of milk solids. A calf needs 380 grams solids or 3.8 Litres milk fed at 10% solids for maintenance and immune function alone.



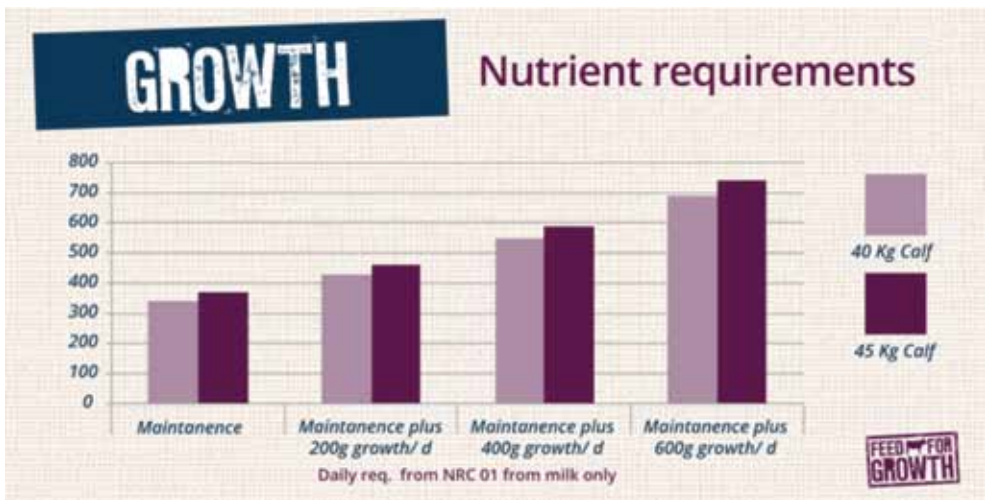
Source: Feed for Growth Programme.

When feeding milk replacer it is important to check and review the mixing rates to ensure milk is fed at the correct volumes and concentrations. For example, to feed 900g of milk solids it is 6 Litres per day at 150g or 7.5 Litres at 125g.

Take a look at the chart below and check that you are providing your calves with enough nutrition to support the growth rates targeted. Always be consistent when feeding young calves as it is very easy to upset them in the first 3 to 4 weeks. Ensure feeding times, temperature of milk fed, concentration and volumes fed are consistent. Cleanliness and hygiene are crucial.



Source: Feed for Growth Programme.



Source: Feed for Growth Programme.

Good quality milk or milk replacers will meet the growth targets set, provided sufficient quantities are fed. Do not feed waste milk to your heifer calves. Whole milk or waste milk poses a risk of disease transfer such as Johne’s disease so pasteurisation should be considered. Waste milk could also potentially promote antibiotic resistance if feeding milk from cows which have received antibiotic treatment.

Milk or milk replacer

- Economics: A good quality milk replacer presently costs 26 – 28 c/litre
- Milk replacer due to its lower fat content encourages early concentrate intake
- Greater biosecurity risks from diseases such as Johne's, E. coli with Whole Milk
- Performance: Calves will perform equally well on either whole milk or a good quality milk replacer
- Consistency: A good quality calf milk replacer should be double pasteurised and is more consistent than whole milk – studies show less incidences of nutritional scours
- Flexibility in feeding times and concentrations with calf milk replacer

When feeding milk replacer, ensure a good quality concentrated whey protein or skim milk replacer is being used and follow the Animal Health Ireland guidelines. In summary the following specifications included in the guidelines suggest the following:

- Protein content: 23-26% (predominantly dairy protein sources);
- Fat content: 16 to 20%;
- Ash content: 7-8%;
- Fibre content: maximum of 0.1%¹.

Feeding performance is the best measure of a milk replacer as the label gives a very limited level of information on the quality of the raw materials used to formulate it. Ensure your calf rearing targets are recorded and monitored on a regular basis.

WATER, CONCENTRATES AND ROUGHAGE

Water, concentrates and roughage are an integral part of the achievement of the calf growth targets pre weaning.

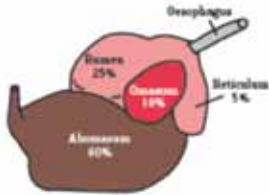
- Water is essential in the development of the calf's rumen transitioning the animal from a monogastric at birth to ruminant at 12 weeks of age. Calves should have access to clean fresh water from 4/5 days of age. Early concentrate intake is stimulated by water intakes.
- For every 1 Kg of concentrate eaten a calf will drink 4/5 litres of water. Rumen bacteria need water to ferment and water is essential for basic metabolic function in the calf – transportation of nutrients, excretion of urine and faeces etc. Milk will not replace water.
- A calf should also have access to good quality, palatable calf starter available fresh daily from day 4 onwards. Calf concentrate should be 12 MJ Energy, 18 – 20% crude protein and at least 25% starch and sugar with the necessary vitamins and minerals. Starter can be coarse for the first number of weeks at least as this will encourage rumen development.
- Good quality clean barley straw, available to the calf in racks is the recommended form of roughage.

¹ Such a low fibre content ensures that the proteins are predominantly dairy in origin.

Transition of the calf from monogastric to ruminant.

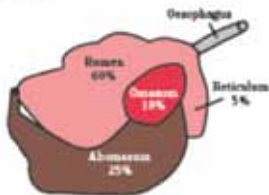
0-6 weeks

Milk is bypassing the rumen directly into the abomasum for digestion.



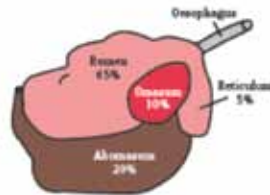
6 weeks

Consumption of solid feed and other factors encourages development of the rumen wall and rumen volume.



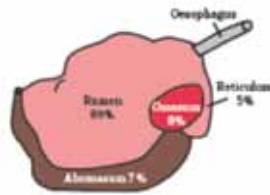
12-16 weeks

Post weaning the calf has a functional rumen which provides the calf with its nutrient supply.



Mature ruminant

The rumen is now fully functional.



Diagrams from The Calf Rearing Guide
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FEEDING SYSTEMS

Individual farms will have different feeding systems depending on housing, labour availability, milk/milk replacer, reliability etc. Bucket feeding/teat feeding, twice a day, ad lib, cold and computerised feeding can all be carried out successfully on farm, provided everything is done consistently and good hygiene is adhered to. It is advisable not to change to once a day feeding until the calf is at least four weeks old.

Computerised feeding enables the baby calf to feed 'little and often'. Milk is fed at a consistent temperature and concentration. The gradual weaning process ensures calves do not suffer any setback at weaning when their diet changes. Computerised feeding allows more time to be spent on calf husbandry.

WEANING

The target is to double calf birth weight to weaning at approximately 10 weeks for example, from 40-45 kg weight around birth to 85-90 kg for Friesian calves. Calves should be consuming at least 1 kg of concentrates for three consecutive days prior to weaning. The calf will need to consume at least 1 Kg of starter to replace 500 g of milk solids. Gradual or step weaning is the preferred option as it gradually reduces milk fed to calves, encouraging concentrate intake.

Minimum changes or stress during the weaning period such as changing groups, dehorning, etc. is advisable to avoid setbacks.

***Cryptosporidium parvum* treatment and control**

Cryptosporidium parvum is a microscopic parasite which causes scour by damaging the gut lining. It is a highly infectious, robust parasite and its eggs are resistant to many disinfectants used on farms. Cryptosporidiosis generally affects calves aged 1-4 weeks. Clinical signs include:

- Lethargy/weakness;
- Profuse watery diarrhoea with strands of mucus;
- Dehydration.

Scouring can last for a week or more and deaths can occur in severe cases. Where mixed infections (e.g. with rotavirus) occur, mortality can be high. More than 20% of dead calves under a month old submitted to Regional Veterinary Laboratories in Ireland tested positive for *C. parvum* in 2014 (All-island Animal Disease Surveillance Report 2014).

The parasite is transmitted via the “faecal-oral route”; infected calves pass the parasite eggs in their faeces (dung) and this is ingested by other calves. Calves may become infected from calf pens, utensils, trailers, or the clothes or boots of owners and handlers, contaminated with faeces containing the parasite.

Diagnosis

It is not possible to distinguish *C. parvum* from other causes of calf scour by the type of scour or clinical signs.

- Have a rapid test kit in the calf house for early diagnosis
- Submit faecal samples (in sterile containers) from untreated, scouring calves in the early stages of a disease outbreak to your veterinary practitioner or laboratory to confirm quick test.
- Take dead calves to a veterinary laboratory for post-mortem.

MANAGEMENT OF THE SCOURING CALF

1. **Remove**

Remove the scouring calf from the group – this helps prevent spread of infection and gives the calf a better chance of recovery.

2. **Rehydrate**

Give oral fluids. Healthy calves need up to 4 litres of fluid a day and scouring calves need an additional 4 litres to replace lost fluids. Give two extra feeds (2 litres each) per day of a good quality oral rehydration solution when the calf starts scouring and while scouring persists. These should be given separately from the milk feeds (for example, at lunchtime and again late in the evening). It is safe to give these fluids by stomach tube, assuming farmers are competent and confident with the technique.

3. **Feed milk**

Continue to offer scouring calves normal amounts of milk or milk replacer as long as they want to drink. Do not feed diluted milk to calves. Continuing to feed with milk or good quality milk replacer as it does not cause, worsen or prolong scour.

Milk or milk replacer should not be stomach-tubed, as this can lead to the build-up of acids in the rumen and damage the ruminal wall.

Halofuginone lactate

Halofuginone lactate (a prescription only medicine) can be used preventively in new-born calves at risk of *C. parvum* infection and calves in-contact with *C. parvum*-positive calves. Scouring calves diagnosed with *C. parvum* may also be treated with halofuginone lactate. While the therapeutic impact of this drug on scouring calves is unclear, it may reduce the severity of disease if administered within 24 hours of the onset of scour. In all cases, it is given to the calf by mouth after a feed, once a day for seven consecutive days.

Disease control measures

- Ensure all calves receive 3L of high quality colostrum within 2 hours of birth
- House new-born calves in individual pens and then move to small age-matched groups
- Provide adequate bedding and replace regularly
- Ensure strict hygiene with feeding equipment
- Raise feeding and water troughs off the floor by 0.75m
- Wash hands, change clothes and footwear after handling sick calves
- Thoroughly clean and disinfect calving and calf pens with a disinfectant effective against *C. parvum* (Table 1) and ideally leave free of animals for 3-4 months before the next calving season.

Table 1. Disinfectants effective against *Cryptosporidium parvum*.

Active Ingredient	Trade Name	Manufacturer
Amine based	Keno™ Cox	CIDLines N.V., Belgium
Ammonium Hydroxide		
Chlorocresol	Interkokask	Hysolv Ltd
p-chloro-m-cresol	Neopredisan	Vertriab GMBH, Germany

Spread to humans

C. parvum can infect humans. Farmers should wash their hands, change their clothes and footwear after handling sick calves. Children and immunocompromised adults should not care for sick calves. Farmers should comply with all regulations on slurry and run-off water from animal buildings to ensure a clean water supply for their families and the general public.

Key points

Cryptosporidium parvum is a microscopic parasite that causes scour in young calves
Remove, rehydrate and feed milk to manage the scouring calf
Halofuginone lactate may be used on farms where *C. parvum* has been diagnosed
Strict hygiene is crucial to prevent and control *C. parvum*

* See the AHI leaflet “Cryptosporidiosis in neonatal calves” for more information.
www.animalhealthireland.ie

Antimicrobial Resistance (AMR): Reflect before you inject

Antimicrobial resistance is considered one of the major threats to human and animal health worldwide. Antimicrobial resistance, or AMR, means that antibiotics no longer work to treat disease caused by bacteria. There is a collective responsibility on farmers, as key stakeholders in the agrifood sector, to use antibiotics only when absolutely necessary, so as to preserve their efficacy for disease treatment in both humans and animals, and for society as a whole.

Disease Prevention

Healthy animals don't need treatment with expensive antibiotics, so an increased focus on disease prevention measures is a key action to reduce use of antibiotics, as well as boosting farm profitability. A review of husbandry and biosecurity practices on farm, in the context of a herd health management programme, may identify areas for possible improvement. It is important to get continuous advice on disease prevention measures from animal health professionals.

Right advice

Where disease is present, treatment is required to protect animal health and welfare, however getting the correct information on what is the most appropriate treatment is essential. Antibiotics are only effective to treat disease caused by bacteria, they have no action against viruses. Using antibiotics where there has not been an accurate diagnosis of a particular bacterial disease can be a waste of money, and also increase the likelihood of the development of AMR on your farm with possible consequences for you, your family and your animals' health.

Right animal

When it is necessary to treat an animal with an antibiotic, treatment should only be given to animals that are sick and showing signs of disease. Preventive use of antibiotics should be avoided, as use of an antibiotic where there is no disease present, apart from being a waste of money, will increase the likelihood of bacteria on your farm becoming resistant to that antibiotic. Unnecessary use of antibiotics promotes development of resistant bacteria that may spread from the animal population into the human population resulting in a lack of available treatments for people in hospitals and in our communities.

Right medicine

When using an antibiotic to treat disease you should use an antibiotic that will be effective against the particular bacteria causing that disease. Ideally a sensitivity test should be carried out to identify the bacteria that is causing the disease. Certain antibiotics have been classified as being critically important for human and animal health, these are considered the stronger antibiotics and contain active ingredients such as marbofloxacin (marbocyl) or enrofloxacin (baytril) and cefquinome (Cobactan). These critically important antibiotics should not be used as a first line treatment against disease, as continued use without sufficient safeguards, such as sensitivity testing, will lead to these antibiotics being ineffective as last resort treatments in some cases to cure animal and human disease.

Right dose and right duration

Always follow the prescription instructions closely, antibiotics are only effective when administered at the correct dose and for the required number of days which will be specified on your prescription. Under dosing will not effectively treat the disease and will increase the likelihood of development of resistance to that antibiotic, as will not giving the antibiotic for the correct number of days. Repeat treatment should be avoided.

FOLLOW THE ABOVE STEPS TO KEEP ANTOBIOTICS WORKING, IT'S RIGHT FOR YOUR ANIMALS, RIGHT FOR YOU, RIGHT FOR YOUR FAMILY, RIGHT FOR YOUR FARM AND RIGHT FOR YOUR COMMUNITY.

