

STANDARD OPERATING PROCEDURES



STEP-BY-STEP GUIDES TO MAXIMISING THE RETURN FROM YOUR INVESTMENT

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Cereal grains are frequently used to supplement livestock because they often have a low cost of energy and are energy dense.

Care needs to be taken when feeding cereal grains as the carbohydrates they contain are highly digestible and, if precautions aren't taken, can cause acidosis in ruminants.

Generally, any age calf will grasp the process of walking through the gates and accessing the feed however, there are steps that can increase growth rates by having calves adapt to the system quickly.

ACUTE ACIDOSIS USUALLY OCCURS WHEN THE PH IN THE RUMEN DECREASES TO APPROX. 5.5.

This is because:

- 1) The rumen stops moving, becoming atonic.
The inaction depresses appetite and production.
- 2) The lowering of the pH changes the balance of the rumen bugs, with acid-producing bacteria taking over from acid-consuming bacteria.

The lowered pH of the rumen's contents is then absorbed through the rumen wall, causing acidosis, which in severe cases can lead to death.

The following simple steps can be taken to reduce the risk of acidosis.



STEPS TO REDUCE ACIDOSIS

- 1) Transition the feed from a safe feed (like pellets) to cereal grains
 - a) **Start by feeding 100% pellets.** Fill the hopper with enough feed for roughly two days. Ensure the feeder is not emptied before the next load of feed is put in the hopper. If this does occur, put more pellets in prior to changing the feed type.
 - b) **Change to 2/3 pellets and 1/3 cereal grain** (by weight) for five days. Proceed as above.
 - c) **Change to 1/3 pellets and 2/3 cereal grain** (by weight) for five days. Proceed as above.
 - d) **Change to 100% cereal grain.** Proceed as above.
- 2) Ensure stock are trained onto the Advantage Feeders / 3IN1FEEDERS system before the feed type is changed to cereal grains.
- 3) If pellets are not initially used in the feeder, ensure the rumen is full before the cereal grain is introduced to the stock. If pasture quantity is limited, this can be achieved by providing hay or silage to the stock the day prior to the feeding being introduced.
- 4) Having fibre (including straw) in the diet, will improve gut fill and require chewing. Chewing increases saliva (a natural lactic acid buffer) production - reducing the fluctuation of the rumen pH.
- 5) It is rare that stock gorge when they have a constant supply of supplement from an Advantage Feeder / 3IN1FEEDER. If the supply is interrupted by the feeder running empty, it can change the behaviour of livestock around the feeder to be aggressive from the fear of running out of feed.

If the feeder does inadvertently run dry, feed a safe ration and quantity of feed on the ground/floor before re-filling the feeder.

Receiving supplement feed can be critical to the productivity and profitability of an animal. Taking steps to train stock to Advantage Feeders / 3IN1FEEDERS ensure that they become familiar with the system quickly and maximise profitability.

Some people have a misconception that because livestock like supplement feed, they will pick up how to access feed through the Advantage Feeders / 3IN1FEEDERS system when it is set in a restricted manner.

Notes: Any stock that have already been supplemented with the Advantage Feeders / 3IN1FEEDERS system should not require the following steps to be taken.

If maternal stock are being fed while they have their offspring with them, the young stock will not require to be trained because their mothers will do this.

STEPS TO IMPROVE THE UPTAKE OF FEEDING

- 1) It is important that untrained stock receive a good reward the first time they visit the feeder. The reward will imprint that the feeder is a thing worth regularly returning to.
 - a) Use an appetising and safe feed so the stock will like the feed and not be at risk of acidosis. A commonly used feed for this application is pellets that have 16% protein.
 - b) Set the Upper and Lower Adjuster so that feed is almost flowing into the trough. This allows stock to easily and quickly access the feed.
- 2) Inserting a number of trained stock in a flock/mob with untrained stock can reduce the time for stock to become familiar with the system as the trained stock will show the others how to access feed from the feeder
- 3) Training stock before they are rapidly losing condition. It can become more difficult if the stock are heavily reliant on the supplement feed because they will become aggressive around the feeder.

Note: The period to provide unrestricted feed to stock varies considerably. Factors that influence the duration of this period are the familiarity with supplement feed, the maturity of the stock, the breed, the number of stock per feeder and flock/mob size.

For example: it may only take less than one day for mature stock to catch onto the feeder, while it may take up to ten days for weaned lambs to catch on.

The frequency of stock visiting the feeder must be monitored. When stock are regularly visiting the feeder, the Upper and Lower Adjusters can be moved to restrict intake.

STEPS TO SETTING THE ADJUSTERS

The charts on the Gauge Sticker (see image below) can be used as a starting point for positioning the adjusters.

- a) It is best if the Upper and Lower Adjusters can be both set on a similar number of dots. Example: if you are aiming to feed 4kg/head/day to cattle, set the Upper Adjuster at 4 dots and the Lower Adjuster at 4 dots.
- b) Using the Gauge Sticker is only a starting point to achieve the desired feed intake. See the 'Calculating feed consumption and altering the adjuster positions' SOP for more information.

Note: if cereal grains are to be fed, a transition needs to be made from feeding pellets to this feed. See the 'Safely feeding cereal grains to stock' SOP for more information.

WARNINGS AND SETUP INFORMATION

- Acidosis can be caused from over consumption of particular feed. This can be prevented by feeding a small ration through the feeder.
- Stock feed is easier to consume than complete shaped feed, rather than other shaped feed. It is recommended to mix these together to prevent the overall consumption of shaped feed.
- Too many stock per feeder may increase the risk of dry feed.
- Stock is best fed early in morning to allow reward for coming to the feeder. It is important that this reward is given on a regular basis. This means that the stock is given a reward, and a well-balanced and adequate feed must be provided.
- If the stock is consuming a large portion of their ration from the feeder, it is important to keep the feeder open for the feeder otherwise rugging can cause frustration.
- Feeder is not an automatic feeder. It is a controlled ration. This can be prevented by having some feed in the feeder.
- Stock can be underweight the odd when eating from the feeder. This can be prevented by placing and feeding. Making sure you are feeding the right amount of feed.
- If a paddock supplement system, feeders are best positioned at 400m to 600m from the water source to encourage pasture consumption.

CONSUMPTION TABLE INFORMATION


The tables are a guide only and are not a substitute for monitoring feed outflow.

It is recommended to experiment adjustment based on your results.

The tables are a guide for all normal and preferred feeds for mature stock.

As a general rule, stock can consume 10% of their body weight of a concentrated feed (Hay, straw or mixed grain) and where the figures indicate weight in kg, the stock can consume a 100kg/head/day.

Use the upper and lower adjustment to adjust the position on the adjuster with the desired rate of use.



GUIDE FOR CATTLE/HEAD/DAY

LOWER ADJUSTER	SHUT					UPPER ADJUSTER					OPEN
		
SHUT	0	0	0	0	0	0	0	0	0
OPEN	1	1.5	2.5	3	3.5	4	5	6	7
	13	2.5	4.5	1	1	6	7	7	7
	2.5	3.5	4.5	1	1	5	7	7	7
	4	5	6	7	7.5	8.5	10	10	10
	6	7.5	8.5	10	10	10	10	10	10

GUIDE FOR SHEEP CONSUMPTION

LOWER ADJUSTER	SHUT					UPPER ADJUSTER					OPEN
		
SHUT	0	0	0	0	0	0	0	0	
OPEN	100	150	200	300	350	400	500	500	
	500	250	300	400	500	500	600	700	
	200	350	400	500	600	700	800	800	
	400	500	600	700	750	800	1000	1000	
	500	600	700	800	950	1000	1000	1000	
	600	900	1000	1000	1000	1000	1000	1000	

When the coloured display is visible, they are not to be used for setting the Lower Adjuster

3 IN 1 FEEDERS

the leader in controlled feeding

* Advantage Feeders

Advantage Feeders / 3IN1FEEDERS lamb creep feeding system has an adjustable panel to prevent ewes from accessing the feed.

Like any creep feeding system, the maternal stock are going to try to access the supplement their offspring have been allocated and steps need to be taken to reduce any issues.

Training lambs to an Advantage Feeder / 3IN1FEEDER isn't fool proof. Farmers achieve consistent results when lambs are taught to eat from the feeder by their mothers. This is our preferred method.

IMPORTANT: Try and avoid the feeder being emptied by lambs. If a feeder is filled after being emptied, it changes the behaviour of lambs to be aggressive around the feeder – lambs can become trapped at the feeder's end. If the feeder does inadvertently become empty, feed approx. 500g/head on the ground before refilling the feeder.

PROCEDURE WHEN EWES AND LAMBS ARE SUPPLEMENTED

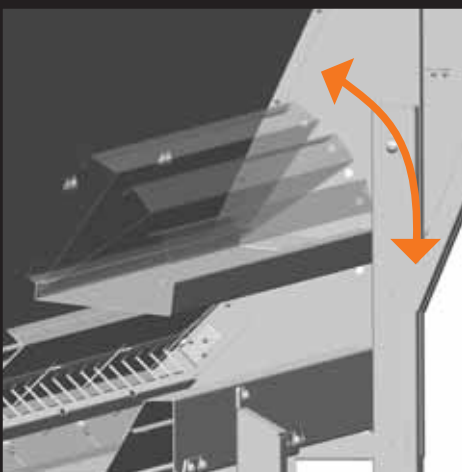
1) One week before lambing, both Creep Panels are set at **POSITION 6** (see drawing on following page). This still allows ewes' access to the supplement feed.

2) When the majority of lambs are around two weeks old, set one Creep Panel to **POSITION 3**. This will be the 'lamb side'.

Note: Although this Creep Panel position is much narrower than what is required to keep the head of a ewe out, it imprints on the ewe that they can't get their head in when the Creep Panel is at **POSITION 4 and 5**

3) Set the Upper and Lower Adjuster on the lamb side so that feed is almost flowing into the trough. This allows lambs to access feed easier.

Note: For which feeds to begin with, see the 'Training stock and initially setting the adjusters' SOP



4) Sprinkle handfuls of milk powder on the feed access area and in the trough on the 'lamb side'.

Note: Repeat this step each time you enter the field/paddock until you see that there are a similar amount of ewes and lambs around the feeder.

5) When the majority of lambs are around six weeks old, close the remaining Creep Panel to **POSITION 3**.

6) Set the Upper and Lower Adjuster so that feed is almost flowing into the trough.

7) Monitor the feed intake of the lambs after they are six weeks old.

Average daily intakes of 200-300g/day to weaning may be the most profitable supplement regimen.

Once daily intake for the lambs has increased to 300g/day, intake may be restricted by closing up the Upper and Lower Adjusters.

8) As soon as lambs have to use any force to pull their head out of the Creep Panel, move the panels up one hole to **POSITION 4**.

This usually occurs around seven to eight weeks old (breed dependent).

Note: The most narrow part of a lamb's head is between its ears – lambs twist their heads to get it in and out from under the creep panel.

9) Around 11-12 weeks of age, the Creep Panel may be raised one more hole to **POSITION 5**.

PROCEDURE WHEN ONLY LAMBS ARE SUPPLEMENTED

Lambs are introduced to the feeder as a creep feeder (ewes are excluded from the feeder)

- 1) When the majority of lambs are approx. two weeks of age, bring the feeder into the field/paddock with both Creep Panels set to **POSITION 3**. It is best to place the feeder in an area of the field that the stock are more likely to pass regularly.

Note: Although this Creep Panel position is much narrower than what is required to keep the head of a ewe out, it imprints on the ewe that they can't get their head in when the Creep Panel is at **POSITION 4 and 5**

- 2) Set the Upper and Lower Adjuster so that feed is almost flowing into the trough. This allows lambs to access the feed easier.

Note: For which feeds to begin with, see the 'Training stock and initially setting the adjusters' SOP

- 3) To help attract lambs to the feeder, for the first week, sprinkle milk powder around the feeder and place a salt block there.

- 4) Sprinkle handfuls of milk powder on the feed access area and in the trough. Continue this step until the majority of times you enter the field/paddock, there are several lambs around the feeder.

- 5) Monitor the feed intake of the lambs after they are six weeks old.

Average daily intakes of 200-300g/day to weaning may be the most profitable supplement regimen.

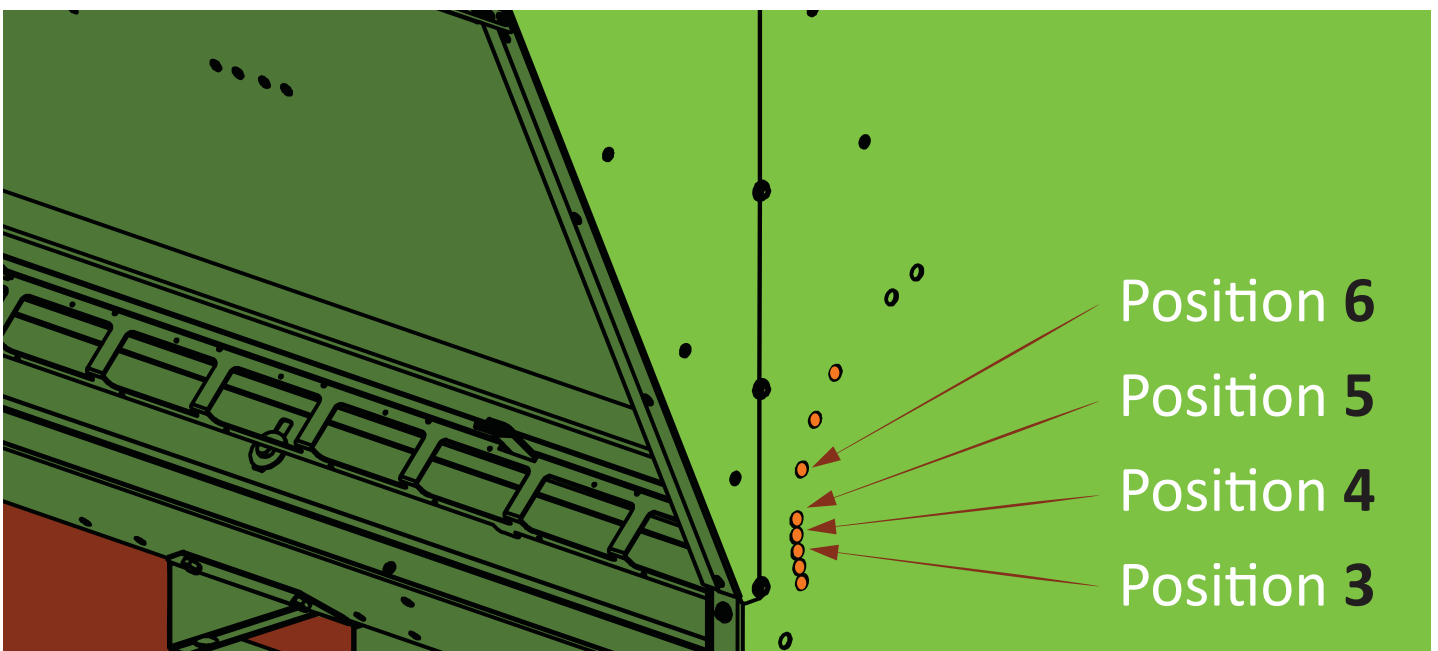
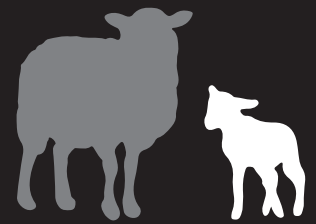
Once daily intake for the lambs has increased to 300g/day, intake may be restricted by closing up the Upper and Lower Adjusters.

- 6) As soon as lambs have to use any force to pull their head out of the Creep Panel, move the panels up one hole to **POSITION 4**.

This usually occurs around seven to eight weeks old (breed dependent).

Note: The most narrow part of a lamb's head is between its ears – lambs twist their heads to get it in and out from under the creep panel.

- 7) Around 11-12 weeks of age, the Creep Panel may be raised one more hole to **POSITION 5**.



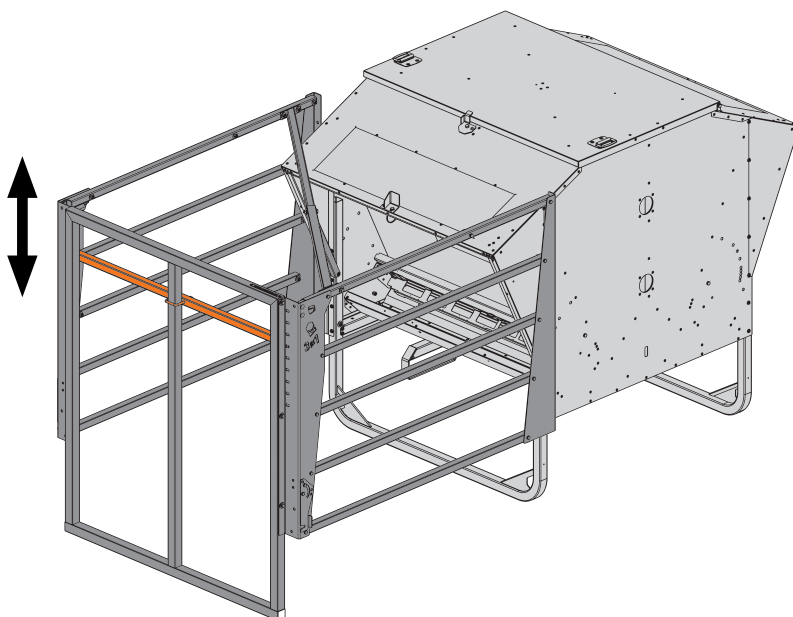
3IN1FEEDERS calf creep feeding system has an adjustable “gate” to prevent cows from accessing the feed.

Like any creep feeding system, the maternal stock are going to try and access the supplement their offspring have been allocated and steps need to be taken to reduce any issues. and the interpretation of the levels may vary so fluctuations of calculations of “Grams/head/day” can easily vary 50% from one period to another. It is recommended that values from the last three calculations of “Grams/head/day” should be used to determine average consumption.

Generally, any age calf will grasp the process of walking through the gates and accessing the feed however, there are steps that can increase growth rates by having calves adapt to the system quickly.

PROCEDURE

- 1) When the majority of calves are around five weeks old, bring the feeder into the field/paddock. Lower the Creep Gates into position. Lower the Creep Gates into position.
- 2) Set the Upper and Lower Adjuster so that feed is almost flowing into the trough. This allows calves to easily access the feed.
Note: for which feeds to begin with, see the ‘Training stock and initially setting the adjusters’ SOP
- 3) Initially, position the adjustable horizontal bar (below in orange) in one of two positions:
 - a) If the calves are over three months old, position the horizontal bar so they can walk into the creep feeding area without their back touching it (pictured bottom right).
 - b) If the calves are under three months old, position the horizontal bar so they can walk into the creep feeding area without their head touching it.
- 4) Sprinkle handfuls of milk powder on the feed access area and in the trough. Also place a salt block in the creep feeding area.
- 5) Continue this step until the majority of times you enter the field/paddock, there are several calves around the feeder.
Note: This is particularly beneficial in cases where the feeder is introduced to calves younger than three months old.
- 6) Monitor the feed intake of the calves after they are four months old.
- 7) As the calves grow, keep adjusting the horizontal bar as per 3a).
- 8) Average daily intakes of 1kg/day to weaning may be the most profitable supplement program. Once daily intake for the calves has increased to 1kg/day, intake may be restricted by repositioning the Upper and Lower Adjusters.



The Adjuster Guard is a part that creates gaps for the stock to lick through. The purpose of the gaps is to:

- 1) Encourage stock to stand in the same location when feeding – not pushing others out of the way, and
- 2) Prevent stock using their tongue laterally along the licking area and flicking feed into the trough.



STANDARD POSITION

The Adjuster Guard in the 'Standard' position, allowing full access to the feed in the licking area.



INVERTED POSITION

The Adjuster Guard in the 'Inverted' position, restricting access to the feed in the licking area.

PART 1: SHOULD THE ADJUSTER GUARD BE USED?

- a) Are your stock moving along the trough and pushing others out of their way?
- b) Are you not able to restrict the intake to the desired amount?

If you answer yes to either of these questions, the Adjuster Guard should be used.

PART 2: WHICH WAY SHOULD THE ADJUSTER GUARD BE POSITIONED?

When the Adjuster Guard is in the '**Inverted**' position, the licking area doesn't require cleaning as frequently.

However, the lowest achievable ration is lower when the Adjuster Guard is the '**Standard**' position. As a general rule, if the licking area is blocking more than once every other day, position the Adjuster Guard in the '**Inverted**' position.

Note: The late model Adjuster Guards can be fitted in the feeders in two ways depending on the feed being used.

CALCULATING FEED CONSUMPTION AND ALTERING THE ADJUSTER POSITIONS



Controlling feeding amounts is important to ensure stock receive the required supplement to increase profitability whilst not over consuming and therefore reducing profitability.

Knowing your flock/mob supplement consumption is critical information for a profitable enterprise.

PROCEDURE TO CALCULATE FEED CONSUMPTION:



- 1) Level the feed in the hopper and take the reading against the volume sticker

Note: If the feed is peaked over the side panels and hard against the roof of the 1800 and 3800, this amounts to an extra 0.2 cubic meters of feed.



- 2) Fill in the Advantage Feeders / 3IN1FEEDERS Consumption Log.
- 3) Use the formula on the Advantage Feeders / 3IN1FEEDERS Consumption Log to calculate the average daily intake of the flock/mob.

Note: Daily consumption can vary so it can be best to wait three days between recordings.



- 4) Determine if the stock have been consuming the anticipated amount.

Note: The increments of volume in the feed are relatively sparse and the interpretation of the levels may vary so fluctuations of calculations of "Grams/head/day" can easily vary 50% from one period to another.



It is recommended that values from the last three calculations of "Grams/head/day" should be used to determine average consumption.

PROCEDURE TO MOVE THE ADJUSTERS:

Assess what amount of feed you would like the stock to be having going forward.

- a) If they are consuming the correct amount leave the Adjusters in the position they are in.
- b) If the stock are not consuming the desired amount, ask, is there feed in the hopper?

Note: As a general rule, the control over feed consumption is more accurate when the Upper Adjuster and the Lower Adjuster have similar settings. Example: both adjusters being set at 3 dots.

- i) **If the answer is NO**, move the adjuster that is set at the higher amount of dots. Example: if stock are over consuming, the Upper Adjuster is at dot 3 and the Lower Adjuster is at dot 4, move the Lower Adjuster to dot 3 to restrict intake.
- ii) **If the answer is YES**, move the Upper Adjuster.

Warning: if the Lower Adjuster is moved when there is feed in the hopper, the feed can flow under the Lower Adjuster. The only way to stop this is to empty the hopper which can be a very time consuming task.

Note: Small movements of the Adjustment system can significantly change the feed intake. It is best to make small and gradual adjustments over a 10 day period.

Note: If the Upper Adjuster is set as low as it can be before preventing feed from falling into the licking area, insert the Adjuster Guard.

Shy feeders are apparent in all commonly used feeding systems including trough feeding and feeding on the floor/ground

Shy feeders are stock that do not receive their full allocation of supplement feed.

A number of factors influence whether an animal is “shy”. These include the amount of feed trough space available, the differential in size between the large and small animals within a flock/mob and the availability of other feed sources.

Depending on the number of animals and their place in the production cycle, it can be important to identify these animals and treat them uniquely.



PROCEDURE



- 1) Find an area protected from the wind
- 2) Put a protective mask and body suit on.



- 3) Fill a 10-20 litre bucket with feed.
Note: Make sure the bucket has a lid.



- 4) Push the jar of blue food dye (with the jar lid remaining on) of blue food dye into the feed at the bottom of the bucket.



- 5) Open the lid on the jar and remove the food dye powder.



- 6) Put the lid back on the jar and dispose of it.



- 7) Slowly mix the feed and the dye in the bucket.

- 8) Ensure the feeder for the test is empty or almost empty.

- 9) Fill the feeder with about 25kg of feed – this will prevent any of the contents of the bucket being accidentally tipped in prematurely.

- 10) Position the feeder so you can stand upwind of it being filled.

- 11) Put approximately 200kg of feed and the contents of the bucket in the hopper. The contents of the bucket should be trickled in when the feed is going in the hopper.

Note: If you are using a FEL bucket to fill the hopper, the contents of the bucket may need to be mixed in with the feed while in the feed is in the FEL bucket.

Note: If the 200kg of feed is bagged, a proportion of the contents of the bucket can be put on the top of each bag after it is emptied in the hopper.

- 12) Use a shovel to slowly mix the hopper contents.

- 13) After 24-48 hours, check the animals' noses.

WHAT TO DO ONCE A SHY FEEDER HAS BEEN IDENTIFIED

The consequences and cost of managing shy feeders needs to be assessed.

Consequences of an animal not receiving supplement:

- If a weaned lamb doesn't consume its allocated supplement it may take longer to grow out to target weight – low consequence.

- If a heavily pregnant ewe doesn't consume its allocated supplement, it may have difficulties with birth, lactation and foetal development – high consequences.

Cost of managing shy feeders independently:

- If there are some shy feeders in a flock/mob of weaned lambs, the cost of allocating a separate field/paddock and the labour is excessive.

Note: The animals' welfare also needs to be considered.

Maximising production requires rumen microbes to have a constant supply of feed sources. If the feed blocks in an Advantage Feeder / 3IN1FEEDER, it can limit production.

There are a number of factors that influence the frequency of feed blockages. These include the type of feed, the cleanliness of the feed sample, humidity, amount of stock on the feeder and the position the adjusters are in.

Over a long enough period of time, all feeds will block in the feed access area (the area between the Upper and Lower Adjusters). Pellets tend to block the most. This is because they:

- Can quickly absorb moisture from the air
- Can have poor consistency from one batch to another and have a lot of fine dust content.

Whole grains work better than crushed grains because of the grain dust that is caused by cracking the seed.

USING WHOLE GRAIN

There are advantages to using whole grain aside from reducing feeder cleaning frequency. In the Advantage Feeders / 3IN1FEEDERS system, stock are often fed only 10% of their total diet with grain.

When the intake is this low, grain makes up a small proportion of the rumen's contents and gets mixed with a large amount of forage. This significantly reduces the chance of the grains leaving the rumen undigested.

Another benefit is that whole grains are also digested more slowly than cracked grains – providing a more consistent feed source to the microbial population within the rumen.

HOW TO REDUCE THE FREQUENCY OF CLEANING

- 1) Change the feed being used to cereal grain, if this feed has the adequate nutritional requirements.
- 2) Replace cracked grains with “bruised” grain. Bruised grain is squashed but unbroken whole grain.
- 3) Feed a mix of cereals and high protein pellets instead of standard pellets. Pellets are often fed because cereal grains can have an inadequate level of protein. One way to formulate a more cost effective ration than pellets and reduce cleaning frequency is to add a high protein pellet to cereals.
- 4) Change pellet supplier. Pellet quality varies a lot. Some pellet manufacturers are prepared to screen out dust, increase the hardness of the pellets and/or increase the level of fat (to prevent moisture absorption).
- 5) Use the inverted side of the Adjuster Guard. The inverted side of the Adjuster Guard allows a larger gap between the Upper and Lower Adjusters while providing the same gap where the animal's tongue licks.

The larger gap means that it takes much longer for the gap to become clogged.

For more information, see the “When and how to use the Adjuster Guard SOP”










Feed value is calculated by weight however, the volume of feed per kg varies, making it impossible to have a weight sticker inside the hopper of an Advantage Feeder / 3IN1FEEDER.

Advantage Feeders / 3IN1FEEDERS have volume stickers. The density (the relationship between weight and how much space it takes up) of feed is required to calculate the weight of feed consumed.

GENERAL FEED DENSITY

Note: These figures are indicative only – feed densities can fluctuate considerably. It is recommended that you follow the procedure (right) to determine the relative density of your feed.

		kg/litre	lb/litre
	Pellets	0.65	1.43
	Barley	0.65	1.43
	Oats	0.51	1.12
	Wheat	0.77	1.69
	Soya meal	0.60	1.32
	Peas	0.75	1.65
	Beans	0.75	1.65

PROCEDURE

- 1) Find a bucket. It is best if the bucket is 10-20 litres.
- 2) Weigh the bucket. As a guide, most 20 litre buckets weigh about 0.9kg.
- 3) Fill the bucket to the brim with the feed. Level the feed off on the top of the bucket with a straight edge.
- 4) Weigh the bucket with the feed in it.
- 5) Empty the bucket and fill it to the brim with water.
- 6) Weigh the bucket with the water in it.

Calculation:

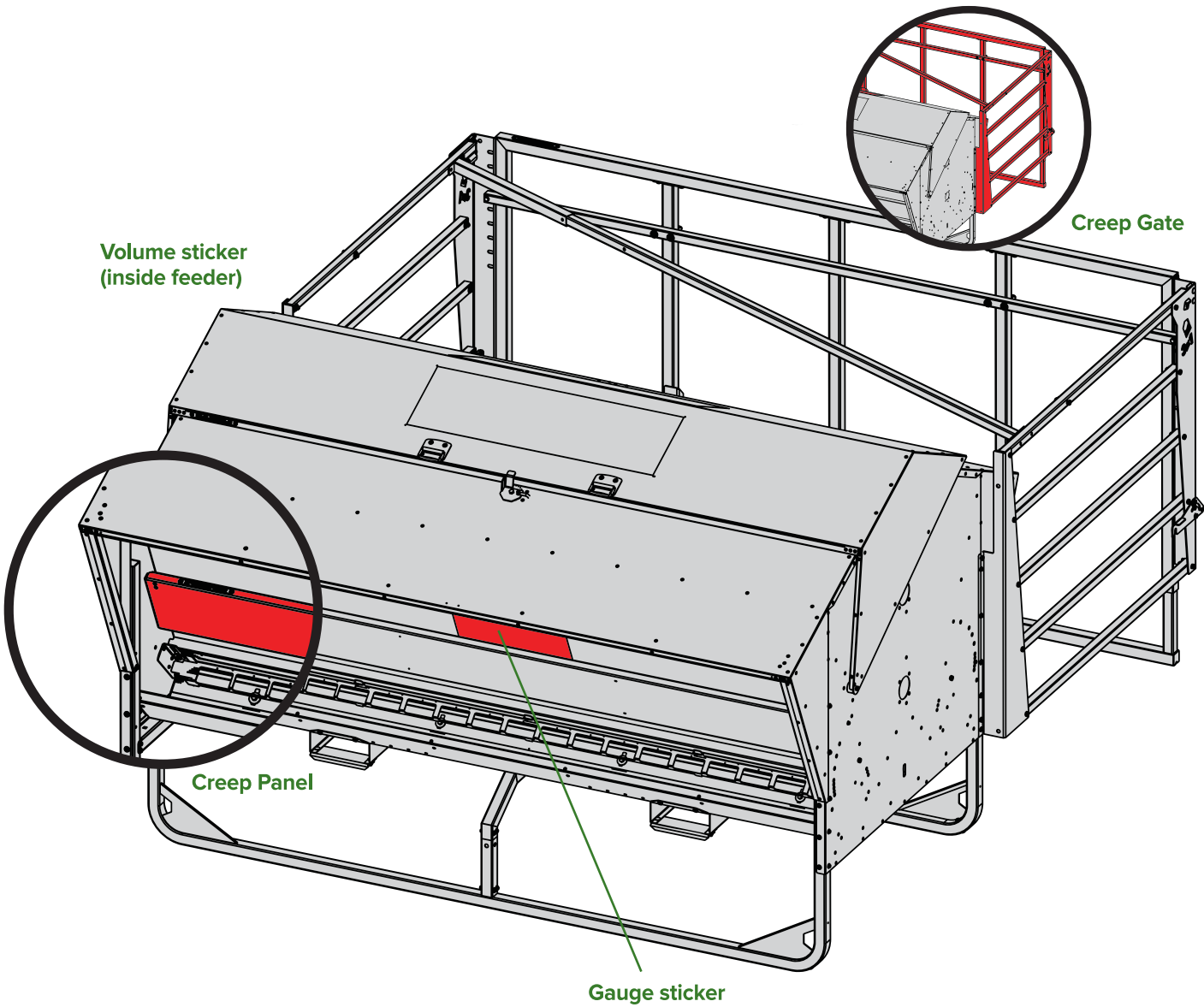
- i) Calculate the weight of the feed – Subtract step 2 from step 4.
- ii) Calculate the weight of the water – Subtract step 2 from step 6.
- iii) Calculate the density – Divide i) by ii).

Example:

- 2) The bucket weighs 0.9kg
- 4) The feed and the bucket weighs 14.5kg
- 6) The water and the bucket weighs 21.5kg
- i) The feed weighs 13.6kg ($14.5 - 0.9 = 13.6$)
- ii) The water weighs 20.6kg ($21.5 - 0.9 = 20.6$)
- iii) The density is 0.66 ($13.6 / 20.6 = 0.66$)



FREQUENTLY MENTIONED
PARTS



Upper Adjuster

Adjuster Gauge

Adjuster Guard

Lower Adjuster

