Abbey Machinery's

Feed Management Guide

ABBEY MACHINERY since 1947

FEED CARE

When the TMR contains the correct balance of ingredients, along with the appropriate amounts of roughage (quality long effective fibre), it enhances feed intakes, settles the rumen to absorb more nutrients from the ingested feeds and raises animal performance and health.

Abbey Diet Feeders unique chopping and mixing action helps the animal to digest the maximum amount of nutrients from the feed they have eaten, to drive performance and even to reduce environmental emissions - from both nitrogen and methane. This raises feed efficiency (getting more milk and meat per kg dry matter intake).

THE HOUSING AREA

Livestock housing environment needs to have appropriate ventilation, fresh clean water, good cubicle design to promote maximum lying comfort (reducing mastitis and lameness) and adequate loafing areas to allow 360° turnaround of the cows behind where they eat. Overcrowding in sheds can reduce feed conversion efficiency (FCE) by 10%, reduce NDA digestion rate, increase sub-acute rumen acidosis and reduce how often animals come to the feed area to eat. Canadian research highlights that mean cow space at the trough should be 56cm per cow. Interestingly every 10cm increase in feed space can increase milk fat production by 0.06%.

RUMEN MAT

The rumen mat is vital for fibre digestion, as it affects the passage rate of feed through the animals digestion system. Rapidly digestible water-soluble carbohydrates and soluble protein in grass can prevent the rumen mat from being formed properly. Rapid digestion of water-soluble carbohydrates and starch, along with high passage rate through the rumen results in poor fibre digestion and puts cows at risk of acidosis. Sub-Acute Rumen Acidosis (SARA) reduces fibre digestion and output, thus increases N loss from cow, as microbial protein production in the rumen is reduced.

PARTICLE SIZE IN THE RUMEN

Shorter straw works better in fresh cows, as there is less selection of the diet with shorter particle size. Consumption of small frequent meals are difficult to sort through the feeds and thus stimulate rumination.

Manage feeding to ensure cows are stimulated to access their feed throughout the day is vital. Pushing up feed more often during the day or delivering feed more often helps to stimulate higher feed intakes. We need to minimise the amount of time cows are without feed and also the time sorting through feeds.

HOW COWS EAT IMPACTS PERFORMANCE

Dry matter intake relies on eating behaviour. Acidosis impacts rumen function and this decline in rumen pH influences fatty acid content of milk. Cows can eat for 250-300 minutes per day across 8-10 meals. With properly mixed diets there is less sorting of long fibre, less rejection of feed, more consistent intakes across the day and more fat corrected milk.

THE ENVIRONMENT

Ample feed bunk space and loafing areas reduces bullying and increases dry matter intakes, ruminations and milk yield. It also reduces lameness in the herd and improves eating time at the feed trough. Good cubicle comfort increases ruminations and lying time. Floor surfaces need to be non-slip to prevent animals from being nervous walking around and slipping unnecessarily.

THE NITROGEN CYCLE

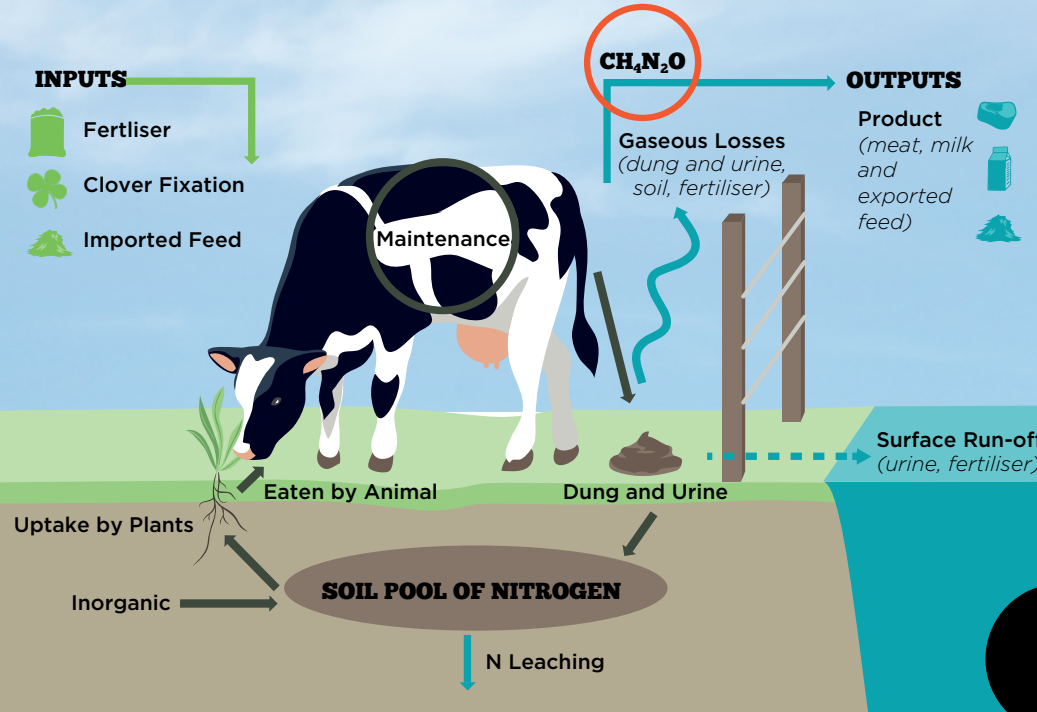
REDUCING NITROGEN LOSSES AT PASTURE

Methods include reducing the application of artificial Nitrogen fertiliser and improving timing. Use low-emission slurry spreading (ie. Abbey Vertical Trailing Shoe, Tri-App Trailing Shoe System, Band Spreader and Disc Injectors). Use minimum till techniques when re-seeding.

IMPROVING NITROGEN USAGE BY THE COW

Largest loss of N from dairy cows is from urine. Dairy cows are poor utilisers of N, with up to 70-80% N excreted as urine and faeces (Whelan, 2013). Urine patches in pasture are a major source of N pollution in grazing systems. Note - 1 urine patch on the grass equates to 1000kg N/ha (Cameron, 2013), on that area.

Feeding higher quality protein will result in more protein reaching the small intestine and improve efficiency of utilisation, reducing the quantity of nitrogen in the urine. Adding more rumen undegradable protein like Hi-Pro Soya is also beneficial. Reducing the crude protein level of the diet will result in less rumen degradable and rumen undegradable protein ingestion and subsequently reduce N loss. Cows in early lactation require 16-17% crude protein in their diet to support up to 50kg milk output (Nadeau, 2006). Having energy and protein in the rumen at the same time improves overall digestion and this is one of the key benefits of a good TMR system.



ABBEY FEED MANAGEMENT SYSTEM

Abbey's '**Total Feed System**' puts the animal at the centre and considers their needs; the environment and animal health; the animal's behaviour; breed and performance expectations; labour situation and farm layout; machine feeding requirements; feed management and machine maintenance.

PREFERRED LOADING ORDER OF THE ABBEY DIET FEEDER

6. Grass Silage
5. Moist Feeds
4. Micro Ingredients
3. Concentrate Blends
2. Cereal Forages
1. Long Fibre

COW BEHAVIOUR

Livestock will always attempt to display normal behaviour, especially when their environment allows them to. It is always good to have an environment that facilitates the cow's ability to act normally.

Cows will typically eat for 250-300 minutes per day; they need 30 minutes digestion time for each 1kg dry matter intake and their best performance is achieved while lying down and ruminating.

LYING BEHAVIOUR

When monitoring livestock, a good rule of thumb is that 70% of animals should be lying down and ruminating at any one time. When animals are lying down, they are less stressed and this facilitates improved ruminations and overall feed digestion. Lying areas (ie cubicles), should allow the cow 700mm to stretch forward while they are going from lying to standing position. Space sharing in cubicles and good comfort in the form of mats, sand or straw bedding is very beneficial.

LOCOMOTION

Monitoring animal movement is an excellent signal of health. Routinely herding/monitoring stock can help to pre-empt lameness issues in advance and maintain livestock output. For 15-20 days before livestock show clinical signs of lameness, their dry matter intakes decrease's and so also their performance.

Locomotion scoring should be carried out in a flat straight area, that allows the cow to walk normally.
NOTE: Cows scoring 2 or 3 need to be inspected and trimmed to prevent more serious problems.

WHAT ARE COW BEHAVIOURAL SIGNALS AND HOW CAN WE USE THESE SIGNALS TO IMPROVE COW HEALTH AND PERFORMANCE?

1	**Normal**	Stands and walks normally with a level back and makes long confident strides.
2	**Mildly Lame**	Stands with flat back, but arches when walks. Their gait is slightly abnormal.
3	**Moderately Lame**	Stands and walks with an arched back and short strides with one or more legs. Slight sinking of dew-claws in the limb opposite to the affected limb, may be evident.
4	**Lame**	Arched back when standing and walking. Favouring one or more limbs, but can still bear some weight on them. Sinking of the dew-claws is evident in the limb opposite to the affected limb.
5	**Severely Lame**	Pronounced arching of their back. Reluctant to move and they almost completely transfer their weight off the affected limb.

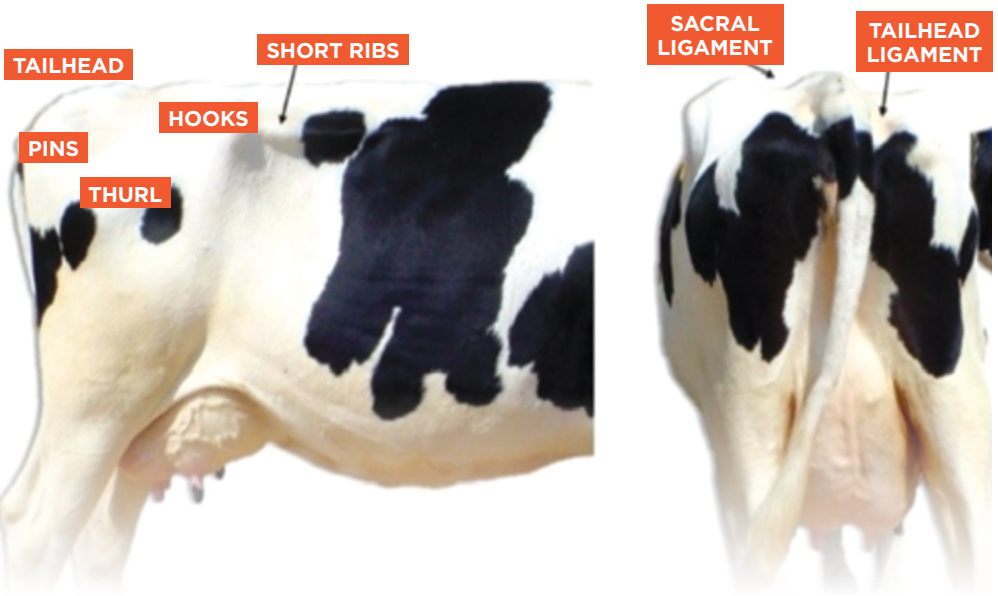
Actions Steps to Reduce Lameness:

- Avoid overcrowding.
- Provide properly designed and maintained cubicles.
- Minimize heat stress and have good ventilation.
- Flooring should provide for good traction, but minimal wear on hooves. Farm roadways should be well maintained with minimal aggregates on the top.
- Routine foot-bathing with appropriate solutions and routine hoof trimming are important.
- Early detection reduces pain, improves recovery and animal productivity.

BODY CONDITION

Cow body condition is an excellent way to assess performance and see if animals are on target or not. The score is from 1 – 5 (one being very thin and five being very fat). The ideal score for Holstein cows at calving is between 2.5-3.5 and this is a key factor for transition cow management and ensuring the cow is 'fit' for calving.

- Thin cows at this point will tend to be weak at calving, get metabolic disorders after calving and even get lame.
- Over fat cows at calving find it difficult to calve and are pre-disposed to ketosis after calving.



RUMEN FILL

The animal's rumen is on the left-hand flank of the cow. Rumen fill-scoring is a rating scale from 1 to 5 (one being very empty and 5 being very full). It is the area behind the last rib, below the transverse processes and in front of the hip. It indicates dry matter intake and cow health.

1	**Empty**	**Deep hollow triangle and there is a hand width deep under the transverse processes. It indicates a cow that hasn't eaten much in the last 24 hours.**
2	**Almost Empty**	**The triangle is visible and it depresses half to one hand deep under the transverse processes. It is also known as the 'danger triangle'. This cow has eaten very little over the past 24 hours. Can be seen in early lactation.**
3	**Good Rumen Fill**	**Can see a faint triangle. The triangle is more-flat and can be the target fill score for lactating cows (but would be too empty a rumen for a pre-calving cow).**
4	**Full**	**Triangle is very faint. It is the target minimum fill score for dry cows in last three weeks pre-calving.**
5	**Very Full**	**No triangle visible and the skin bulges out below the transverse processes. Can be a good score in late pregnancy and could signifies a pregnant cow that is eating well.**

TEMPERATURE

The normal core body temperature of a resting cow should be 38.6°C. The cow's environment has a huge effect on its body temperature, the time of day and cow activity. The extremities of the body are cooler than the inner organs. A cow's body temperature is lower in the morning, due to the rest the body received over-night and higher at night after a day of muscular activity. Hormone interactions before and after calving also affect the body temperature. A cow's body temperature must be maintained within narrow limits in order to sustain its physiological processes (between 37.8°C to 40.0°C).

WEIGHT CHANGE

Regular weighing of dairy cows aids in feed management, to better monitor the impact of changes in the feeding regime; better management of breeding performance to monitor weight loss after calving and pick up on which cows that are continuing to lose weight after the early lactation period and pick up on cows that are in the early stages of lameness or illness, which are not yet visible to the eye. From birth to weaning calves should put on 0.75kg/head/day.

On the beef and lamb side it indicates performance levels (ie. live weight gain), whether animals are going to hit target weights and when they are finished. It helps to indicate the onset of sickness (eg lameness, other diseases) so there can be early remedial action and prevent lost performance and profits. Suckler calves should be 50% of their mature body weight by 200 days of age.

COW MANURE

Cow manure can tell us when to add protein to the diet, help to prevent problems like acidosis before it's a problem, worm status and level of feed digestion. Higher quality forages mean brighter coloured manure. Bloody manure can indicate coccidiosis and intestinal discharge of tissue is often associated with salmonella.

When cows make manure it should leave concentric circles, have a relatively solid structure and raise off the ground and also there can be a clapping sound as the manure hits the ground. High protein diets with less fiber, results in runny manure. Adding chopped fiber helps to ensure that cattle utilise all the protein they ingest and aren't just losing it out the other end. It can also be good to look through the manure to see what parts of the feed are being digested properly or not.

RUMINATIONS

Rumination is important to reduce the size of feed particles (especially forages) to increase its digestibility; for secretion of saliva to moisten the feed as it is being chewed and in buffering the rumen to keep pH near 6.5. Rumination time is a good indicator of animal health.

Monitoring ruminations during the transition cow period is key to preventing metabolic disorders around calving time and in the first 30 days in milk production. Long effective fibre, properly chopped and mixed into the TMR impacts ruminations. Also, the digestibility of the feed ingredients has an effect.

Health and weather factors - milk fever, ketosis, dystocia and metritis all lower rumination time. Cows with mastitis have a lower rumination time. Indeed, it is depressed in cold and dry weather also. On average, cows should ruminate 7-9 hours/day, eat 4-5hrs/day, be 2-3 hrs/day in the holding pen to be milked and lying comfortably for 12-14 hrs/day. Most of the ruminations occur while the cow is quiet, settled and lying down.

Actions - ensure there is a comfortable environment, adequate diets with well chopped and mixed fibres and respond early to health signals. Overstocked and uncomfortable cubicles decrease lying time, increases lameness and reduces rumination time and production.

MILK QUALITY

Milk constituents are good indicators of health and how balanced the diet is.

- Low Butter Fat levels can indicate inadequate fibre in the diet.
- Low Protein levels can indicate a diet that is low in energy.

HAIR

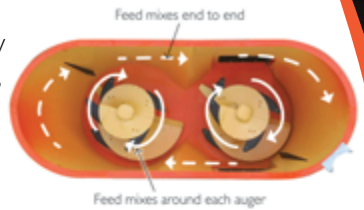
Hair colour, coat shine and cleanliness show how healthy the cows are. It can be an indicator of the energy status of the diet, mineral deficiencies and overall animal health.

- A glossy coat is a sign of a healthy animal.
- A dirty coat is always a bad sign and can identify such things as the need to change the bedding, scouring from illness or poor ration formation.

IT'S ALL IN THE MIX

Correct preparation of the feed, to fuel the rumen for optimum digestion brings enormous benefits in terms of dry matter intakes, rumen health and overall performance. To work at its optimum the rumen needs an adequate mix of protein, energy, effective fiber, mineral and vitamins.

Abbey Diet Feeders have a uniquely designed low auger with flat profile, inflected top knife, tub design and overall construction to gently chop, mix and feed out feeds in a manor that optimises the utilisation of the diet. The resultant TMR has a nice open texture, that promotes high dry matter intakes, minimises sorting in the feed trough and helps the animals to draw the maximum nutrients from the feed. This has the effect to increase feed to milk/meat ratios and reduce unwanted nitrogen getting to the athmosphere.



PRECISION FEEDING

Typically, feed can account for 50% of farm input costs. Like humans, livestock 'are what they eat'. Therefore, precision feeding, attention to detail, hygiene and a balanced diet all matter.

Improving the process of loading and delivering rations is a beneficial area to focus on, because there can be an enormous difference between the planned ration, the loaded ration and the actual eaten ration. Research has show that the difference can be as high as 20%. Ruminant livestock do not like even small changes in diets and consistency of feeding is the key.

Using **TMR Tracker** helps milk and meat producers to manage feed costs, drive efficiency and increase output. The diet formulation, production groups and feed mix information are inputted using the PC. This information is then transferred to the indicator on the Abbey Diet Feeder through wireless connection or USB-stick. During feeding the actual weights loaded and fed are saved and sent back to the PC.

FEED MANAGEMENT TRACKING	STOCK & INGREDIENT TRACKING	OPERATOR TRACKING	MANAGE FEED COSTS	SAVE TIME	PERFORM-ANCE
Easily monitor and amend feeds.	Track daily use of all feeds.	More accurate loading and if there are multiple operators it will show their loading accuracy. Encourages accurate loading.	Compare intended ration against ration fed.	Easily change group numbers.	More accurate diet feeding results in better yields, milk solids, and live weight gain in cattle.
Share feeding information with advisors and nutritionist.	Gives warnings when running out of feeds.	Easily adjust rations for Dry Matter Intake (DMI).	Can measure Dry Matter Intakes and feed costs per animal.	No need for manual records.	Healthier livestock through more accurate feeding. Lower cull rate and vet bills.
Diet Feeder Maintenance. Records quantity of loads and auger revolutions. Schedule machine maintenance.	Assists feed stock management so as not to run out and also no need to over-stock.		Margins over feed costs.	Ultimate accuracy at your fingertips.	
			Calculate income over feed costs.	Feed exact amounts accurately.	
FLEXIBILITY	**EARLY WARNINGS**	**ACCOUNT-ABILITY**	**COST ANALYSIS**	**MORE TIME**	**MORE MONEY**

TMR TRACKER
SYSTEM

GLOBAL VILLAGE

KEVIN HOGAN
TIPPERARY, IRELAND
1,000 loads and going strong

Kevin is a very busy man. He runs a 220 cow dairy farm (7,500L cows), along with a Landscaping & Plant Hire business. His focus is on healthy animals, labour optimisation and farm profitability.

"We have a long, outdoor feeding area and I wanted to reduce feeding time, improve cow performance and be able to mix various feeds. Two years ago, I decided to start diet feeding. I did a lot of research and looked at all the main brands available. In the end, I purchased an Abbey VF2450 Diet Feeder because it was very well built, would do the job I needed and I was going to get good local support from the dealer (Abbey Retail). Since getting the machine it has been great. We are currently feeding zero grazed grass, baled silage, hay and ration and these feeds are well mixed in the feeder. There is no sorting at the trough and the animals are very content. We have done over 1,000 loads and we haven't had an issue", remarks Kevin.

TOM FARROW
LAURELS FARM, STUBBY, ALFORD LINCOLN, ENGLAND
Saving 5 litres per day on fuel and excellent feed-out

Tom Farrow has a progressive livestock business, with 1,000 head of cattle and 360 suckler cows, with a number of different farms to feed and up to 4-5 loads per day at peak times. He invested in an Abbey VF2250, with front cross conveyor for added versatility.

"We have estimated we are saving on average 5 litres per day on fuel due to Abbeys unique auger design and auger flight profile. We have not broken a knife bolt due to the 3-bolt fixing on the Abbey, whereas the previous feeder had 2-bolts and we were always replacing them. Due to the amount of road work we have between farm's the commercial axles helps with driver comfort and makes it very stable on the road and the extra lights make the machine stand out more, in winter months. We like the way the flow of the feed comes out due to the new angle plate in the feed-out door to improve feed-flow. The front cross conveyor is easy to service and is very versatile, which helps on our farm with some troughs being hard to reach. Overall the machine is very well built and is easy to maintain" remarks Tom.

RICHARD WESTLAKE
MAYFLOWER FARMS, MAUNGATUROTO, NORTHLAND, NEW ZEALAND
Extra 60kg milk solids per cow and very low maintenance requirements

Richard Westlake has a 600 cow dairy herd and he supplies his milk year-round to the dairy at Maungaturoto.

He bought an Abbey VF1850, with two side elevators and now sees the Abbey Feeder as a *"crucial part of his production system. I don't know how we'd do without one now"* said Richard.

"I went for the Abbey because I'd used a lot of their machines, when I was working as a contractor in the UK and still had friends over there who recommended them.

It is a great machine which evenly mixes whatever we put in and feeds consistently over the whole trough. We know the first cow on the feed pad gets exactly the same mix as the heifer down the other end. We noticed a big difference in our milking, with the small cows producing the same amount as the larger cows. Across the board, we got 60kg milk solids increase per-cow-per-year and this goes a long way to paying back our investment in the machine".

The variable speed on the belts means they can feed out at different speeds on each side of the wagon for different stock, whether they are on the feed pad or calving pad. *"Having two elevators also gives us a bit of security. If we happen to whack one of them off a fence post, we've always got the other one. Around 5 tonne of feed is mixed and fed from the wagon each day – generally a large round bale of hay, combined with 3 tonnes of maize silage, 1.2 tonne of palm kernel and 350 kg molasses, plus minerals".*

Richard usually tows the mixer wagon behind his 115 HP tractor, but says his 95 HP tractor also handles it with ease, even with a full load of maize.

"Since I got the feeder it has required little servicing, apart from a bit of oil and grease. Overall, it's a strong, reliable and easy wagon to use, a good weighing system and very consistent mixing and feeding out. I would definitely recommend the Abbey mixer wagon to other farmers. It is a smart investment", concludes Richard.

LEN & REBECCA WALLING
WHAREPUHUNGA, WAIKATO, NEW ZEALAND
VF2850 mixes 10 tons and is very well built

The Wallings run a 900 cows dairy farm in Waikato region in NZ. They purchased an Abbey VF2850 from Waikato Tractors to handle 2 x 10 ton loads per day. Their previous machine was not able to handle it. *"We chose the Abbey because it was the strongest on the market. It handles the toughest conditions, and is constructed using the highest grades of materials".* It has the ability to handle precision chop silage, large round or square bales of silage, hay, straw and roots. Additional feed products such as maize and meal are also added. They mix mainly maize silage, grass silage, palm kernel, molasses, straw, minerals, and even kiwifruit, apples and bread when available. Rebecca says, *"Abbey's Digi-Star weighing system allows them to achieve consistency of the feed mix and lets us know exactly what's going on. Our VF2850 has a rear self-steering axle, allowing it to turn in a very tight circle without having to manoeuvre and back around."*

"We have an Abbey slurry tanker for the last couple of years and it's brilliant as well. It's a good brand. The feeder is doing the job 110% better than our previous machine.", concludes Rebecca.

STEWART FAMILY
PORTAFERRY, ARDS PENINSULA, NORTHERN IRELAND
Superior mix quality

The Stewart family purchased an Abbey VF2100 Vertical Auger Diet Feeder in August 2017. They run a herd of 400 pedigree holstein cows and in 2017 they decided that they wanted to start diet feeding to spread the consumption of concentrate throughout the day, rather than twice per day in the parlour and to significantly speed up the feeding process. Following trials of numerous machines, they decided to go with the Abbey VF2100 twin auger Diet Feeder, due its superior mix consistency, build quality and overall reliability. James Stewart said, *"Having viewed the Abbey feeder working on other farms, we were very impressed with the speed of mixing and discharge, whilst at the same time maintaining a very consistent mix. The elevator on the side door is very easy to use and allows us to feed into bunkers within the yard. The low horse power requirement to drive the feeder means we don't have to tie up a large tractor all of the time."*

MARSHAL OWEN
EASTERTON FARM, KIRKINTILLOCH, SCOTLAND
Feed Blender mixing up to 8000 tons per year

The Owens family run a mixed arable and livestock farm, along with a Feed Supply Business. They purchased a VF2100 Abbey Feeder in 2016 for the Feed Blending side of their business to mix bespoke feed blends, which are marketed throughout west central Scotland.

Marshall Owen said *"We considered many different brands of Diet Feeder, but Abbey came up with a custom-made machine to our specification to mix up to 8000 tonnes per annum. The robust build quality allows us to mix batches up to 9-10 tons loads and also make small 2 tonne batches to suit our customers. It mixes the feeds into an un-paralleled mix consistency. I would have no hesitations in recommending the Abbey Feeder".*

PEDRUS TALJAARD
FARM DE GOEDEHOOP, 3 AMERSFOORT, SOUTH AFRICA
Abbey VF2000 has been a game changer for our farm business

South African meat producer Pedras Taljaard is at the top of his game. He runs a herd of Drakensberger cattle on his feedlot. They are a breed that are indigenous to South Africa, renowned as a medium-frame beef animal with a smooth coat, long and deep body with a mild temperament. Pedras visited Ireland to see the Abbey Factory and the technology that was on offer. He invested in a VF2000 twin auger Diet Feeder in 2018 to improve performance and reduce work around feeding.

Since investing in the Diet Feeder he now mixes agrostis hay, maize, ration and protein to his cattle. *"The Abbey feeder mixes the feeds effortlessly and I never thought I could get the performance that I'm now getting on an agrostis hay-based diet. The feeder is very well made. It produces a perfect blend, the animals don't select out the concentrates so all the cattle thrive well. This machine has been a game change for our farm".*

JOHNSTONS
SKIRWITH ABBEY, PENRITH, CUMBRIA, ENGLAND
500 cows being fed with Abbey VF3050 and TMR Tracker has improved feed management on farm

The Johnstons have a 500-strong dairy herd that is housed all year round and milked using an automated parlour.

The Johnstons are generally ahead of the crowd, when it comes to technological developments in dairy farming. So, it was hardly surprising that, when they decided to buy a new Abbey VF3050 Diet Feeder, they got it with 'TMR Tracker software' to enhance their feed management. It allows wireless communication between the Diet Feeder and the computer. Every time the computer is turned on, the Diet Feeder sends back information. The software enables Chris Johnston to change recipes as and when he wants to from his desk, so that when the driver comes along to feed the cattle, the ration is already set for them.

It monitors the exact weight of what is being put in the feeder. This is important in terms of productivity, from a nutritional point of view and also efficiency. *"Through consistent feeding, the TMR Tracker helps reduce fluctuations in loading and unloading and reduces peaks and troughs in milk production. It also easily adjusts rations for dry matter content"* remarks Chris. It compares intended ration against the fed ration and calculates and records daily feed costs and dry matter intake.

"It records every single feed and the quantity of each ingredient," says Chris. *"It stops us from wasting money by over-feeding the cattle. It produces reports of who fed what and when and how much - it works well, I'm very pleased with it."*

Chris says they've been using Abbey feeders for several years. *"They're reliable, well-designed, good value for money, straightforward to use and well-built, they do the job I want them to do and they do it well."*

HUBERT PEJKA
CHRAPLEWO, 89-200 SZUBIN, POLAND
VF1250 handles a wide variety of feeds, including one tonne of pot ale syrup at its ease

Polish beef producer Hubert Pejka, who finishes 300 cattle (sucklers and beef combined) at 750-850kg weights in 18-24 months. The animals eat 35kg/head/day on a diet made up of sugar beet, grass silage, lucerne silage, hay, maize silage, grains, liquid from alcohol production and straw. Interestingly he also grows 20ha of carrots and other crops on his farm. He invested in an Abbey VF1250 in 2017 to allow him to mix an even greater volume of feeds and get the feeding task completed quicker. *"Since getting the VF1250, I am so pleased with how well it mixes maize, lucerne silage, hay, beet, blend and pot ale syrup into a delicious nutritious mix. The machine mixes very well and empties in minutes. The company helped me initially to get the machine going and I haven't looked back since. Our cattle are finishing quicker than before. The feeder is doing faster mixing, working on a smaller tractor, using far less diesel (which is saving lots of money on diesel costs) and giving a better mix of dry and wet material. Its been a great addition to our farm enterprise"* concludes Hubert.

ARNE & JAN EINAR SLETHEI
STAVANGER, NORWAY
Ultimate reliability and build quality

The Slethei family farm is very automated with automatic scrapers and a robot milking their 50 cow herd, producing 9,000 litres each annually. They also have bulls and youngstock, plus 7500 laying hens on their 33 hectare farm.

They invested in a VF1650 diet feeder, having previously fed their stock with a shear grab. *"We wanted a strong diet feeder to handle all our feeds. Ireland is a little like Norway in that they use round bales and pit silage. So, we trusted the build quality, especially after seeing our neighbours Abbey feeder. Last year was a very dry year we were able to buy silage and straw and turn them into an excellent feed for our stock by chopping and mixing them in the Abbey feeder. We only need to spend 30 minutes per day feeding. We are well pleased".*

DIET FEEDERS

THE ABBEY DIET FEEDER RANGE

A unique range of 17 vertical auger Diet Feeders (from 8 to 33.5 cubic metre capacity).

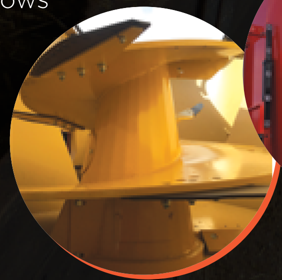
- Unique low auger profiles.
- Inflected top knife for improved bale processing and mixing time.
- Extendable knives and two counter knives for improved processing time.
- Gear box is mounted high up into the auger for improved stability and working life.
- Industry leading exit space in their feed out-doors for rapid feed-out time.
- Door wedge to improve feed flow during feed discharge.
- Variety of door locations and feed-out options (i.e. elevators, sliding and raising conveyors and feed-out rotors).
- Single, twin and now tri-auger options.
- Machines can be customised to suit the farm.

ABBEY 'PLUS RANGE' OF DIET FEEDERS

New 'Plus Range' – VF2450, VF2650, VF2850, VF3050 models are monster models with extra strength, versatility and longer working life.

- 50% thicker auger for extended working.
- Strengthened gear box mounting, with a wider base for improved support and strength.
- New horizontal and tilting monitor support.
- Monitor comes with serial port and auto-on for added versatility.
- New door wedge to give a more even and rapid feed-out.
- Safety Platform for easier viewing into the mixing chamber.
- Option of new parallel tubular top retaining ring to reduce any feed waste during mixing.

Livestock diets can be complex so a well processed and mixed TMR improves digestion, prevents the animal selecting nutrients, allows an even digestion of feeds throughout the day, allows animals to come to the feed trough at different times and yet get the exact same mix. These are just some of the benefits of Abbey Diet Feeders.



ABBEY
MACHINERY
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