

A significant part of the capital investment associated with a Flexible Feeding System is the method of mixing and delivering feed to the herd. This equipment should help you achieve a higher Milk Income less Purchased Feed Cost, but any purchases could increase your finance and capital costs. Getting the balance right means understanding the capability of different mixing and delivery systems.

What does equipment need to do?

- Be easy and safe to operate
- Fit with existing farm infrastructure
- Deliver the same diet to all animals in the group
- Deliver a diet that adds to farm profit
- Be easy to maintain (having local mechanical support is important)

Practical tips

When mixing and delivering feed to your herd, there are a few things to check for best results:

- Are you following the machine manufacturer's standard operating procedures for loading and mixing?
- Do you know what a well-mixed diet looks like? Do all members of your farm team?
- Are you feeding cows fresh feed on top of old feed?

What are the options?

To mix and deliver feed, you can use a tractor and bucket (front-end loader), silage cart or mixer wagon. Weigh up the pros and cons of each to determine which is going to best suit you and your system.

You need a high Milk Income less Purchased Feed Cost to pay for new equipment

- Is the feed trough higher than foot height?
- Is there enough trough space for all the animals in the group?
- Is there sufficient cow access to drinking water?
- Have there been any sudden feed changes?
- Are long fibre components of the diet separating from the smaller-sized feed ingredients during feed-out or being sorted by cows?
- Is it a palatable diet?
 - too dry, too wet?
 - spoiling too quickly?

Tractor and bucket (front-end loader)	Silage cart
 <ul style="list-style-type: none"> • Can only mix dry processed feeds • Time consuming to mix and feed • Uneven mix, so can't include feed minerals, feed additives or urea • Long material separates and is wasted • No weighing (unless fit load cells) • Uneven results re. animal feed intakes and performance 	 <ul style="list-style-type: none"> • Can't incorporate long and chopped materials • Uneven mix and feed-out, so can't include feed minerals, feed additives or urea • Long material separates and tends to be wasted. Cows can sort out less palatable ingredients • May be able to weigh if load cells fitted • If has a wide feed-out, this increases wastage • Uneven results re. animal feed intakes and performance

Mixer wagon

There are several different types of mixers available. While they vary in design and function, all mixer wagons should be able to weigh feed ingredients accurately, produce evenly mixed feeds, reduce wastage and be relatively labour efficient. There are more than 24 mixers on the market in Australia, including hybrids not analysed in this table. Do your research to purchase wisely.

Paddle mixer	Vertical mixer	Horizontal mixer
 	 	 
<p>Cuts feed for processing hay, straw, silage No dead spots and water tight Slow moving Hard to over-process Lower horsepower needed and fuel usage Good for delivering feed on feed-out facilities and in paddocks Simple drive, no gear boxes Volume will depend on feed bulk density Relatively heavy Higher loading height required</p>	<p>Single or twin cone Mixes by throwing feed in air Processes dry materials Mix uniformity depends on brand. Take care not to over-process May not be water tight Good for delivering feed on feed-out facilities. Wheel arrangement less ideal for paddock feeding Good capacity High horsepower needed Lower loading height required Need to do mix to machine's size</p>	<p>Single, twin or more augers Works well with grain mixes Will process dry hay, but some do not take whole bales Some are not as good with a high proportion of hay in mix Can compact feed Some designs have dead spots High horsepower needed and fuel usage Some work well in the paddock, as well as on feed-out facilities Lower loading height required</p>

How big is big enough?

To save dollars farmers may choose to use a smaller (cheaper) mixer, but soon realise that it is too small for their requirements and have to upgrade.

Think about your current and future herd size, future feeding system, heifer-rearing options and financial situation.

Do you know how to operate it?
Will you need to upgrade your tractor?

The human factor

The same feed ingredients put in the same proportions into the same mixer wagon can provide quite different results in the hands of different operators, as the example below shows.



Key factors that need to be carefully managed during mixing are:

- order in which feed ingredients are loaded
- mixing time
- mixing speed (R.P.M.)
- dry matter content (liquid addition)

Follow the manufacturer's standard operating procedures, and adapt them as necessary to suit your feed ingredients and diet formulations.

Feed wastage and some tips to minimise it



More than 30% of feed can easily be wasted using these feed-out methods!



High feed wastage can also occur when using troughs that are not well designed.



Conveyor belting is used here to best effect, with cables applying tension to keep the trough's shape.



Here is a neat little device one farmer has set up to keep feed in his feed-out facility where it belongs – in front of the cows



Even in a purpose-built feed-out facility, it is difficult to totally eliminate feed wastage, as cows tend to toss feed over their backs while eating. Head locks are one way to minimise this.



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