

Mixer wagon type should meet your herd's ration requirements

Mix and match

The three different types of mixer wagon – vertical, horizontal and paddle – all have their places, and loyal advocates, on UK dairy units. But, if you're thinking of buying one for the first time, how do you know which design would best suit your feeding and management system?

text Rachael Porter

All mixer wagons should do what they're designed to do – accurately weigh feed ingredients and produce an evenly mixed ration. So says Somerset-based independent dairy nutritionist Charlie King. “And, in my experience, a good operator is the key to producing a consistent mix, regardless of machine design.” That said, thought does need to be given to choosing the right machine to suit a particular system. “I would describe paddle machines as the most ‘fool proof’, but that, with a skilled operator, the vertical design is the most flexible and probably the

design I'd go for if I were signing the cheque,” he says.

From a nutritional point of view, Mr King adds that silages are becoming more and more digestible, but when combined with high levels of certain types of concentrate, that also creates challenges to rumen health.

“So mostly I'm concerned with the mixer's ability to add fibre to a mix and to be able to deliver it to the cow at an appropriate amount and length while, at the same time, not over processing the rest of the ingredients within the mix. “Again, with correct operation, all machines should be able to achieve this.

If not, it's usually a machine maintenance issue. Check the sharpness of knives and that there is still a full complement of them.

“Or it could be incorrect loading order or an inadequate mixing/chopping time allowed for the fibre element first before adding other ingredients.”

For Mr King, the real benefit of vertical mixers is in the delivery of high fibre dry cow diets, as is becoming ever more popular. “While sometimes criticised for their propensity to over process a milking TMR, a vertical wagon will handle dry fibre, such as straw, really well and chop it down to the required length. That's vital for good intakes and the success of this type of dry cow regime. Some are achieving 7kg of straw intake within their dry cow TMR.

Horizontal design

Good fortune saw Devon-based producer Andrew Reed take delivery of a brand new diet feeder eight years ago. He won a Kuhn mixer in a competition and decided to upgrade the model on offer to a Kuhn Euromix II 1060 with twin horizontal augers and to switch to feeding his 115-cow herd a TMR. “We definitely feel we have better feed efficiency, with the same ration in front of the cow for 24 hours a day,” says Andrew. “But the biggest single benefit is that we can feed the dry cows appropriately. “They are fed a straw-based diet instead of the round-bale silage, which is good for fertility and health.”

Key comparisons between mixer types

Vertical

- Mixes by throwing feed in the air
- Processes dry materials well – chopping straw/hay/big bales
- Care needed not to over-process but if managed correctly the most flexible design
- May not be water tight
- Good capacity
- Higher horsepower needed versus a paddle mixer

Horizontal

- Single, twin or more augers
- Works well with grain mixes
- Will process fibre, but some do not take whole bales
- Can compact feed and over process, particularly a ‘wetter’ mix
- Some designs have ‘dead spots’
- Higher horsepower needed and more fuel usage versus a paddle mixer

Paddle

- Cuts feed for processing hay, straw, silage but much slower compared to a vertical.
- No ‘dead spots’ and water tight
- Hard to over-process
- Lower horsepower required and less fuel usage
- Simple drive, no gear boxes
- Volume will depend on feed bulk density
- Relatively heavy

Milk production currently stands at 8,500kg, 3.9% fat and 3.2% protein, and hopes are high that both output and quality will continue to increase. “I'm glad we made the changes we did,” says Andrew.

Today he's the proud new owner of a low-profile vertical auger Kuhn 1680. “We're looking to increase cow numbers to around 200 and will need a feeder with more capacity. I also think we'll achieve an even lighter ration with this mixing system.

Vertical auger

And Kuhn's Duncan McLeish says that vertical mixers are becoming more popular than horizontal mixers because, due to their design. “They come with greater capacity – vital as the national average herd size continues to grow.”

Steve Jones is farm manager at Cannington-based Bridgwater College and a fan of vertical mixer wagons. He recently trialled seven different mixer wagons – each one for between a week and 10 days – to make sure he purchased the one that would best suit the 230-cow herd's management system. And he plumped for the Trioliet 2400 Solomix. It was one of four verticals that Mr Jones trialled and he says it produced the best mix – a consistent and open ration – and performed particularly well when it came to mixing the herd's dry-cow ration. “There's a lot of straw in it and it's able to cope with it well and certainly better than the other mixer wagons I tried.”

He says that the mixer wagon is also well built – it's solid and hasn't given us any problems during the past two years. We

haven't even changed the blades yet and I know that you have to do that on some models every 12 months.”

The Keenan Mech-Fiber wagons utilise a horizontal paddle mixing system. The six angled paddles sweep along the mixing chamber creating a gentle, non-destructive tumbling action, which chops and mixes ingredients. Feed materials are lifted to the top of the chamber before falling down through the paddles, again to ensure end to end even mixing of the diet.

Light-touch mixing

The use of paddle ensures a lower power requirement and lower wear and tear than more aggressive mixing systems making paddle mixers extremely economical to run.

The company says that ‘light-touch’ mixing and a sophisticated control systems mean that the ration is delivered at the optimum bulk density, with good distribution of different sized particles. Penrith-based producer Matt Bland, who is building his herd up to 300 milkers, swapped from a vertical tub mixer to a Keenan paddle feeder and believes the gentle mixing approach has considerable benefits.

“I wanted a mixer than would produce an even and consistent mix – something our old mixer failed to do. And, since changing to the paddle mixer, we have increased yields by more than four litres per cow per day and boosted margins by £1.25 per cow per day,” he says.

Charlie King's ultimate advice to producers looking to invest in a mixer wagon is to ‘try before you buy’.

“It's a huge investment, so the best way to make sure you're going to be happy with your choice is to trial a few mixer wagons before making a commitment.” |

Vertical auger: processes dry materials well



Horizontal benefits: ideal for mixing grain-rich rations



Paddle power: the most ‘fool proof’ of all the mixer types

