

Bird's eye view of the future

Drones are a great tool when planning a farmyard. But the basic principles remain the same

Patrick Gowing
Teagasc Dairy Expansion Service

Since quotas ended, the dairy industry has expanded rapidly. Some of the extra output has come from new entrants with new herds; more has come from increased performance per cow; but the majority of the extra output has come from additional cows in existing herds.

Now, many dairy farmers are investing in their facilities to handle the extra cows. It's crucial to get the design of your milking premises right to future proof your farm, improve cow flow and reduce the labour input on the farm.

Jim and Michael Walsh

Jim and Michael Walsh farm near Ballyroan, Co Laois. They operate the farm as a registered farm partnership and are currently milking 140 cows on a 48ha milking platform and hope to expand if land becomes available. They currently milk in a 12-unit herringbone parlour, which is no longer adequate.

When asked why they are looking to invest in their milking parlour, Jim replies: "The parlour has been on this site for nearly 30 years and has been added to over the years to go from a six- to an eight- and eventually a 12-unit parlour. While we have the units to milk the cows, all of the associated facilities around the parlour have not grown in line with the herd size.

"We now find we are out of the pit too often, trying to get cows in or out

of the parlour which is adding to the milking time and makes it hard to get anybody to relief milk for us."

Jim and Michael decided to get professional assistance with a new design. "It's a very large investment" says Michael. "We wanted to make sure we were investing wisely. The last parlour lasted 30 years so we want to make sure we get this right for the next 30."

Michael engaged the help of the Teagasc Dairy Expansion Service and Carl Newell of Newell Consulting Engineers to help design the new parlour. The existing farmyard was surveyed and drawn out. The easiest option would have been to expand the dairy at the front and add additional units. This is often the first choice for dairy farmers. But additional units do not always result in faster milking.

In a larger parlour, it is essential that you stay in the pit while the cows move in and out of the parlour themselves. Every time you have to leave the pit you are reducing efficiency. Also, having to leave the pit to push a cow up or out can generate health and safety issues. See Figure 1 (before).

One option was potential extension of the existing parlour. While this would have increased the size of the parlour, all else would be the same, so we then had to examine whether the current site was adequate from a cow flow point of view.

If you follow the arrows the cows have to make four right-angle turns before they enter the parlour. This will slow the approach of the cows to the parlour as cows will only take a right angle turn in single file.

Before entering the parlour, the cows had to walk through the feed passage of the cubicle shed. This can create additional work in early spring as only the part of the herd that are calved are at grass. All other cows had to move off the feed passage to allow the milking cows in and out. The silage at the feed face will also slow cows down on the approach to



Jim Walsh, Carl Newell, Patrick Gowing and Michael Walsh.

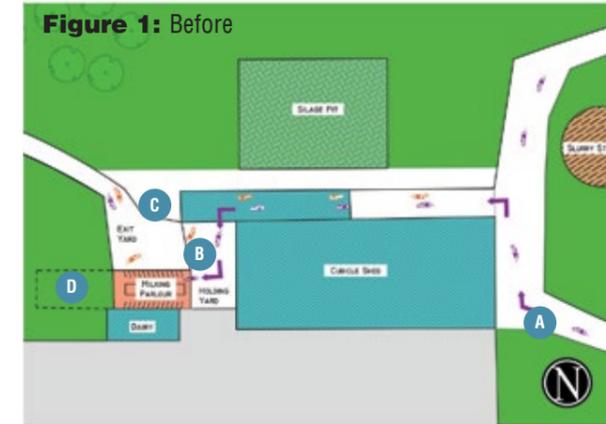
the parlour

The exiting holding yard was designed for 70 to 80 cows. Additional cows would have to stand in the cubicle shed and would only go to be milked if somebody hunted them in.

If the proposed parlour was pushed forward to make the holding yard big-

ger, it would still not address the issue of cows using the feed passage to enter the holding yard. It would also be restricted for future expansion.

For cows to exit, they had to go back through the feed passage. This means cows have to be held outside the parlour exit until there is enough space



in the holding yard to allow them exit back to the shed. This requires somebody to leave the pit in order to open and close gates. It makes drafting of cows harder as the space on the exit is already being used up by waiting cows.

An alternative design was required to fix all the cow flow issues within the existing site.

When designing a new parlour, we try to follow these design criteria:

- There are three types of movement on a dairy farm: milk lorry, cows and machinery. These should not overlap. A simple flow diagram can check your design for you.
- Minimise bottlenecks and turns into the holding yard. This will speed up cow flow into the holding yard.
- It needs to have scope for expansion should future opportunities arise to grow your business.

By simply turning the parlour by 90 degrees, we were able to address all the criteria outlined above. See Figure 2.

A: A new road will be constructed around the slurry store and above the silage pit. This reduces the number of right-angle turns into the holding yard from four to one. It stops cows

and machinery "crossing over" each other and it means milking cows are independent of the cubicle shed.

B: New holding yard constructed at 1.5m²/cow. Cows enter the holding yard over the new dairy wash tank and fill the yard from the back and all cows are then facing the milking parlour. This design will allow for a scraper type backing gate in future, if required.

The holding yard can be expanded if the herd grows as it is no longer "boxed-in" by other sheds.

C: Extra space is available at the front of the parlour for cow exit. Space has been left to construct a drafting area and handling facilities on the right hand side of the parlour. The cows can go back onto the farm road network or be diverted to the cubicle shed without having to be held up.

"As dairy farmers we spend a lot of time working in our own yards. We don't see all the potential cow flow issues as we know no better. It is critical you get an expert set of outside eyes to help design any investment you do on your farm to make sure you have it planned correctly for the future," concludes Michael.

The easiest option would have been to expand the dairy at the front and add additional units. But additional units do not always result in faster milking time