

Team building

With herd size increasing since the removal of milk quotas, dairy cow housing has come into focus from both cow welfare and management points of view.

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A good dairy cow house should be cow friendly, easily managed and labour efficient. The importance of planning and carefully designing cow housing facilities is crucial in achieving this.

Dan Butler, Clerihan, Clonmel, Co Tipperary (pictured right), has recently constructed a cow housing facility. "We operate a 100% autumn-calving liquid milk herd supplying all milk under a liquid contract to Glanbia," says Dan, who is currently milking 115 Holstein Friesian cows with an average yield of 7,500 litres of milk at 3.54% protein and 4.35% butterfat (609kg milk solids/cow).

Unusually for a liquid/winter milk producer, Dan does not operate a split calving herd. All cows calve in the autumn, with a six-week calving rate of 90% and a calving interval of 365 days. "Cow housing is very important to us," says Dan. "All the cows will be milked from the shed over the winter period. Unlike our spring-calving colleagues, perhaps we need to place even greater emphasis on the design of a dairy house."

Dan was milking the herd out of a cubicle house, which, as on most farms, had evolved as an amalgam of different sheds and conversions over the years.

However, all the cubicle housing was under the one roof as herd size grew and cow type evolved. Over the years, the existing facility became outdated and was not meeting the requirements of his herd.

Cow cubicle bed lengths ranged from 1.95m to 2.1m (6ft 6in to 7ft). There was not enough feed space available to all cows in the herd. The ventilation inlets and outlets were not adequate for the numbers of stock housed and because of the fact that sheds had been grafted on to one another, valley gutters were present

which required constant maintenance.

These limitations provided problems with regard to environmental mastitis and keeping cubicle beds dry and clean was a constant battle. However, key features of the existing dairy housing, which Dan was keen to maintain, were the loafing area in which he normally identifies cows in heat and also the straw-bedded calving area.

The loafing area was particularly important, as Dan uses AI on all cows and, in the past, he would pick up almost 90% of the cows in heat in this area. The loafing area is an area free of any obstructions similar to a large rectangular pen with a non-slip surface. The straw-bedded loose calving area was also important in order for calving cows in the autumn.

Although cows routinely calve outdoors, this calving area is important if required during adverse weather which makes outdoor calving impractical.

The key design features of the shed had to incorporate the following:

- All cows to be able to feed at once – 0.6m/cow (2ft feed space required per cow).
- Cubicle dimensions to take into account cow type and size 2.4m x 1.2m (8ft long X 4ft wide) head to head and 2.6m x 1.2m (8ft 6in x 4ft wide) against the wall.
- All cow walkways/scrapper passages 2.4m (8ft wide) and feeding areas 4.2m (14ft wide) to be of dimensions which allow free movement of the cows without risk of injury or bullying.
- The loafing area for identifying cows in heat and the straw-bedded area to be retained or incorporated into the design of the structure.
- The cubicle shed to be easily managed and labour friendly.
- Meet all Department of Agriculture, Food and the Marine requirements with regards to slurry storage.

Planning the new facility

Dan had been considering changing the structure for a while and consulted me with regards to his plans for the structure. Firstly, we set about examining the existing facilities.

The existing shed was measured and sketched out to scale. Dan's local discussion group, the Suir Valley group, was consulted with regards to the project and all comments and ideas were taken into consideration before making final decisions.

Initially, options were looked at



which involved altering the existing layout in order to achieve Dan's key requirements. Cubicle beds were to be removed and refitted, passageways widened and a central feeding passageway installed. Shed stanchions would have to be altered in order to make the new layout fit.

After careful examination and drafting of the new layout, it was decided that after going to the cost of altering the shed, ventilation was going to be compromised. As a result, the overall projected cost was not significantly cheaper than completing a new build.

The site was also limited in that it was close to the farm boundary. However, because of its close proximity to the milking parlour and silage clamps, relocating it was not an option.



If completing a new build, the shed structure was going to require planning permission from the local authority, so a draftsman or building design planner had to be employed. Aidan Kelly of Kelly Agri Design and Planning Services was consulted and, together with all parties' input, the layout was designed and drawn up.

All of the key design features outlined which Dan required from the facility were met. The new facility incorporated the existing slurry storage tanks in the design. A new slurry storage tank had to be constructed in order to comply with nitrates regulations. However, by retaining the existing slurry tanks, it reduced the overall cost of the build.

Dan has seen the benefit of the shed in terms of improved cow welfare,

reduced cases of environmental mastitis and reduced labour requirements. The new cubicle house has a fibre cement roof which prevents any drip, thereby keeping cubicles dry.

The new facility also incorporates a unique feature. The lighting in the shed is worked off a timing switch in order to encourage the onset of heat in the cows. This is especially important as cows are bred during periods of short daylight (November and December) on Dan's farm. In order to observe cows in the evening, red lighting is provided. Red light is not visible to cows and is less disturbing to them.

The shed has 133 cow cubicle places and 33 maiden heifer cubicles. The overall cost of the cubicle house worked out at €1,250 per cow place.

The building was constructed in accordance with Department specifications. The building was completed by John English Fabrications and Paul Bergin. Both building contractors are local and any adjustments and alterations could easily be made by all parties involved in the construction phase.

This article hopefully demonstrates the importance of planning any new building project on a farm. "By setting out the key design features we needed from the new housing facility and working with all parties involved, including my Teagasc advisor, local discussion group, planning consultant and the construction team, we ended up with a shed which meets my needs and those of the herd," concludes Dan.