

5 things to include in a barn design plan

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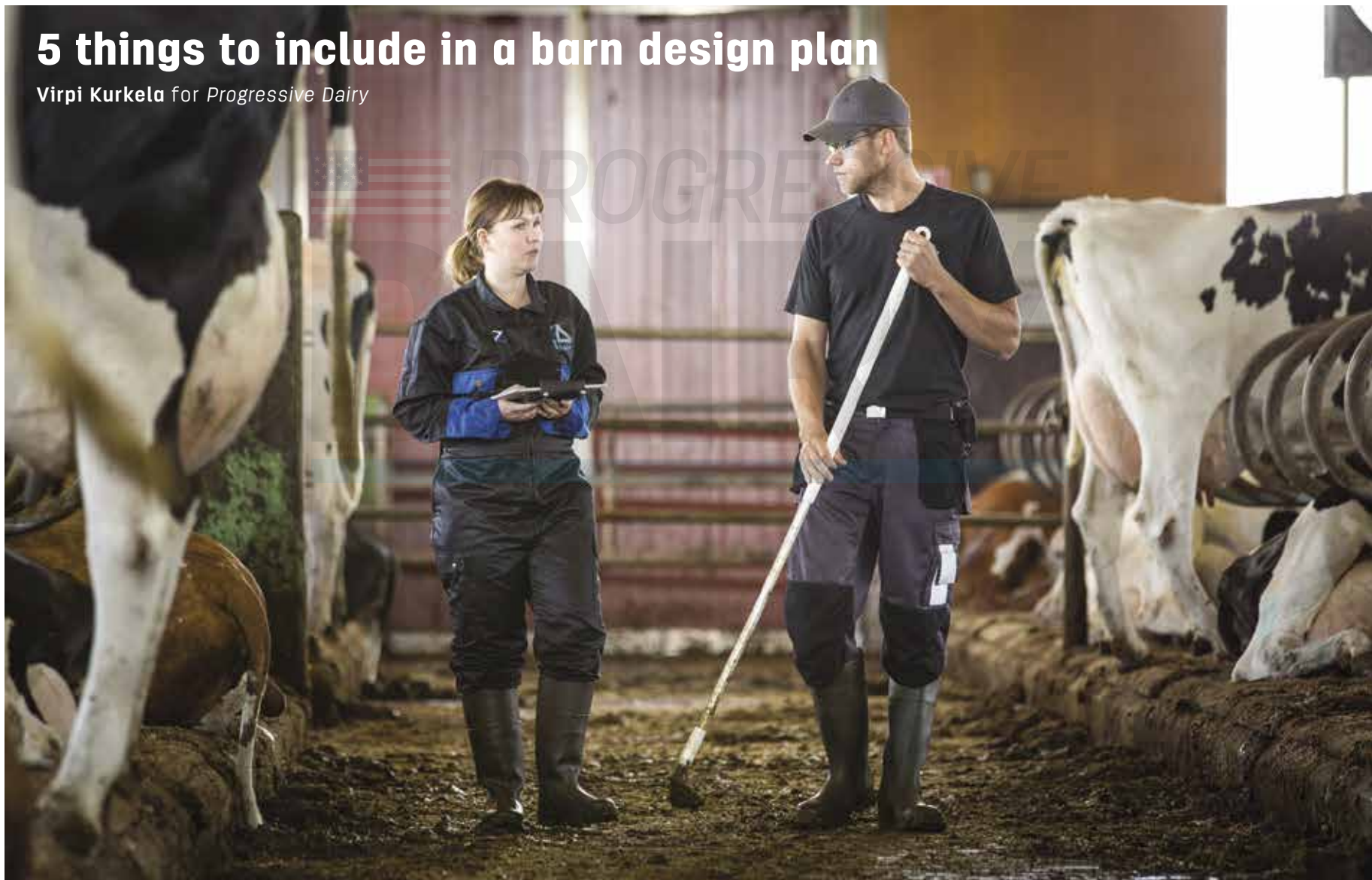


Photo by Eric Kleinberg.

Before drafting a blueprint for a new dairy facility, determine the most important features the barn will need in order to accommodate the level of animal care, efficiencies and priorities the dairy owner desires.

AT A GLANCE

Before sitting down at the design table, it is recommended dairy farmers make a list of the management practices they want to carry on in the new building, as well as five important facilities elements.

A barn for milking cows is a complicated building that must fulfill both the needs of the cows and the people working. Lots of small details have to be coordinated to match perfectly. Within that puzzle, technical things like steel, concrete, dimensions and heights easily start to take control. Those things are important, of course, but by starting the whole design process from the perspective of the management happening inside the barn, the focus will stay on the right things throughout the long path from the design table to the actual building.

How can we add practicality and everyday cow management into the design phase? While internet websites offer a lot of information for someone planning new facilities, the best way is to visit farms and interview farm managers. This is an opportunity to discuss things

like square footages and ventilation systems, but one shouldn't forget to talk about small things too. Questions like how often and with what kind of machinery they deliver bedding or push feed are important, too. Some farms may have some good practices for colostrum management or effective systems for how and when to take a newborn calf to the calf barn, for example. Every farm has a group of advisers around them, and they are a useful source of up-to-date management information with local knowledge.

Make a list

In the very beginning of a barn design process, before any layout has been drawn or chosen from the catalogs, a farmer needs to sit down and make a list of the management strategies in the new barn. To help keep this "wish list" at a practical level, one might start with listing all the daily or weekly chores with the cows in the existing facilities. Which tasks are done every day? Which are done on a weekly basis? Who does them and with what kind of equipment or machinery? Then look at your list critically: Are you happy with the way you work and the results of it? What should be improved? What new working methods or management strategies can one use in the new building? It is very useful to involve your advisers and also your employees into the thinking process.

Together, create a checklist of all the important functionalities and qualities the future building must have in order to complete these tasks. Some examples are as follows:

- ✓ Sand is used as bedding in the deep-bedded area for the cows three weeks before calving, so the doors must be big enough for a truck to drive in.

- ✓ Six cows are dried off every week, and they are hoof trimmed in the handling chute a by barn worker. The routing and gating to the chute must be so simple he can do the work on his own.

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Every farm has a unique way to manage cows, and that's why their checklists are different. There are some things, however, every farm should have on their "management checklist" before they proceed into the layout phase. Make sure your plan has these five things.

- 1 *Functional footbath*
Plan footbath routines together with your veterinarian and also identify animal groups that need to go through this procedure. This is especially important in herds with robotic milking. If footbaths are not practical to use or they block the animal traffic, they are not used, and

that means more lameness, more work and less milk.

- 2 *Facilities to treat lame cows*
A lame cow is an emergency and should be treated immediately. That means there must be a hoof-trimming chute or a handling chute in a barn and it should be in a location where a cow is easy to take to and from all pens. Treating a sore foot is quick when all the equipment needed is stored nearby. After treatment, you should have a good pen (ideally a deep-bedded pack with short access for feed and milking) for treated cows where they can recover and go back soon to the main group.

- 3 *Efficient fetching plans for robotic barns*

In our measurements of labor times in robotic barns during morning chores, we have found a lot of variation in time used for fetching cows. With good gating and an active use of fetch pens, time to get all the cows with too long of milk interval from the main milking cow group to the fetch pen can be as little as half-a-minute per fetched cow. That means, for example, taking four cows to milking takes only two minutes. A properly designed fetch pen has a split entry so the farmer does not have to wait for the fetched cow to enter the robot. At the same time, main milking groups can still access the same robot.

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4 *A separation pen for special-needs cows*

When making decisions about the grouping of cows in milk, consider taking some animals away from the main milking groups. The cows that benefit from separate pens are often the ones that are also labor-demanding (i.e., lame cows, cows treated with medication or sick animals).

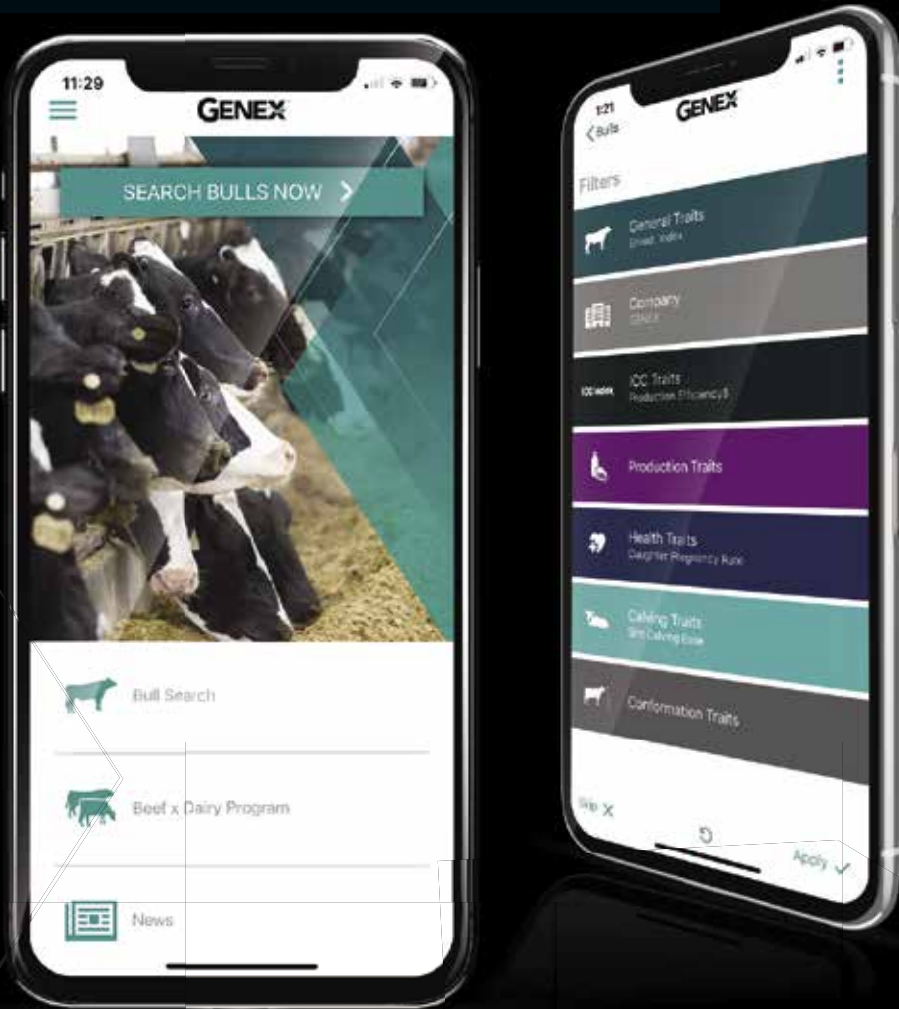
By having those flexible pens in a central place near the robot or parlor and placing a vet room and handling chute into close proximity, special-needs cows get the attention they need, and all work with them can be done effectively.

5 *Practical bedding*

Bedding management has a big role in the health and comfort of cows, and it should be planned well. Decide when bedding is done, where bedding material is stored, what kind of machinery is needed and where the cows are when there is bedding going on in the pen. Rough estimations of the volume and weight of the bedding material per bedding time are helpful when making those decisions.

When all the management choices are made and written down, find an architect or designer that will lay out the barn according to your needs. If you are using a standard layout or think a neighbor's barn design would be suitable for you, the management checklist is a good tool to find out if that's really the case. Can you manage your cows in it the way you wanted to? There are always some compromises done in the course of a barn building project, but management decisions should come first and determine the layout of a barn – not the other way around.

Building a new barn is a huge investment, and every farmer wants it to be successful. In our work as consultants for dairy farmers investing in new facilities, we have a strong trust that adding work routines into the very early phase of the design process helps the farmer reach their goal of a functional and work-efficient barn for his or her cows and the opportunity to achieve high production goals. 🐄



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