How many times have you walked through your barn and observed the many tasks being performed and thought, there’s got to be an easier way? Robotic milking is gaining popularity on many farms, but other options of automation may also be a fit for your dairy operation, even if you don’t have plans to step away from your milking parlor any time soon.

Feed pushers keep your cows eating
There’s nothing surprising about constant feed availability being beneficial to your cows’ milk production. Research from recent years shows more frequent delivery of fresh feed reduces sorting, and supports improved access to feed for all cows, especially those that tend to be subordinate. View DeVries research online at http://www.ncbi.nlm.nih.gov/pubmed/16162529.

With the knowledge that milk production is directly impacted by feed intake, many farmers have made it standard protocol to improve bunk management and to increase the frequency of feed pushup between feedings. While this proves beneficial to cows, it requires additional labor or restructuring of existing labor routines.

One survey by DairyLogix assessed feeding related tasks on 115 dairy farms, ranging considerably in size and method of feed pushup. The survey found based on the average $14.31 hourly wage, and the reported average feed pushup of four times daily, at just over six minutes each time, that this task alone costs the average surveyed farm $2,256 per year. Given these economics, or using those calculated for your farm, length of time for return on investing in automated bunk management can be estimated.

For example, using the above estimates, a fully automated, battery powered feed pusher with a $25,000 price tag would take about 12 years to fully pay for itself on labor savings alone. However, farms using automated feed pushers report feed pushup frequency closer to 12 to 18 times per day, which, while difficult to quantify, would most certainly have an impact on dry matter intake and more importantly, milk production.

Aside from battery powered options, hydraulic and cable mounted feed pushers are also available at varying costs, each with pros and cons that might make one more attractive than another.

With a hydraulic or cable mounted scraper that runs the length of the feed bunk, investment cost is typically lower, with the same benefit of more frequent feed pushup. This reduces competition, sorting, and ensures cows have access to the feed put before them. Depending on the design, they may provide challenges in locating a return alley or obstructing feed delivery and cleanup.

A wheel-mounted, battery-operated feed pusher likely carries a higher price tag than the other two styles, but comes with the benefit of being out of the way when recharging or not in use. This is the more common type of automated feed pusher seen on New York dairies. Since it is a standalone piece of equipment it can be used in most facilities without making renovations. The pusher follows the line of the bunk to push feed up without disturbing the cows. It returns to the charger unit after each pass to recharge. The farmer sets how often and when the feed pusher makes a pass. The robot stops if some-
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one steps in front of it or if something is in the alley.

The route the robot takes is determined when the system is
installed. It can be changed later if so desired. The distance the
robot is from the bunk is also set according to the preference of the
producer. The number of passes can be set for as many times as the
producer feels is beneficial both day and night. Having feed avail-
able consistently is especially valuable to the more timid cows who
get pushed out of the way when feed is first delivered or pushed up
only a couple of times a day.

The number of cows, location of and distance between barns,
and additional management of feed bunks all have to be considered
when determining which automated feed pusher is most beneficial.
They all come with the opportunity to increase feed intake and
improve your bottom line.

How about a robot for barn cleaning?

Clean cows are important for milk quality and cow health, not
to mention efficient milking routines. Limiting exposure of teat
ends to dirt and pathogens helps keep udders healthy. No one wants
anything but the best quality milk going through the milk system.
The less time that is needed to clean a cow’s udder when she gets
milked, the less time needed to get the cow prepped, and the milking
machine on. You may have seen a robot designed for barn clean-
ing at a farm show or perhaps on a dairy. Barn cleaning robots are
designed for slatted floors. We don’t see a lot of slatted floors on
dairy farms in NY, but there are some. These robots work much
the same way the feed pusher robots do. They are battery-powered
and wheel-driven. When not cleaning they return to the charger to
recharge. The route and timing is set to the producer’s preference.
For robotic milking systems with slatted floors they work nicely for
cleaning the barn with minimal disturbance to the cows.

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deliveries and cattle sales. Smith sites this level of accuracy and
accountability as being absolutely essential to error control in their
system. He attributes this focus to his grandfather who maintains an
active role in decision making for the business.

With numerous technologically advanced pieces of equipment to
oversee Smith is quick to point out the challenges that come with
this direction of feed management.

“There are downfalls,” he said. “You have remotes, antennas and
a lot of equipment communication to maintain. And it’s a different
style of management. I have everything on my phone since I have to
be able to observe and respond on the go.”

Staying mobile with the constant influx of data to oversee isn’t
the only challenge. Being on the cutting edge of some technologies
means Smith has to rely on tech support from other countries to
diagnose any issues and perform most repair and maintenance work
on his own. This is a challenge he has enjoyed.

Just like any other aspect of major capital investment on the farm,
Smith is responsible for proving the value of these investments in
precision feeding to the other partners at Lawnel. So far he feels the
equipment and inventory controls have met their mark.

While attributing changes in cow performance to a single variable
on the farm is difficult, Smith feels confident that they are realizing
a two to three percent reduction in dry matter loss. With the change
from their previous mixer to the new self-loading vertical screw
mixer they’ve seen a five pound increase in milk production per cow
per day.

At the end of the day, Smith has faith in the technologies he
applications to feeding cows.

“Just because the technology is there, you can’t let it run on
autopilot,” he said. “You have to believe in it, but don’t take it for
granted, it still has to be managed.”

Like GPS, yield maps and other precision farming technologies,
Smith can’t necessarily flip a switch and make drastic improvements
in feeding. But he can use these tools to establish parameters to
more accurately feed cows and manage inventories and costs, while
establishing a baseline to help direct management decisions on long-
term cropping and feeding strategies.

As for what’s next for Lawnel’s feeding system, Smith has his
sights set on a handheld device using NIR capability to measure dry
matter for each feeding. This will allow him to apply real-time dry
matter measurement as feed is mixed. He will also be able to control
quality and measure the value on a dry matter basis of incoming
loads of corn in the fall.

Smith calls this rapid, frequent monitoring the holy grail in preci-
sion feeding.

“Being able to control dry matter intakes is what it’s all about,”
he said, “and I can’t wait to better have that ability.”