

Feeding out from the electrically driven 600kg tub is done without human intervention.

eral portion of the diet, so if the Vector grabs too much of one ingredient then it will compensate for that in the following load.

With the concentrates in the tub, the last of the roughage is dropped in. In total it takes about 25 minutes to fill the 600kg-capacity tub. For larger dairy units, two or more tubs can operate from a single feed kitchen.

FEEDING

The Vector feeds little and often, something Lely says has improved feed conversion rates by as much as

5% in Dutch trials.

Any number of routes can be programmed into the system. When the tub travels from shed to shed across an open yard, it follows metal strips bolted to the floor. Top speed is a steady 2kph.

Once it reaches a shed, ultrasonic sensors mounted to its frame guide it alongside the feed barrier. These work up to 2.5m away from a barrier or wall and it can follow a curved line, too.

The farmer can set "virtual" points at which the feeder starts and stops. This is particularly handy at the end of sheds or between two separate groups of cows, to stop a high-yielder nudging expensive feed to its dry-cow neighbour.

If the robot thinks it will run out of food (the tub constantly weighs itself) then it will speed up to make sure it reaches the end. Once there, the auger runs at double speed to shake off any excess feed.

During the feeding process, a side-mounted sensor records the height of the feed currently at the barrier (but cleverly ignores cows' heads to avoid getting any inaccurate readings).

When the tub returns to the feed kitchen, this information is processed and the control box decides which cows require feeding next and which ration to make up. Highyielding cows always have preference.

CHARGING

Every time the tub docks at the kitchen, it plugs into a seven-pin socket. During the filling phase it is powered by mains electricity while the four 12v batteries charge.

Electricity costs are said to be £3.36/day for a 150-cow unit. That's considerably lower than the diesel

Fuel usage and labour input are much lower than with conventional systems, says farmer John Rafferty. costs associated with running a mixer wagon and telehandler.

To maximise battery life the robot needs to spend about 60% of its time charging and 40% working. This should be possible for 300 cows (the maximum recommended for one Vector system). The time spent working could be higher if you use the Vector to feed beef animals, where fresh weight feed intake is likely to be lower.

SAFFTY

As with any automatically guided vehicle, safety presented Lely's design team with something of a headache.

The feed kitchen is surrounded by an electric fence or curtain. Break the circuit and the system will stop immediately. To fill the kitchen you have to press a button to stop all actions; this will move

VECTOR IN NUMBERS

300 dairy cows the Vector can keep fed £100,000 cost of the system

£3.36 electricity costs each day (20kWh for 150 cows)

5% improvement in feed conversion rate reported by Lely

the crane out of the way and allow access to the bays.

The tub has bumpers on all sides. If it bashes one of these, it will stop still for five seconds. If the obstacle remains, then the system will stop and text/call the farmer.

oliver.mark@rbi.co.uk







The perfect place to promote your business

Find out more at **addmyadvert.co.uk** agriculture's comprehensive online directory

30 NOVEMBER 2012 * FARMERSWEEKLY 55