The fodder beet revolution

There are a number of myths and misconceptions about feeding fodder beet.

The use of fodder beet has exploded in recent years and gives farmers the ability to grow a huge amount of feed on a small area. Dr Jim Gibbs of Lincoln University has done a lot of work on using fodder beet in the dairy industry, and he believes the feed could well revolutionise the beef industry. Sandra Taylor reports.

Fodder beet could prove to be a game changer in the beef industry, allowing animals to be finished in as little as 14 months to elite carcase specifications.

Dr Jim Gibbs, from Lincoln University, has drawn on his extensive experience of using fodder beet in the dairy industry to apply the same principles to beef finishing.

“This could tilt the beef industry on its axis,” says Gibbs, who believes that once a system of using fodder beet has been adopted by finishers, there will be large numbers of steers being finished on beets.

He says the fodder beet system is not a magic potion – it’s a basic feeding protocol but the possibilities are amazing.

“We are pretty excited.”
He points out that over the past 15-20 years there has been very little New Zealand research carried out on finishing systems, and farmers trying to finish cattle at a young age on grass need to have such a large area of high quality grass that they can’t make the system pay.

“And there is no quicker way to go broke than to start using grain or silage.”

The fodder beet system Gibbs has devised requires a complete shift in mindset, as it allows as much fodder beet as the animals can eat while using minimal supplement.

To be successful it requires farmers to follow a strict set of guidelines, particularly around the 21-day transition period.

“If you get transition right you will win – if you don't, no one can rescue you.”

He admits that the protocols he has developed for feeding fodder beet are completely new and for many – somewhat frightening.

However, he says many dairy farmers are successfully using the system, and this is reflected in an increase in the area of fodder beet grown from under 500ha to 15000ha in just five seasons.

Having seen the feed used so successfully in the dairy industry, Gibbs saw the potential of the feed to be used in the beef industry and approached Canterbury beef farmers Brent and Anna Fisher.

**Beating the myth**

As part of his work on fodder beet in the dairy and beef industries, Jim Gibbs has exploded many of the myths and misconceptions surrounding the crop.

The first of these is that fodder beet contains anti-nutritional compounds, such as oxalates and nitrates, which supposedly meant the crop could only be used at low levels.

This, he says, is utterly wrong.

“There are no anti-nutritions that are of any consequence.”

The crop does not require dusting with calcium or urea before grazing, nor does young stock require a large volume of high protein supplement when grazing fodder beet.

“The crude protein threshold for calves is not as high as people think it is on high energy feeds that have a rapid rumen passage rate.”

The calves in the Fishers’ trial spent their whole lives on a diet well below 13% drymatter (DM) yet were finished from 14-months of age.

Gibbs describes fodder beet as an energy bomb that needs to be treated like cracked wheat in that, if it is introduced slowly and with adequate fibre, there will be no problems with it.

Fodder beet can be grown anywhere in NZ – from Northland to Southland – and it grows as well here as anywhere else in the world.
New protocols for feeding fodder beet require a change in mindset.

With the correct management and agronomy, Gibbs says we can reliably grow a 25 tonne/ha crop – typical fodder beet yields in Ireland sit at 15-17t/ha.

A well as growing world-class yields of fodder beet crops, NZ was the only country that grazes the crop.

The Australians and Irish have recently started following NZ’s lead.

“It’s effectively NZ’s wheat, and cattle love it.”

The Fishers' trial hinged on the willingness of five Banks Peninsula farmers to put their hands in their pockets and contribute early-weaned steers to the programme.

Silver Fern Farms also came on board for that year, with research and development manager Lochie McGillivray having seen the potential offered to both farmers and marketers of early-weaning, fast finishing systems.

Gibbs points out that when done successfully, early weaning calves can benefit the breeder in a number of ways.

Weaned cows can be better used to manage pasture quality in summer-early autumn, to the benefit of other enterprises. They go into winter in better condition, which reduces wintering costs, and this has a flow-on effect on productivity. It also allows farmers to increase their stocking rate.

But the success of early weaning relies on the ability of the calves to carry on growing post-weaning.

“In the past we have taken the calves off the cow and put them on to summer pasture where they go backwards.

“So there is no benefit to it.”

Fodder beet keeps them on a high plane of energy intake, and the result says Gibbs, is absolutely revolutionary – fat little calves that finished at 13-14 months of age with excellent carcase quality.

The trial showed everyone involved that this early finishing by feeding fodder beet for an extended period was a really viable option with returns comparable to returns from dairying.

The energy potential

Cost-wise, trial work carried out on the Fisher’s Greenpark farm showed that the beet with supplement cost about $1.20/animal/day. This includes the cost of growing the crop, which is
8c/kg DM, and this is fed at an average of 7-8kg/animal/day (64c/animal/day) along with 1-1.5kg of supplement/animal/day at a total cost of 60c.

The R1 calves in the Fisher’s trial ate less than 1kg of supplement for a significant proportion of the trial as the amount of supplement was reduced as they increased in bodyweight.

Calves in the Fishers’ trial remained on fodder beet until October and appeared not tire of the feed.

This feed resulted in growth rates of 0.8-1kg/day from when they first arrived on the Fisher’s farm as early weaned hill country calves in February until they were finished from December.

On an energy basis, fodder beet has an average metabolisable energy (ME) of 12 while silage – which has an ME of 10-11 – costs upwards of 30c/kg DM while grain, which has an ME of 11.5, is even more expensive.

Another part of the work carried out at the Fishers was finishing R2 steers.

Gibbs points out that in the beef industry there are a lot of cattle that are not being finished before their second winter, with the approach that the steers are maintained over that second winter and finished on the spring flush.

This means many are not finished until they are close to 36-months of age.

Using the protocols Gibbs has developed, the Fishers were feeding 440kg R2 steers monster intakes of fodder beet from May, and they finished these steers in just 70 days.

However, if Gibbs had his way there would be no R2 steers in the long term – all steers would be finished long before their second winter using the fodder beet system.
He also sees the potential in developing profit-sharing arrangements between breeders and finishers using the fast finishing system so that everyone benefits.

At the moment there is significant stratification within the beef industry so that cattle can go from farm to farm and end up being finished at 36 months.

He sees potential in large-scale finishing systems using beet which results in fast finishing steers to high carcase quality specifications.

There will always be R2 steers, Gibbs acknowledges, but again these can be finished over winter leaving more feed available for other stock classes in spring.

Fodder beet is being used to finish earlyweaned beef cattle at 14-months.

Gibbs describes having the ability to finish cattle quickly on live food at a young age as a remarkable public relations story that is unique to this country.

He says no other country is able to use a living food to finish cattle profitably in such a short time, and this benefits the carcase quality.

Another advantage of fodder beet is its ability to be harvested and fed-out all year round.

“So there is nowhere in the animal’s cycle that you can’t put them on to high energy intakes.”

Harvesting is ideal where it is difficult to graze a paddock, or in an arable situation where a crop can be harvested in May and can be quickly followed with another cash-crop such as winter wheat.

Harvested beets work particularly well when fed out to older cattle on old rank pasture.

Harvesting does remove the leaf which contains proteins and minerals, meaning harvested beets are not suitable for young cattle. However, feeding out harvested beets is an effective and cheap system for older stock, especially R2 steers.

Gibbs says harvesting costs around 5c/kg DM, and he says there are several very good harvester operators in the country including Harry and Michael Schatt in Canterbury, and the Linklater brothers in Manawatu.

He is continuing this work using fodder beet in beef finishing systems on farms throughout the country.

He will be holding field days in many areas throughout the coming year and outcomes of this work will be detailed in upcoming issues of Country-Wide.
Problem-free feed
Jim Gibbs stresses that fodder beet bulbs never need washing and chopping.

“We have fed out hundreds of tonnes and never had a single problem.”

They can be stored in uncovered piles outdoors and fed out with a silage wagon.

One effective way of feeding harvested fodder beet is to feed out a seven day allocation in one hit and just shift an electric fence to give stock a fresh pasture break every day.