



Green machine works well, but sales are slow

Graziers who have tried it are delighted with its performance, but Australia's new drought-breaking "Fodder Factory" has been slow to take off.

FINANCIAL hardship in rural Australia and conservatism in the grazing and banking industries are blamed for poor sales of a "Fodder Factory", even though there is clear evidence that it has saved graziers from financial ruin during droughts.

The hydroponic Fodder Factory unit can economically grow green stock feed in the middle of the severest drought.

This year, it proved its worth not only during the drought, but during the July and August floods, when stock were confined to high ground.

Several graziers contacted by *Ascent Technology Magazine* said they would have "gone down the chute" during the drought if they had not been using the unit.

And some, such as Russell Eastwell of Wybong, started operating their Fodder Factories again during the floods.

Mr Eastwell said that with the heavy rains coming so soon after the drought, he couldn't get in to sow feed crops.

"Then the floods turned our feeding paddocks into quagmires.

"We're not at the mercy of the elements any more."

"But it didn't matter. We just turned on our Fodder Factory, and within eight days we had plenty of top quality feed.

"The cost is about \$2.50 for the equivalent of a bale, compared with anywhere from \$5-9 a bale if we buy feed in.

"It means we're not at the mercy of the elements any more."

Despite many such glowing reports, the unit's developer and builder, Peter Ryan, says sales have been slow.

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Green machine works well, but sales are slow (Cont.)

"As a business we have been just bumping along the bottom," he told *Ascent*. "Since I sold the first unit in 1991 sales have been patchy.

"In the best years I have sold six, but in a couple of years I have sold none at all, and last year I only sold three.

"I get to the point where I start thinking 'I've got to get a job, I've wasted too much of my life on this', then all of a sudden someone will pop up and say 'Remember me, I came out to your place three years ago' and I build a unit, make a bit of money and think I'm back in business!"

Recently, however, there have been some promising developments which could put Mr Ryan well and truly back in business.

■ After careful evaluation by the NSW Innovation Council, the Fodder Factory has become one of the first products admitted into the Australian Technology Showcase, a marketing campaign set up to take advantage of the increased international attention on Australia arising from the Sydney 2000 Olympic Games;

■ Strong interest was shown at the *Agquip '98* Exhibition at Gunnedah last month, where a working Fodder Factory was on display for the first time.

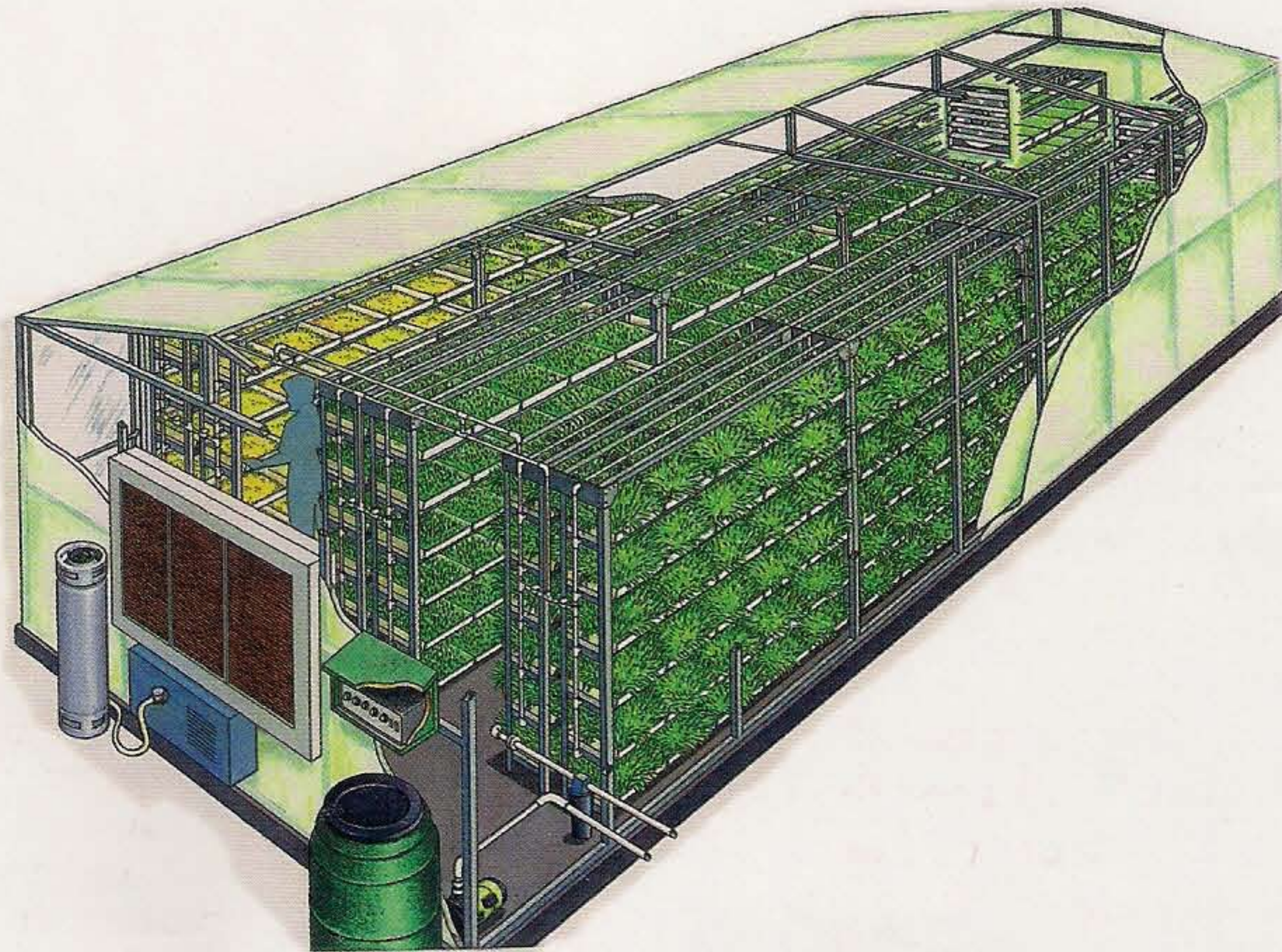
Mr Ryan says evidence that financial hardship is partly to blame for the low sales was provided by a State and Regional Development Board survey on the Fodder Factory, conducted as part of its acceptance to the Technology Showcase.

"Every grazier surveyed said they would like to buy one, but couldn't afford it at the moment.

"That surprised me, because I thought there would be plenty with other reasons, like they would prefer to make silage or hay."

It has proven difficult for farmers to obtain bank finance for the unit.

As grazier Walter Prout, of



Each Fodder Factory unit has a high tensile galvanised steel frame covered inside and out with a tough, UV-resistant woven plastic material. The double plastic walls create an insulating cavity, and the temperature is kept at 23°C by microprocessor-controlled heating and cooling. The units include galvanised steel shelving, plastic trays and spares, exhaust and circulation fans, nutrient tanks, a high pressure pump and piping, misting nozzles, a galvanised steel trolley, a nutrient tank, a direct injection reservoir and lights for night working.

Gilgandra observed, "If you want to buy a \$40,000 motor car you can go to the bank and you've got all the facilities in the world to be able to buy the car without forking out \$40,000 in cash.

"They think you're some sort of crackpot even after you show them the results. They can't understand that it could work."

"But if you go to the bank manager and say you want to borrow \$40,000 to build a shed to grow grass, they'll look at you as if you're queer."

When he tried to organise finance for potential buyers through the Commonwealth De-

velopment Bank, Peter Ryan was told that the bank would not talk to him unless his annual turnover was more than \$1 million.

Some customers contacted by *Ascent* said that the conservatism of graziers was also a factor.

Warren Shean, of Merriwa, said many tablelands farmers still looked on hydroponics as a hobby.

"It's different on the coast where people see it used to grow vegetables and things, but if you start talking about it in town here, people raise their eyebrows," Mr Shean said.

"They think you're some sort of crackpot even after you show them the results. They can't understand that it could work, and think there must be something wrong, that there's a catch."

The principle of using hydroponics to grow stock food is not new,

having long been practised in Europe to feed dairy cattle in winter, but the European units are air conditioned, fully-lit buildings.

By contrast, the Australian Fodder Factory is a transportable unit with double-layer woven plastic walls which let in plenty of light, and has numerous innovative features which make it a practical, affordable proposition.

Mr Ryan was breeding deer on his 500-acre property at Wingham, near Taree in northern NSW, when he came up with the idea in 1989.

“The increased CO₂ level increased the yields and dropped the growing time.”

“It started out of desperation,” he said. “I was buying semi trailer loads of hay and grain and thought ‘There’s got to be a more logical and predictable way to feed animals’.

“I built a white elephant that wouldn’t work, and for about two years I was in even more trouble ... I had this white elephant *and* I still had to bring in food for the animals.

“I persisted because I knew we were close, but just had some inherent problems to overcome, like how to cool it economically and how to stop oppressive heat.

“The advantage of plastic houses is that they accelerate growth, but



Peter Ryan (top) building a “shed” and (above left) with a plastic tray produced on his own injection press at Wingham. Above right is the Owens family, at their property Wilga, in Albert, central west NSW, with a trayload of eight-day old barley fodder ready to put out.



they also increase heat.”

A flow-through ventilation system, combined with zippered vents, solved this problem.

In summer, the vents are unzipped, allowing air to move inside the cavity wall – but in winter they are zipped back up, sealing the cavity. When the air inside the cavity is heated, it is much easier to heat the whole shed.

“At first we tried electricity for heating, but it was far too expensive,” Mr Ryan said.

“When we switched to LPG we found that the by-product, carbon dioxide, accelerated growth.

“The CO₂ level went from 60 parts per million to 200 parts per million and we found that increased the yields and dropped the growing time.

“From there we have gone to

using Quantum heat pumps, developed by Sidon Industries and the CSIRO, which heat the concrete slab and are even more economical.”

Another problem was finding a watering system that would provide a fine enough mist spray to wet the grain without blowing it out of the way.

“At one stage we got a plastics firm to design and make them, at another stage we were importing sprays from Japan, but finally I fluked on an Australian-made mister that does the perfect job,” Mr Ryan said.

Another unique feature of the Fodder Factory is the microprocessor control unit, which took a lot of development by professional electrical engineers.

“We’re on stage three with that – the Mark III unit is a digital controller accurate to within a second per hour,” Mr Ryan said. “It’s waterproof and simple to operate, and continuously monitors the temperature in the shed.”

The most popular unit is the medium-sized one, which produces 620kg of fodder per day and costs \$44,725. Units are built on a concrete slab provided by the purchaser.

Contact

Peter Ryan 02 6550 5150
(phone/fax)

www.fodderfactory.com.au

