1-1-1996

Something fishy is going on - aquaculture

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Recommended Citation

Berry, David (1996) 'Something fishy is going on - aquaculture,' Journal of the Department of Agriculture, Western Australia, Series 4: Vol. 37 : No. 4 , Article 2.
Available at: http://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol37/iss4/2

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Aquaculture is Australia’s fastest growing primary industry. Product from fish farms is currently valued at $300 million, forecast to exceed $500 million by 2000. Whilst the figure pales into insignificance alongside world production (about $45 billion) it does represent a huge window of opportunity for prospective investors and for Australian primary producers who are keen to diversify. David Berry reports on the prospects for yabbie and marron farming in Western Australia.

**The world situation**

World-wide, aquaculture is of major significance to the sustenance of humans. By 1993 it represented 22 per cent of all the fish consumed by people. If the rapid growth of the past decade continues this will have grown to 40 per cent by the year 2010.

These are the predictions, not of sharp investment promoters keen to raise capital for speculative fish farming ventures, but the predictions of the Consultative Group on International Agricultural Research. Figures from the United Nations Food and Agriculture Organisation (FAO) support the high growth estimates.

Fish represent 7.5 per cent of global food output, with more than one billion people in developing nations depending on fish as their primary source of animal protein. According to the FAO, to maintain fish consumption at the present 13 kilograms per person an extra 19 million tonnes of fish will be needed by year 2010.

Stagnation of the world’s ocean catch at around 80 million tonnes per year has thrown out a challenge to the world’s fish farmers. To meet the demand for fish, aquaculture must maintain the 9 per cent annual growth of the past decade.

**Australia**

Between 1985 and 1990 the value of aquaculture output in Australia grew by 31 per cent. Most of that growth was in five industries - trout, oysters, pearls, Australian salmon and ornamental fish. More recently there has been a huge growth in tuna farming, centred on South Australia where fishers have been adding value to their catches before dispatching them to the high value sushi markets of Japan.
Tuna farming, centred on South Australia, has had a meteoric rise. It was only five years ago that the first farm was established and in that year production was about 7 tonnes. But for the disastrous storms of last April which killed half of the industry's stock, 50 South Australian farms were on track to produce this year around 3000 tonnes, valued at $120 million.

Inspiring as the South Australian example is, returns of hundreds of dollars for single fish remain as pipedreams for most fish farmers - 50 cents for a single yabby is a good price!

**Western Australia**

Aquaculture in this State is dominated by the $153.3 million (1995/96) north-west pearl industry, which ranks as Australia's largest aquaculture industry.

Without pearls, production from Western Australian fish farms is worth about $3.3 million (1995/96).

During 1995 the major Western Australian aquaculture sectors were mussels (387 tonnes); freshwater crustaceans, such as marron (18 tonnes) and yabbies (210 tonnes); trout (36 tonnes); and the production of algae for beta carotene for the food industry (712 tonnes).

Aquaculture product is supplied mostly to the domestic market. Species such as yabbies and marron are being successfully exported to Europe, USA and Asia. Beta carotene is also marketed internationally.

In Western Australia the growth sectors are yabby and marron farming, although a check of production figures from the past year might leave you thinking otherwise. The drought which saw water levels in farm dams sink to all time lows, caused yabby production to plummet from $2.1 million (94/95) to $1.23 million.

**Yabbies**

The interest yabbies have generated is demonstrated by the production trends. In 1987, just 3 tonnes of yabbies were sold commercially.

By 1993/94 this had peaked at 290 tonnes, and while the trend nosedived last year to 110 tonnes, it was only a hiccup, according to Fisheries Department's Aquaculture Development Officer Juana Roe.

"Production was down because of the dry farm dams caused by the drought," she said. Currently yabby production outpoints marron by a factor of 10.

It's ironic that Ms Roe, an employee of the Fisheries Department, works 150 kilometres inland at Agriculture Western Australia's Narrogin office.

It is one of five regional centres recently established by the Department as part of its $4.5 million aquaculture development program. Centres have also been established at Broome, Geraldton, Carnarvon and Albany.

"We have a vision for State yabby production of between 1000 and 1500 tonnes and believe this is achievable within five years, as long as we have water in dams," she said.

Juana's job is to encourage and assist primary producers to take the step into fish farming. As she tours the agricultural areas providing advice and speaking at field days she stresses the need for three key developments for the vision to transform to reality:

- There has to be an increase in the number of farm dams brought into production. She estimates there are 90,000 dams suitable for yabby production, but only 6000 are used.
- More attention must be given to drought-proofing farm dams. The recent drought highlighted the yabby industry's vulnerability to the weather. "It takes 12-18
months to get a dam working right,” says Ms Roe, “and you can’t make it pay if you’re repeating that time, effort and money every few years.”

She says the answer lies in reliable dams built to optimum size for the area, roaded catchments and choosing better locations so that they don’t leak.

- The State’s management and husbandry skills levels have to rise. To help achieve this the Fisheries Department has undertaken an extensive research program at the Avondale Research Station, the likes of which Australia has never seen before.

The Avondale work began two and a half years ago with a $475,000 grant from the Fisheries Research and Development Corporation (FRDC). The project received the entire freshwater yabby research funding allocation for that year, a feather in the State’s cap according to head of the research program, Craig Lawrence.

“It is an Australia-wide project, distinctive because it is not laboratory based - the very practical approach and the State’s potential, appealed to FRDC,” he said.

Twenty-five small farm dams were constructed, all connected to a huge feeder dam. Various diets, stocking rates and genetic experiments are run in them. Many significant discoveries have been made, including the discovery that separating the sexes results in significantly faster growth rates for the male yabbies, Craig Lawrence said.

The Avondale work has also confirmed the crucial link between trapping and commercial viability. “Females can produce 300 young at a time and breed three times each summer,” Craig said. If you don’t thin the numbers you don’t get the good bodyweight which the market demands.

Yabbies can be easily harvested using traps in farm dams.
Despite any industry shortcomings, interest in yabby farming has never been higher. Ms Roe said "we held yabby information days at Beverley in early August, when 400 people turned up over two days. I was originally hoping for 50!"

"With some very easily learnt management skills they are relatively easy to look after and make pay."

Most farm dam yabbies are fed lupins with some hay, commonly available at next to no cost. It's not uncommon for other aquaculture ventures to devote 60 per cent of outlays to feed.

The Fisheries Department estimates initial capital costs for newcomers as low as $500 - $600, mainly for the purchase of traps, storage socks, gill flushing buckets and transporting boxes.

"Yabbies are a viable diversification on the farm," Ms Roe says. She cites a Wagin case study which in 1994/95 produced 3000 kg of yabbies from 46 dams. It grossed $19,000 even with a quarter of the dams going dry because of the drought. Just seven hours a week was spent looking after the yabbies.

She stresses the importance of quality for a prosperous and expanding industry. "Without it you have no markets in today's competitive world."

A code of practice to guide 'farmers' in the maintenance of high standards is being developed jointly by the Yabby Producers Association of WA, the Aquaculture Development Council (industry's advisory committee to the Minister), and the Fisheries Department of WA. A video and handbook for farmers is also being produced.

Farm gate prices for yabbies are currently between $5 and $10 a kilogram, depending on quality and size. Average farm dams in the Narrogin area are able to gross $500 per year once established. The best dams are grossing $1000.

While the prices are "very good at the moment", the outlook for the marketing of yabbies in the medium term also appears strong.

Yabbies are marketed in a variety of ways, ranging from farmer-direct niche marketing to local restaurants and hotels, where the farmer has an aquaculture license, through to farmers supplying processors who on-forward the product to markets in Perth, interstate and overseas. Mostly it is live product. To supply yabbies to a processor, no license is required by the farmer.

One of the State's five major yabby processors is the Farm Fresh Yabby Company at Beverley run by wheat and sheep farmers of 25 years, Simon and Jenny Broun. The company has about 200 suppliers who harvest their own dams.

Typically, the harvest involves gathering the mature yabbies over 3-4 days, storing them in the house dam in floating 'socks', after which they are packed into polystyrene boxes and delivered to Farm Fresh. The company then 'purges' the yabbies in freshwater tanks before moving the live product into its cool stores to await transport to Perth and then on to the Eastern States, maybe the world!

"There's a big future for yabbies in Western Australia," says Simon Broun. "The international market values our clean environment and pristine water - each year the world asks us to supply 2000 tonnes but we can supply only 200," he said.

Marron
Narrogin grain and sheep producer Lex Hardy used to have yabbies in his dams but no longer - he's decided the future lies with marron instead and now runs them as a very profitable sideline to his oats and wool operation.

Marron - Cherax tenuimanus, a native to the State's South-West, is one of the world's largest freshwater crayfish.

It grows to 2kg but is harvested much smaller for commercial reasons. Licensed marron hatcheries also operate in WA, selling juveniles for stocking farms around Australia and overseas.

Taking marron from the wild is prohibited in WA, except during the declared recreational season, when a recreational license is required.
A major factor in Western Australia's favour is that Europe's winter is our summer. When Europe's production is at a standstill, production from Western Australia's summer-based industry is at its peak. About 70 per cent of all production is exported, mostly to Europe.

.... another man's poison."
The enviable disease-free status of Western Australia's freshwater crustacea is another reason for the strong European demand.

For more than a century Europe's freshwater crayfish stocks have been dogged by the recurring 'crayfish plague' disease. To overcome the persistent supply shortages Europe came to rely on imports from the USA until that country's prime product - the 'jumbo craw' freshwater crayfish - was revealed to be a vector of the plague.

North America's misfortune has proven a boon for Western Australia's yabby exporters.

The Western Australian yabby is also larger - it is marketed from 20-30 grams upwards, whereas its North American competitor averages just 30 grams.

"While Europe has so far dominated our exports, in the past year the industry has done a lot of work in Asia, in markets such as Singapore where five-star restaurants are eager buyers," Ms Roe said.
Lex Hardy is one of the new breed of what's known as 'broadacre marron farmers' whose activities would have been illegal up until December last year (1995) when the State's marron regulations were amended to allow the use of farm dams for commercial marron growing.

"I've had marron in my dams since 1983 but I was unable to sell them," he said.

The old regulations took the view that farmers would be tempted to steal marron from the wild to stock their dams, thus jeopardising the recreational fishery.

Effectively the system insisted that marron farming be limited to people who could afford large capital outlays for specially designed marron ponds and other associated infrastructure. Dams doubling as water supplies for livestock were strictly off-limits.

"The theft idea was never more than a myth," says Lex who as vice president of the Marron Growers Association at the time was deeply involved in getting the regulations changed. "Over the past 20 years there has never been a farmer convicted for illegally taking marron from the wild. The old regulations also had an element of protecting one or two marron growers who didn't want the industry opened up."

Today, Lex Hardy is the association's president and speaks for some 60 members who account for about half of the State's marron production. Production this year is estimated at 20 tonnes. "We are anticipating 35 tonnes for 1997," Lex says. The increase will come largely from a rush of "30 or 40 new growers who started overnight" when the regulations were finally changed.

The explosion of marron production is of some concern. "There is no way in the world that the domestic market can absorb such a rate of increase in production. The way forward must be export based," he said.

True to its word the Marron Growers Association is going all out to cultivate overseas interest. In late October it financed attendance by a delegation, including an exporter, to the renowned Sial Gourmet Food Festival in Paris. For four days the delegates walked the conference halls promoting Western Australian marron and identifying prospective avenues for future marketing. And in the new year marron will be on the menu for all first class Qantas flights.

"We will crack the export market," says a confident Lex Hardy.

Marron's relatively low production volume, about 10 per cent of yabbies' is acknowledged as a handicap. Volumes need to be higher so that consistent supplies are assured otherwise the market loses confidence in the product.

Lex Hardy also makes the point that marketing of marron differs from yabbies. "You have to be realistic - marron is comparable to crayfish - not everyone can afford to eat it, but there's still a lot of big hotels out there who will willingly have it on the menu. It is a matter of raising awareness and then getting it to them."

He scoffs at suggestions that aquaculture in Western Australia will always be limited by a
Ready for market.

At the moment farm gate prices for marron are between $18 and $30 per kilo, depending on size and quality.

Simon Broun from the Farm Fresh Yabby Company shares Lex’s concern for the risk of a yabby oversupply and sees a long-term challenge for processors “to regulate supplies from farmers, and encourage them to spread production across the year.” This year he closed down his processing plant from July to September, for want of stock.

Simon sees a move into processed tails as one possible way for the industry to even out supply to the marketplace in the future. Of higher priority, he says, is the need for ‘training’ of new yabby farmers. “They’ll need to grit their teeth for maybe 12 months—despite what some say there is a lot to learn—they shouldn’t think they’ll be rolling in the money at the end of a year!”

Lex Hardy from the Marron Growers Association sounds similar warnings and is careful not to discourage new interest. He sees aquaculture as an imperative for the survival of agriculture.

“As we head into the next century we must perfect other areas of farming and aquaculture is one of them. Unlike most of the world we have large tracts of land, plenty of unpolluted water and a well deserved reputation for ‘clean, green’ product. Given these things, if we can’t perfect aquaculture we will fail,” he said.