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Taking the emu to market

By Paul Frapple, Research Officer, and Ruth Hagan, Technical Officer, South Perth

Licensed, commercial emu farming in Western Australia is now five years old.

This year, 13,500 birds will be processed for their meat, skin and oil. Production has exceeded demand at prices which the industry considers fair because the industry is still developing markets for these products.

Without secure, long term markets, over-production will worsen as the turn-off in this State increases and emus become available from other Australian states and overseas.

The Department of Agriculture is assisting the industry to develop a viable emu industry.

Background

Interest in emu farming in Western Australia was first stimulated by Swiss interests who established a farm at Kalannie in 1970.

In 1976, Applied Ecology, a company established by the Commonwealth Government to promote enterprises for Aboriginal communities, established an emu farm at Wiluna. The farm was handed over to the Ngangganawili Aboriginal Community in 1981 and by 1986 it was rearing some 600 chicks a year.

In August 1987, the Western Australian Government authorised the sale of 500 emu chicks bred at Wiluna, making possible the development of commercial emu farming in this State. Chicks sold for peak prices of $475 each. Only captive reared stock can be farmed, a necessary condition to comply with the Convention for International Trade in Endangered Species, CITES.
Today, there are more than 25,000 birds on 37 commercial farms in Western Australia. The industry estimates that 85,000 birds will be processed in 1995. Emu industries have also been established in Tasmania and Queensland and 70,000 birds are expected to be turned off in 1995. Emus are also farmed in New Zealand, the United States and France. These countries are building up their flocks and will be significant competitors in time.

Emu production is relatively easy, but developments in emu processing and marketing have not kept pace with emu production. Projections of profitability for the new industry were buoyant, based on the perceived quality of the oil, meat and leather, and the price of competing 'exotic' products. When commercial emu farming started, little was known about the quality and quantity of products from emus or their market.

The industry is faced with attempting to position three emu products — meat, skin and oil — at the top end of world markets which know virtually nothing about them. Other fledgling animal industries in Australia, such as the deer and ostrich industries, have the benefit of substantial research and market development carried out in other countries. In a global sense, these industries are mature, whereas the emu industry is in its infancy.

The Department of Agriculture is helping the industry to solve these market-related problems.

Research

Department of Agriculture research beyond the farm gate has concentrated on:

- Quantity and quality of meat, skin and fat (rendered to produce an oil) from farmed emus.
- Processing procedures for emus and their products.
- Product development and markets for emu products.

This research is funded by the State Government, the Rural Industries Research and Development Corporation and the Emu Farmers Association of Australia.

Emu products

Meat. Meat, skin and oil are the major products from emus. Carved emu eggs, with their attractive cameo appearance, and emu feathers, are also sold.

Emu meat is a low fat, low cholesterol (less than 0.05 per cent) meat which has a slightly 'gamey' flavour. The meat is found mainly on the drumstick and thigh. Boneless emu meat now sells for about $15/kg, wholesale and there are currently reports of significant markets in Europe and the USA.

Skin. The skin of an emu is characterised by a raised area around the feather follicle. This feature gives the tanned body skin a distinctive patterned surface and is the reason for the current relatively high prices of about $25/square foot and $20 for each tanned leg skin.

Oil. Emu fat is rendered to produce an oil, which is used in cosmetics, and reputed to be effective in the treatment of muscle and joint pain. To date these claims have not been proven scientifically, however, emu oil products are sold and many users claim they are effective. Raw emu oil now sells in bulk at prices about of $14.50/litre.

The quantity and quality of high value products from an emu at various ages is important in determining the production strategy to be followed. The change in composition with age is shown in Table 1.

Product quality does not vary significantly for birds from 40 to 60 weeks old. Trained taste panels found the meat from 20-week-old birds to

Table 1. Changes in emu composition with age

<table>
<thead>
<tr>
<th>Parameter</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live weight (kg)</td>
<td>15.2</td>
<td>24.2</td>
<td>28.7</td>
<td>33.2</td>
<td>39.4</td>
<td>40.6</td>
</tr>
<tr>
<td>Cold weight (kg)</td>
<td>8.2</td>
<td>12.7</td>
<td>16.4</td>
<td>18.2</td>
<td>20.1</td>
<td>20.4</td>
</tr>
<tr>
<td>Cold weight plus fat (kg)</td>
<td>9.7</td>
<td>14.7</td>
<td>19.5</td>
<td>22.2</td>
<td>27.8</td>
<td>29.5</td>
</tr>
<tr>
<td>Dressing (%)</td>
<td>63.8</td>
<td>60.7</td>
<td>67.9</td>
<td>66.9</td>
<td>70.6</td>
<td>72.6</td>
</tr>
<tr>
<td>Fat (kg)</td>
<td>1.5</td>
<td>2.0</td>
<td>3.1</td>
<td>3.9</td>
<td>7.7</td>
<td>9.1</td>
</tr>
<tr>
<td>Fat (%)</td>
<td>15.5</td>
<td>13.6</td>
<td>15.9</td>
<td>17.5</td>
<td>27.5</td>
<td>30.8</td>
</tr>
<tr>
<td>Muscle (kg)</td>
<td>5.5</td>
<td>8.6</td>
<td>11.4</td>
<td>12.5</td>
<td>14.0</td>
<td>15.1</td>
</tr>
<tr>
<td>Muscle (%)</td>
<td>56.7</td>
<td>58.5</td>
<td>58.4</td>
<td>55.8</td>
<td>50.1</td>
<td>51.1</td>
</tr>
<tr>
<td>Bone (kg)</td>
<td>2.4</td>
<td>3.6</td>
<td>4.0</td>
<td>4.7</td>
<td>4.9</td>
<td>4.7</td>
</tr>
<tr>
<td>Bone (%)</td>
<td>24.8</td>
<td>24.5</td>
<td>20.5</td>
<td>21.4</td>
<td>17.9</td>
<td>15.9</td>
</tr>
<tr>
<td>Neck (kg)</td>
<td>0.5</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
<td>1.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Skin area (sq. m)</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>
be more tender than that from older birds, while the meat from 70-week-old birds was described as being slightly tough.

Skins from 20-week-old birds do not have the follicle development of older birds, and their smaller skin area results in more cutting losses.

Depending on the value of the different products and the cost of production to different stages, the profitability of different slaughter strategies can be evaluated from Table 1. On 1992 figures, the most profitable slaughter age is 50 to 60 weeks.

**Processing**

**Transport**

Emus, if properly managed, are not difficult to handle on farm but are difficult to transport and handle at the abattoir. Birds are easiest to handle when confined in an enclosure with solid walls above the height of the bird. This applies to stock crates on vehicles used to transport emus, as well as holding pens at abattoirs.

Department of Agriculture trials have demonstrated that emus can be processed on a conventional sheep chain in an abattoir. However, holding pens must be constructed so that the birds cannot see over or through the walls.

**Defeathering**

It is difficult to defeather and skin the bird efficiently without damaging the valuable skin. Hand plucking and shearing are effective, but time consuming.

Recent research indicates the birds may be able to be scalded before plucking, without damaging the skin. This would reduce the plucking time by 60 per cent and could allow the use of mechanical pluckers, which would reduce the defeathering time to about 5 minutes. This work is continuing.

**Meat storage**

There are two particular problems in marketing emu meat: seasonality of breeding and the market’s preference for fresh meat. Emus are seasonal breeders, and the optimum age at slaughter is 50 to 60 weeks. This means that significant numbers of emus will only be processed for about six months of the year. Gourmet and export markets greatly prefer fresh to frozen meat. Because of the high cost of air freight to Europe, fresh meat must remain wholesome and palatable for the duration of the sea journey and the period of distribution and display.

Chilling vacuum packed meat is the conventional method of extending the shelf life of fresh meat. The meat is placed in special bags which have low oxygen and moisture permeabilities. The low level of oxygen, the raised level of carbon dioxide and the low storage temperatures (-1 to 0°C) reduce the growth of spoilage bacteria on the meat.

Research by the Department has confirmed that vacuum packaged emu meat held at about 2.5°C remains acceptable to consumers and wholesome for nine weeks. When held at -1 to 0°C the meat should be acceptable after 12 weeks, as is the case with vacuum packaged beef and lamb.

**Markets**

**Emu meat**

Research has concentrated on the Australian market because of the administrative problems encountered in exporting emu meat.

In-store tastings of fried emu meat were conducted by the Department of Agriculture in two Perth supermarkets.

Of those who tasted the meat:

- 44 per cent considered that emu tasted like beef, while 40 per cent described the flavour of emu meat as rich (29 per cent) or tasty (11 per cent).
- 14 per cent found the meat slightly tough or tough (2 per cent).
- 98 per cent found the meat ‘acceptable’ or better.
- 91 per cent thought the meat was as good as (72 per cent) or better than (19 per cent) the grilling steak they now buy.
Emu meat is a low fat, low cholesterol meat which has a slightly 'gamey' flavour. Photo: Martial Fulton Studio.

- 80 per cent would buy the meat at least once per month.
- 66 per cent would pay $6 to $10/kg for the meat

About 15 per cent of the people approached declined to taste the meat because it was from an emu. This suggests that education and free sampling will be a major part of any promotional campaign for emu meat in Australia. In time, emu meat will probably sell at grilling steak prices on the local market, unless the low fat content and novelty of the meat can be promoted successfully. The industry has achieved some success in marketing samples of emu meat into the exotic meat markets of Europe and America.

**Emu skin**

The quality standard for bird leather is set by the ostrich, which sells wholesale for A$85/square foot. Tanned leg skins sell for A$20 each.

Ostrich leather is characterised by a raised area around the follicle on the 'saddle' of the bird, and it is this unique feature that generates the high price.

The Department has sent emu skins to every exotic leather tanner in Australia and most of the major exotic leather tanners overseas. Unfortunately, none of these tanners has been able to tan emu skin so that the follicles are raised significantly. Also, none of the tanners expressed interest in buying commercial quantities of salted emu skin at the prices of A$15/square foot and A$15/leg set by industry. Generally, tanners were suggesting prices of A$10/square foot and A$10/leg for salted skin.

Potential end users of the leather have shown far more interest, but at this stage commercial quantities of the quality required are not available.

Given the value of emu leather and its consequences to Australia, there is a good opportunity here for an Australian tanner.

**Further research**

At the request of the Emu Farmers Association of Australia, the State Government funded a study this year which produced a development strategy for the industry. The study found that the industry and industry research should concentrate on processing, product development and marketing rather than on emu production over the next five years.

The key recommendations for research by the Department of Agriculture are:

- Determine the cost of supplying emus for different end uses.
- Reduce slaughter costs.
- Reduce handling and transport losses.
- Provide marketing support for the emu meat industry.