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R.J. Suiter

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**CAPRETTO- a new meat industry**

By John Suiter¹, Terry Sim² and Steve Gherardi³

Capretto is the term the Italians use for the meat from a goat up to 20 weeks old. For centuries goat meat has featured on tables from the Mediterranean to Asia and the Pacific Islands.

Western Australian premium quality capretto has a dressed weight of between 6 and 11 kg. Its pinkish flesh is tender and lean, much leaner than sheep meat, so it's ideal for the health conscious.

The flesh is soft with a beautiful fine texture and a distinctive bland flavour. The meat will not disintegrate during cooking, and responds magnificently to a wide range of cooking styles such as grills, barbecues, casseroles and curries. People who like to cook the carcass whole prefer a weight of between 5 and 8 kg.

There is a small market in Perth for quality capretto, particularly among ethnic communities, but its size, and the type of product wanted, is not well known. Capretto production has the potential to be developed alongside the expanding goat fibre industry, thus contributing to overall financial returns to goat producers.

Before 1988, most locally-grown goat meat came from feral goats with occasional supplies from domesticated feral and on-bred (usually cashmere or angora) sources. Supply was irregular and the meat quality unpredictable. There was no inducement for butchers to promote goat meat products or for consumers to demand those products.

Chevon - meat from carcasses of about 15 kg from goats up to 18 months old - was virtually unknown in the market place.

This article describes a market development programme undertaken by the Department of Agriculture's Goat Industry Development Unit (GIDU) and the Australian Cashmere Growers Association's (ACGA) Meat Marketing Committee to establish a premium market for capretto carcasses.

**Market potential for goat meat**

Slaughter statistics for goats report only the total numbers killed at recognized abattoirs. Details of meat type (capretto, chevon or adult) are not available as goats are not classified into age or weight classes.

Reported slaughter statistics indicate that between 78,000 and 120,000 goats were slaughtered per year from 1980-81 to 1986-87 (Figure 1). Eighty per cent or more of these were feral goats.

Goat carcasses, usually low value types for processing, are exported to the Caribbean, Taiwan, Malaysia and Singapore. Live goats (for slaughter) are exported to the Middle East, particularly the United Arab Emirates (UAE). Estimates indicate that the local market could use from 400 to 4,000 capretto carcasses plus an unspecified number of chevon carcasses per month (Kelly et al., 1987). In the longer term, expansion of local demand will depend on increasing the demand from the non-ethnic Australian market.

Premium quality live goats (for slaughter) and carcasses could be exported to the Middle East, the Mediterranean and South-East Asia. An established live import trade already exists in the UAE where live, capretto-type kids are airfreighted from Eastern Europe. Some air freight shipments from Australia have been forwarded to the UAE.

Kelly et al. (1987) estimated that between 100,000 and 200,000 goats could be turned off each year from Western Australian sources by the early 1990s. This turn-off would be adequate for the development of local and export markets for quality goat meats.

The investigations reported here concentrated on the development of the capretto market in the Perth Italian community. Markets for chevon may exist within other ethnic groups; however they were not as readily available for development.
Live sheep shipping companies are developing export markets for live goats for slaughter.

Objectives of the industry group
Our objectives were to:
- examine ways of improving the handling of carcasses and maintaining their quality;
- organize the development of the Perth capretto market; and
- assist in the development of export markets for premium quality capretto carcasses.

Industry meetings
The authors held discussions with producers, abattoir operators, wholesale auction markets and retail traders on systems of supply, slaughter and disposal of carcasses through which producers could be encouraged to market young kids.

Data was collected on production backgrounds of slaughtered goats, liveweights at abattoir, carcass weights, live condition scores (Suiter 1987), GR tissue depth (depth of tissue to the 12th rib of the carcass 110 mm from the backbone), meat colour, assessment of carcass quality by retail butchers, prices received at auction and comments from the trade on the acceptability of carcasses to their clients.

No clear definition of either carcass or live specifications for capretto was available at the time, so the first slaughter of 55 kids was deliberately structured to include a range of liveweights, ages and condition scores.

Three retail butchers who had previously sold capretto-type carcasses commented on the acceptability of each carcass. All carcasses were then sold through an established wholesale meat auction system and the prices received recorded.

The results of this slaughter were used to establish preliminary specifications for selecting kids for slaughter which would produce carcasses of desirable standards. These specifications were later modified.

Developing standards
Some 689 kids were slaughtered in 17 separate groups from late August to late December 1988. Group size ranged from 10 to 198 kids.

The only commercially important difference seen was in the relationship between liveweight and carcass weight for kids slaughtered before November 18 and those slaughtered after that date.

The acceptability of carcasses was determined by prices received at auction.
A new taste ... for some

From the Primary Products Promotion Unit

Have you tried capretto yet? Not just at your favourite ethnic restaurant where it is probably served often, but cooked at home?

It's well worth cooking capretto at home now that it has become much more accessible here in the west.

One of our favourite ways to cook capretto is to spit roast a whole carcass on the barbecue. Or ask the butcher to cut through the main bones of a side of capretto. Cook in a covered roasting pan with white wine, garlic, freshly ground black pepper and your favourite vegetables for a stunning dinner party dish. Dry roasting is not recommended since capretto lacks sufficient fat to self-baste.

For the same reason, some cooks recommend that goat meat is best treated in the same way as game, with long, slow moist cooking methods. Succulent stews, rich casseroles and spicy curries really come into their own here.

Capretto may be used as a substitute in any traditional lamb dish. A boned and butterflied leg will be magnificently moist and tender if it is marinated before cooking, or brushed with marinade during cooking. Greek-style kebabs should receive similar treatment.

Contact the Primary Products Promotion Unit on (09) 383 1855 for information on where to buy capretto.

Table 1. Ready reckoner for the conversion of preslaughter liveweights to probable carcass weights

<table>
<thead>
<tr>
<th>Liveweight (kg)</th>
<th>Carcass weight (kg)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Off green feed</td>
</tr>
<tr>
<td>12</td>
<td>5.8</td>
</tr>
<tr>
<td>13</td>
<td>6.3</td>
</tr>
<tr>
<td>14</td>
<td>6.8</td>
</tr>
<tr>
<td>15</td>
<td>7.3</td>
</tr>
<tr>
<td>16</td>
<td>7.8</td>
</tr>
<tr>
<td>17</td>
<td>8.4</td>
</tr>
<tr>
<td>18</td>
<td>8.9</td>
</tr>
<tr>
<td>19</td>
<td>9.4</td>
</tr>
<tr>
<td>20</td>
<td>10.0</td>
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<tr>
<td>21</td>
<td>10.5</td>
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<td>11.0</td>
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<td>23</td>
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<td>24</td>
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</tr>
<tr>
<td>27</td>
<td>13.6</td>
</tr>
<tr>
<td>28</td>
<td>14.1</td>
</tr>
</tbody>
</table>

* Derived from slaughter of kids more than three weeks after pasture wilt.

Dressing yield

Kids slaughtered between August 29 and November 18 consistently produced carcasses weighing about half of their liveweight, while those slaughtered after November 18 produced carcasses weighing about 45 per cent of their liveweight. This difference was probably related to a combination of age of the kids and the effect of drying-off of pasture on the does' milk production.

Most kids in this programme came from farms north and east of Perth and were born in July, August and early September, 1988. Pastures finished growing in these regions in about mid October that year.

Paddock feed is usually good for some three weeks after the finish of the growing season. This pattern, in combination with progressive self-weaning of the kids at about 12 to 14 weeks old, coincided with the change in dressing percentages seen about November 18.

The slaughter of 24 capretto style kids from Newdegate on November 11, 1986 produced a similar relationship between liveweight and carcass weight to that seen for kids slaughtered after November 18, 1988. In 1986 pasture started to wilt in early October, some two weeks earlier than in 1988. This Newdegate result supports our contention that the change in the dressing percentage can, for commercial purposes, be related to a date some three weeks after pasture wilt.

Table 1 is a ready reckoner for conversion of liveweight to probable carcass weight.

Kids born late in the year and raised in areas with long growing seasons (high rainfall areas) will probably dress in accordance with the "green feed" ready reckoner until some three weeks after pasture wilt in that area.

The observed changes in dressing percentages probably relate to the development of the rumen in the kids and their increasing reliance on paddock feed rather than mothers' milk. The rumen, and its increased content of roughage, add to the liveweight of the animal but not to its carcass weight; this consequently leads to a lower dressing percentage.

Dressing standards

Dressing standards (degree of damage to the carcass related to slaughtering procedure) varied from abattoir to abattoir. Butchers indicated that dressing faults adversely affected acceptability of the carcass to their clients and thus the price they could offer for those carcasses.
**Meat colour**

Wholesale and retail meat traders said meat colour was important in determining the acceptability of carcasses. The desired colour is pale pink (similar to veal) which after cooking is almost white.

Colour was difficult to assess. Comments from traders on the acceptability of the colour of particular batches were noted and it was apparent that colour did vary with time of year. Kids slaughtered after November 18 tended to have darker meat, with colour progressively becoming darker over time. This was probably a combination of age and a change of diet from milk to pasture.

**Carcass weight - price relationship**

No consistent relationship could be defined from the collected data but light weight carcasses (6 to 8 kg) generally received higher prices per kilogram than did heavier carcasses. However when the price per kilogram was converted to price per carcass, there was little difference in overall return to producers for carcasses ranging from 6 to 11 kg.

**Live condition score and GR measurement**

Apart from liveweight and meat colour, the quality of a carcass was primarily influenced by its condition (amount of edible tissue) as reflected by the GR measurement. Carcasses with a GR measurement greater than four millimetres received better prices than those with a lower GR measurement.

**Capretto kids.**

Kids with a live condition score of 2 or more usually produced carcasses with more than four millimetres GR.

**Variations in auction price**

Little information was available on prices, and the effects of supply and time of year on those prices, in the Perth market for premium quality capretto carcasses. Reporting of auction prices in the rural media started in late December 1988, probably in response to kids placed on the market in this development programme.

Figure 2 presents the only market prices known to the authors for premium capretto carcasses sold in Perth. The pattern appears to be related to seasonal effects upon supply, as seen with prime lamb. However the market proved very sensitive to over-supply and to carcasses of unsuitable condition or that were too heavy.

This sensitivity is a reflection of the small size of the capretto market. We hope the market will grow once consumers and retailers have confidence in the availability of a high quality product, and with the introduction of capretto meats to the wider ethnic and Australian market through promotion.

**Other influences**

During the investigation we noted other practices which may influence carcass quality. These practices were recommended by various sectors of the industry and were included in our advice to producers without investigation. They should, however, be investigated to determine their influence on the production system and returns to the industry. They include:

- Slaughter within 24 hours of dispatch from farm. Producers say that kids lose a lot of condition because of stress when they are off milk or feed for more than 24 hours. All kids observed in the investigation were slaughtered within 24 hours of dispatch from farm.

- Bagging of carcasses in plastic. Retail butchers said carcasses should be bagged in plastic after slaughter to prevent excessive drying during chiller storage. However, carcasses that were bagged while still wet from the washing processes associated with slaughter developed an unacceptable sheen. This could be prevented by chilling them for about one hour before bagging.

- Wholesale and retail traders said that carcasses should be auctioned within 24 to 48 hours of slaughter to ensure best appearance and thus best price. Although this may not be so, it is convenient for the distribution system...
to deliver carcasses to auction houses within 24 hours of slaughter.

• Retail traders indicated that frozen carcasses were not acceptable to the consumer; however several butchers held freezer stocks of capretto bought during mid December. If frozen carcasses are acceptable, then slaughter and freezer storage during the over-supply in December for sale during April-May-June may be a means of spreading supply to the market over a longer period and of increasing returns to the industry.

Classification system for capretto

A suitable carcass classification system for capretto-style kids would be based on carcass weight and carcass condition score (supported by GR measurements). Table 2 details such a relationship.

This classification system has been used successfully in:

• a commercial arrangement between a group of producers and a supermarket chain for the weekly supply of capretto style carcasses; and

• an airfreighted export shipment of chilled capretto carcasses to Italy organized by the Western Australian Meat Marketing Corporation.

Recommended capretto specifications

The only effective way of guaranteeing consistent quality of capretto meat is to ensure that the kids offered for slaughter are of the correct age, liveweight and condition score.

Kids should be less than 20 weeks old (desired range 8 to 16 weeks) and preferably should still be suckling their mothers. They should produce carcasses in the range 6 to 11 kg (desired range 6 to 8 kg) and in condition score 2 or better.

Other comments

Producers must book killing space with their abattoir of choice at least one week in advance and instruct the abattoir operator clearly as to the method of sale and the company through which the sale is to take place. If that sale is via an auction house, then that house should be advised of impending delivery of carcasses the week before proposed delivery and be reminded of that delivery on the day of slaughter.

Representatives of the GIDU and ACGA have discussed the development of a specific "capretto purchase schedule" separate from the existing general goat schedule with the Western Australian Meat Marketing Corporation. Such a capretto schedule, based on carcass classification as suggested in this article, may be available for the 1989-90 season. The Corporation is continuing its export marketing activities with the intention of developing contracted overseas sales which would contribute to the proposed capretto schedule.

Acknowledgements

The investigation reported here could not have proceeded without the co-operation of the participating producers who offered their kids for measurement and gave assistance at field days and seminars, and the industry.

We wish to thank these people and: Mr Tod Kirwan, Chairman, W.A. Meat Marketing Committee, ACGA; Eastern Districts Abattoir, Merredin; W.A. Meat Commission, Robb Jetty; Tip Top Abattoir, Wooroloo; Western Nelsons Pty Ltd, O'Connor; Everett Mills and Williams Pty Ltd, West Perth; and the Meat and Allied Trades Federation of Australia (W.A. Division), Victoria Park.

Table 2. Suggested carcass weight by condition score classification of capretto carcasses to be used in potential price schedules

<table>
<thead>
<tr>
<th>Carcass weight range (kg)</th>
<th>Condition score GR (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>up to 6</td>
<td>&lt;3</td>
</tr>
<tr>
<td>6.1 to 8</td>
<td>4</td>
</tr>
<tr>
<td>8.1 to 10</td>
<td>4</td>
</tr>
<tr>
<td>10.1 to 12</td>
<td>4</td>
</tr>
</tbody>
</table>

Figure 2. Auction prices for capretto carcasses (6 to 11 kg) in the Perth market, 1988-89 season.

References
