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Awassi fat tails - a chance for premium exports

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Most people have heard of the Awassi, even if they have never seen one. This unique breed of fat tail sheep, imported into Australia in 1987, was released from quarantine for commercial development nearly 12 months ago. Its supporters believe Awassises could form the basis of a high-value export industry while replacing imports. Developments over the next few years will test its potential and should result in the Awassi playing an important role in an increasingly diversified Australian farming scene.
Embryos were collected in Cyprus from the Ministry of Agriculture’s Awassi flock which had originated from the two best Awassi dairy flocks in Israel, the Eyn Harod and Sde Nahum studs. The flock in Cyprus had been closed and subjected to intensive disease surveillance and reporting had been maintained. Lambs from the imported embryos were born at the Cocos Island Quarantine Station in September 1986. From 311 embryos collected in Cyprus, only 51 lambs were born of which 41 survived to 100 days. Most losses are thought to have occurred during the embryo washing treatments required to remove any organisms that may have been present in the embryo flushings.

The young lambs were then flown to a specially-built quarantine facility in Kununurra, Western Australia, and kept there until July 1990 when all animals were transported to a larger quarantine station at Wongan Hills. The relocation was necessary to enable the Department to conduct essential research into the possibility of fibre contamination of Merino clips, impossible at Kununurra because of the crowded feedlot conditions and sub-tropical

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**Reasons for import**

The program to import Awassi fat tail sheep was one of a number of Department of Agriculture initiatives in the early 1980s to improve opportunities for diversification in agriculture and enhance the potential for exports. Dr John Lightfoot, now Executive Director of Animal Industries, first recognised the potential of the Awassi breed and has managed the project from its conception. He saw three major opportunities:

- A new sheep breeding industry to supply Awassi cross ram lambs, young breeding ewes and chilled carcases to the premium ‘fat tail’ markets in the Middle East;
- A specialised sheep dairy industry to meet growing domestic and export demand for sheep dairy produce;
- An expanded carpet wool industry with the Awassi fleece replacing current imports of carpet wool.

**The importation program**

A special veterinary protocol was established for import of the new breed. Awassi genetic material was imported as washed and frozen embryos to prevent the introduction of exotic diseases. Once born, the purebred Awassi sheep were maintained under high security quarantine for seven years. During this time, the sheep and their progeny were subjected to rigorous observation and testing. Prior to release, the original imports were all slaughtered and their organs examined in detail for possible disease. At the same time, the original donor flock was re-examined to confirm its freedom from disease.
Artificial insemination has an important role in the Awassi Project so that numbers of the breed can be increased rapidly.

Ultrasound testing is used routinely by Fiona Sunderman and Michael Johns to check whether ewes are pregnant and the number of lambs.

Environment. Better facilities at Wongan Hills also enabled the multiplication program to proceed more satisfactorily.

Late in October 1993, seven years after the birth of the original 41 lambs on Cocos Island, 1640 pure and crossbred Awassi sheep were released from quarantine. All of the stringent disease testing requirements and fleece contamination research projects had been completed. The Awassi flock was at last ready for commercial development in Australia.

The Awassi Sheep Joint Venture

The Awassi Sheep Joint Venture was established soon after the Awassi genetic material was imported from Cyprus. This enabled Yacoub Al Homaizi, a businessman from Kuwait with extensive experience in the Middle East live sheep export trade, to acquire an interest in the Awassi sheep through his Australian company, YYH Holdings Pty Ltd. In return, YYH Holdings Pty Ltd funded most of the subsequent operating costs.

In April 1992 most of the Department of Agriculture's shares were offered for sale to the general public as 16 parcels each of 2.5 per cent. Only two parcels were taken up by farmer syndicates and the remaining 35 per cent was purchased by YYH Holdings Pty Ltd. At release from quarantine in October 1993 the Joint Venture was terminated with the following share holdings:

- YYH Holdings Pty Ltd 85%
- Department of Agriculture 10%
- York syndicate 2.5%
- Norrish syndicate 2.5%

Following release from quarantine, the two farmer syndicates pooled their sheep with YYH Holdings Pty Ltd and established the Awassi Producing Company Pty Ltd to develop commercial breeding and export operations. As a consequence, there are now two flocks of purebred Awassi sheep in Western Australia. The Department's flock, retained for research and development to assist the new industry, is based at Avondale Research Station (near Beverley), and the Awassi Producing Company's flock is located near Toodyay. Both flocks are using artificial insemination to build up numbers as rapidly as possible.

In 1993-94 the Awassi Producing Company Pty Ltd arranged contracts with farmers for the large scale commercial production of first cross lambs. The contracts involved intra-uterine artificial insemination of the
Awassis were quarantined at Kununurra during the first stages of the importation program. These half-bred Awassi ewes were eight months old.

characteristics of the Awassi

The Awassi is the most numerous and widespread breed of sheep in the Middle Eastern region where it is highly valued for both meat and milk. However, it is only one of more than 50 fat-tailed breeds in the world today.

The name is attributed to the El-Awas tribe, from the area between the Tigris and Euphrates rivers in present day Iraq. In most physical characteristics the Awassi is very close to the original sheep from which the various fat tailed breeds were derived. These sheep have been bred for at least 5000 years in south-west Asia where stock with fat deposits in their tails were selected by the nomadic herdsmen for survival under steppe and desert conditions. In more recent times, the Awassi has been selected and bred to produce different strains suitable for meat, milk, or carpet wool production.

The typical Awassi is a large framed, fat tail sheep with a brown or, less commonly, black head and neck. The legs are usually coloured, while the body fleece is white with occasional coloured fibres. Rams are generally horned. The head has a Roman nose and the ears are long and pendulous. The tail has large fat sacs on both sides along much of its length, while its tip is 'S' shaped. This tail fat acts as an energy store (like the camel's hump) and its size depends on the sheep's sex and condition. Rams may have tails weighing up to 12 kg, and ewes may reach 6 kg.

Compared with some British breeds the Awassi ewe has a long breeding season, similar to that of the Merino. In Australia, ewes have been mated successfully from November through to May. Only about 10 per cent of ewes have twins, although high levels of nutrition and artificial breeding programs may increase this level. Single lambs have a birth weight of 4 to 5 kg, and twins weigh about 3.5 kg - about the same as a British breed cross lamb, but heavier than
a Merino. Many crossbred lambs are born with coloured fleeces. As the lamb grows the body wool becomes predominately white and the colour reverts to the classical Awassi pattern. This is especially noticeable after the hogget shearing.

The lamb’s growth rate depends on whether it is born as a single or multiple, its sex, the age of the ewe and its plane of nutrition. Growth rates under Australian production systems have not been studied in detail but adult rams have attained weights of 80 to 120 kg, while ewes have matured at 60 to 80 kg – slightly heavier than Merinos.

Industry potential

Meat

The Middle Eastern Muslim’s preference for fat tail sheep is well documented. The local people are prepared to pay substantially more for these sheep than for Merinos. Premium fat tail sheep markets in the Middle East are supplied both by domestic production and imports from neighbouring countries. In recent years, local production has increased at considerable cost using large scale intensive breeding units. However, production is limited by the environment and economics so the sheep market must continue to rely on imports.

Sheep imports into these countries total some 16 million head each year of which Australia provides only four to six million in the lowest price category. The development of an Awassi fat tail industry in Australia will enable our entry into the higher priced markets and expansion of the live sheep export trade. If one million Awassi ram lambs were shipped each year, this could return more than $50 million per annum in additional export income.

Six trial consignments of three-quarter cross Awassi lambs sent from Wongan Hills from 1991 to 1993 confirmed that both meat quality and market prospects for the Australian product are excellent. Prices averaged $124 per head compared with $66 for Merino wethers. The Australian Meat and Livestock Corporation also advised that the Awassi should help to improve the overall image of Australian sheep meat in the region.

Although growth rates of Awassi/Merino crossbreds appear to be similar to those of British breed/Merino lambs, their carcases do not have the conventional meat breed conformation. Fat distribution is different as the Awassi cross lamb carries a much higher proportion of total body fat on the rump and in the tail. While this will certainly suit the Middle Eastern market, the acceptability of Awassi cross carcases on the Australian domestic market remains to be tested.

In the Middle East sheep meat is sold in several ways. The traditional souk (or market) for selling live sheep is still the largest marketing system. Carcases and cuts are generally sold through small butcher shops. Meat souks are found in the larger cities and sell both frozen (imported) and fresh meat. Some fresh and chilled meat is also sold through the growing number of supermarkets in larger cities but the frozen sheep meat offered at these outlets is not...
popular. In the provinces, local butchers slaughter their own sheep daily and sell the fresh meat.

Australia has been very successful in marketing high quality chilled lamb delivered by air to the speciality meat stores and supermarkets in the larger cities. But local fat tail carcases (and cuts from these breeds) still command substantial premiums over the traditional British breed cross lamb. There would seem to be excellent prospects for expanding Australia's existing product range in these markets with Halal-slaughtered Awassi carcases. These should compete favourably in the premium fat tail section of the chilled carcasse market.

**Milk**

Sheep milk is higher in fat, protein and total solids than either cow or goat milk, and therefore yields more when processed. The fat globules are also smaller and easier to digest than those in cow milk. Most sheep milk is used to make cheese and yoghurt.

The Awassi is one of the best dairy breeds of sheep in the world, producing 1.75 litres of milk each day on average. Not only does the Awassi produce more milk per day than current milking breeds which average about 1 litre per day, but the lactation is twice as long (200 days compared with 100). The ability to conceive while still lactating is another advantage.

Australia currently imports sheep dairy produce valued at $10 million each year. There is also a world shortage of quality sheep dairy produce and substantial potential for export development. Export demand is primarily for cheeses and yoghurt in Middle Eastern countries, Europe and the USA. The potential export market for sheep milk products has been estimated at $50 million per year. Two hundred thousand ewes would need to be milked in about 200 dairies to produce milk for both the export and local markets.

**Wool**

The Awassi produces a coarse fleece of about 35 microns diameter with a high proportion of medullated (hollow) fibres. This wool is the foundation of the famous Berber carpets of North Africa. Like all carpet wool sheep, the Awassi requires shearing twice each year and produces about 3 kg of wool annually.

Two main types of wool are used in carpets, speciality carpet wool and filler wool. Speciality carpet wool is heavily medullated and contributes to the essential resilience and bulk. The purebred Awassi and its higher crosses (three-quarters, seven-eighths etc.) produce a fleece of this category, similar to that of the Drysdale and Tukidale breeds. The fleece from first cross Awassi/Merino sheep is classified as filler wool which is generally less valuable. British breeds such as the Romney Marsh also produce filler wool.

Australia currently produces only 1 million kg of carpet wool each year but imports 11 million kg (worth $45 million) including 5 million kg of speciality wool from New Zealand, Pakistan and the United Kingdom. The remaining 6 million kg of filler wool is mainly from New Zealand. An Australian Wool Corporation-supervised trial...
Several important conclusions were reached:

- When Merino ewes were shorn while being mated to Awassi rams, the level of fibre contamination was negligible, that is it fell within the most stringent commercial limits. This was reduced even further if shearing was delayed until after mating.

- Contaminant fibres transferred from lamb to ewe during the suckling phase largely disappear from the ewe's fleece within four weeks of weaning.

- No fibre contamination occurred when Merinos grazed paddocks previously stocked with Awassi sheep. It was concluded that similar management precautions to those currently recommended for the Suffolk, other British breed and carpet wool sheep, will prevent Merino clip contamination with Awassi sheep. Running Awassises separately to Merinos, delaying shearing until at least four weeks after Awassi cross lambs are weaned from Merinos and good shearing shed hygiene are the foundations of sound management practice.

In response to concerns expressed by various members of the Merino industry, the Department of Agriculture, in conjunction with the University of Western Australia and CSIRO, has co-ordinated a comprehensive research program to evaluate the possibility that coloured fibres and kemp from Awassi sheep might contaminate Merino clips. This has involved extensive field experimentation supported by detailed laboratory analyses. Fleece samples have been processed through to tops and finished cloth to examine the effects of management (previous grazing, common or adjacent paddocking, mating and suckling) of Awassi sheep on the level of fibre contamination in Merino fleeces.

The profitability of carpet wool production in Australia has been restricted by high costs (double shearing), relatively low wool prices and the poor acceptability of wethers from these breeds by the live sheep export trade. The introduction of the Awassi, and the opportunity to cross it with existing carpet wool breeds, has the potential to overcome some of these problems.

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Comparing Australian and imported carpet wools found that the Awassi fleece was equal to the best imports.

The Department of Agriculture has begun a research program aimed at assisting the development of new industries based on the Awassi fat tail sheep. This work will examine:

- **Alternative crossbreeding strategies.** Meat, wool and milk production from Awassi crosses with the Merino, Poll Dorset, Border Leicester, Drysdale and Tukidale will be evaluated at both the half and three-quarter Awassi cross level.

- **Market research.** First and second cross ram lambs generated by the backcrossing programs will be used to investigate processing and marketing issues with both live and carcase exports. Factors to be assessed include preferred liveweights at point of sale, carcase processing techniques and consumer acceptability.

- **Husbandry.** The effects of two tailing implements, the length of the tail and age of the lamb at marking on growth rates, wound healing, fly strike, skin cancer and subsequent reproduction will be evaluated using first cross Awassi/Merino lambs.

We have been liaising with interested farmers and relevant industries to ensure that useful information is available on all aspects of this new sheep breed. With effective two-way communication we hope to hasten the development of a vigorous new industry.