THE AUSTRALIAN OSTRICH INDUSTRY: CRITICAL ISSUES

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Summary

The ostrich industry in Australia has undergone significant change from rapid expansion to a commercial phase with a huge reduction in producer numbers, especially small producers. Poor reproduction, hatchability and chick survival have had a severe negative impact. Feed costs are normally 50% of growing costs and there is a need for these to be reduced. The digestive system of the ostrich is unique with significant fermentation occurring in the hindgut. The initial aim was to produce ostriches for meat. However, export markets are highly competitive and the local costs of red meat are so low that ostrich meat cannot compete. Focus has changed to leather and currently hides are being sent to South Africa to be tanned. A good income can result but this depends on producing high-quality leather, which is difficult. Cost estimates of producing birds, by either purchasing chicks or having a breeding flock, are made. In both cases profitability, if it is to occur, not only relies on product price but on the number of birds farmed.

I. INTRODUCTION

The ostrich industry in Australia has undergone a series of crises such that producer numbers have diminished greatly. Many made fortunes during the expansion phase of the industry and many more went broke subsequently.

Ostrich meat in Australia is expensive compared to meat from conventional livestock and a viable export market has not yet been established. Although ostrich meat is reputed to be low in saturated fat, cholesterol and salt, these characteristics no longer attract much interest in a world faced with a vast amount of health information and health products on the market. There is now a change of emphasis from ostrich meat to leather with Japan seen as a key market outlet.

In Zimbabwe and South Africa, where there are established ostrich industries, leather commands much more of the income (70%) than meat and feathers. The change in focus from meat to leather means that feeding and management strategies will also change, and growth rate will not be the major target. Instead of ostriches reaching a slaughter liveweight of 95 kg in nine months, they will take at least 12 months to reach this weight and will probably be killed at about 100 kg. The emphasis will be, therefore, on low-cost diets and on managing ostriches extensively and on pasture. There is not much good information on dietary needs of ostriches for meat and considerably less for leather production, but feed costs are about 55% of total costs for producing a meat bird to slaughter.

II. Ostrich Chicks

The most critical stages of ostrich production and reproduction are incubation and chick rearing. It is very difficult to obtain reliable data on either of these. In an intensive system, in which a hen will lay 44 eggs/year, only about 40% of these eggs will hatch and the chicks survive to 10 weeks of age (Cooper, 2000). In Australia, a survey was undertaken in early 1997 of producers in Queensland and Northern New South Wales (Farrell et al., 2000a).
From that information, it is unlikely that farmers achieve anything like 17-19 chicks per hen each year. In part, this is due to inferior genotypes. Until now little attempt has been made to practise selection for favourable traits, such as egg production, fertility and growth rate. Thirty eight percent of producers surveyed had a hatchability of less than 40% of eggs set.

The rearing of ostrich chicks to about 12 weeks of age requires excellent management skills. Disease is a major problem and dietary requirements are not well established, and are often taken from those for poultry. These specifications are normally generous, resulting in expensive diets. However, relative to lifetime production costs, for this phase of growth the feed component is comparatively small. In Zimbabwe Cooper (2000) estimated total costs of rearing a chick to 13 weeks of age to be US$36 (A$61). An optimistic loss of only 15% from hatch to 13 weeks was used by Cooper.

III. DIGESTION AND NUTRITION

The ostrich is unique as an avian herbivore with a prodigious hindgut. Each of the two caeca are about 130 cm long in a 45 kg bird, and the length of the colon is 760 cm (Swart et al., 1993b). In these studies Swart et al. (1993a) found that young ostriches (5-10 kg) were able to digest the fibre component (neutral detergent fibre) of the diet to a greater extent than older (42-50 kg) birds (0.52 vs 0.46). In vitro fermentation studies by this group indicated that energy from the volatile fatty acids (VFA), the end products of hindgut microbial fermentation, could contribute 76% to daily apparent metabolisable energy (AME) needs (Swart et al., 1993b). However, the efficiency of utilisation of AME from a diet containing 50% lucerne meal was only 0.32 (Swart et al., 1993c). When emus, cockerels and young ostriches were fed four diets containing different sources of fibrous feeds, dry matter digestibility and AME were consistently and significantly higher in the ostriches but values for emus and cockerels were the same (Farrell et al., 2000a). Studies by Angel (1993) showed that the AME of a diet when fed to chickens was 8.3 MJ/kg; it yielded 7.2 MJ AME in ostriches at three weeks of age but this increased to 11.4 MJ at 17 weeks and remained constant thereafter. It is not surprising to find in the literature generally substantially higher AME values for most feedstuffs when fed to ostriches compared to poultry, particularly those high in fibre (Cilliers et al., 1994; Cilliers et al., 1997). The dilemma is whether ostriches should be fed in a similar fashion to horses or chickens. The problem is that sources of roughage (fibre) are expensive in Australia, particularly lucerne meal. It is uncertain whether fibre is a dietetic requirement for gut function, or a dietary requirement, or neither. If the latter, this suggests that although lucerne and other fibrous sources may yield twice as much AME in ostriches as in poultry, the net availability of that energy is so low that these feeds become much more expensive than grains when expressed as $/MJ net energy and should be used sparingly.

Grazing can provide a significant contribution to daily feed needs. The area required depends on the quality of the pasture. Van Niekerk (1995) reported that 5 to 10 hectares of unimproved pasture are needed to support one mature bird. He also pointed out that intensively-grazed, high quality, pasture can be stocked at 6.5 birds/hectares but much of the forage may be trampled and wasted. He suggested zero grazing in these circumstances, with the mechanically-harvested forage fed to ostriches in a feedlot situation. Very preliminary studies suggest that high-quality pasture may contribute up to 25% of the food needs of fast-growing meat birds (Farrell et al., 2000b). If leather production is the target then pasture contribution may be much higher. The difficulty is to maintain a constant supply of good quality pasture. If ostriches are being grown mainly for meat they should be fed like chickens but if leather is the main production perhaps they should be fed more like a horse.
The production of leather as opposed to meat requires two different husbandry and feeding strategies. In the latter case the birds are grown rapidly. On high-quality diets it has been demonstrated that ostriches gain almost 0.5 kg/day between 24 and 65 kg liveweight (Farrell et al., 2000b). A major constraint to the economical production of ostriches for meat is that the current final slaughter weight (90-100 kg) is close to their mature liveweight (115-125 kg). Consequently, feed conversion ratio increases from about 2.1 at 20 kg to 11.1 at 95 kg even when birds are fed a high-quality turkey starter diet (Degen et al., 1991). Rapid growth may give a carcass that has excess fat resulting in a low yield of favoured meat cuts.

The nutrient requirements of growing ostriches are uncertain. Du Preez (1991) has estimated requirements for energy, protein and amino acids on the basis of egg and body composition, rate of gain and maintenance energy costs. Requirements for vitamins and minerals are usually those for growing chickens and breeder hens. However, Van Niekerk (1997) has identified vitamin E as being critical for growth along with additional amounts of copper and selenium. Since male and female breeding birds are given the same diet, it is sometimes recommended that calcium be omitted from the diet and given free choice.

On the basis of the research by Swart (1988) on the low efficiency of utilisation of the VFA from dietary fibre sources, the worth of these fibrous feeds will be much lower than indicated by their AME. Cereal grains are superior in terms of cost per MJ of AME. However, for leather production, when ostriches may be grown slowly, there is opportunity to reduce nutrient needs thereby allowing formulation of low-cost diets. The concept of “no frills feeding” (Farrell et al., 2000b) is an area that has not been well researched and requires urgent attention. This is based on the feeding of whole grain with appropriate supplements.

IV. PROFITABILITY

In August 2000, Harrietville Trading Pty Ltd (Atkins, 2000) anticipated net returns on an average grade 2 hide of A$319. This was based on hides varying from US$21 (grade 1) to US$9 (grade 5) per square foot. Fillet steak into the European Union was fetching A$7.50/kg. The recent decline in the Australian dollar will likely increase these amounts.

Tuckwell (1997) presented an analysis of costs of rearing an ostrich to slaughter weight in Australia to be $366 assuming a realistic annual production of 10 yearlings per breeding hen. If yearling numbers reach 15 production costs would be reduced to $335; of this 40% was required for feed. Tuckwell (1997) estimated income per bird from meat to be $135 assuming a wholesale price of A$100/kg. Leather returns of A$303 gave an estimated farm gate value of a 95kg yearling of A$438, or a profit of over A$100/bird. These figures have changed significantly since Tuckwell (1997) made these calculations.

Tuckwell (1999) calculated gross margins for two production systems. The estimate for a producer purchasing 0-2 month old chicks showed profitability to be related to two critical factors. One was the purchase price; as it decreased profitability increased. The second was flock size. A profit was not realised until over 1000 chicks were purchased at A$45/chick. The enterprise gross margin increased from A$14,729 for a flock of 2000 birds, to A$76,573 for a flock of 5000 birds when chicks were purchased at A$45 each. These calculations included a generous survival rate of 86%. Net carcass weight was assigned A$6/kg, again an optimistic valuation. However, a hide value of only A$14.33/sq foot was used compared to A$20.60 recently forecast by Atkins. Currently, fillet steak is fetching from A$5 to 7.50/kg with one company exporting to Europe meat from 400 birds/week with an immediate expected increase to 1200 (De Groot International, pers. Comm., 2000).

Using the same costs and income, Tuckwell (1999) calculated a gross margin for an established ostrich breeding flock of 100 hens with 50 cocks. His fertility, hatchability and survival rate gave an optimistic 16 growers slaughtered per hen each year. This is well above
the industry norm and a realistic figure of 12 would be more acceptable. When total income from the 1584 growers was deducted from expenses, gross margin was A$12,425.

V. CONCLUSIONS

The future of the Australian ostrich industry will rely on establishing reliable markets, particularly for leather. Recently, birds have been sent to South Africa to be tanned although there is the possibility of facilities being established in Australia. However, it is difficult for producers to meet the stringent requirements for grades 1 and 2 hides. The sales of ostrich meat overseas are still unreliable and the price volatile. Opportunity of obtaining a reasonable price for ostrich meat in Australia is bleak as long as the price of traditional meats remains low. Fundamental to the future of the industry may be farming birds in an extensive system, growing the meat birds at a slower rate with lower feed costs, and hens with improved reproductive performance. One thing seems certain, there is little room for the faint hearted and, at this stage, little room for the smaller producer.

REFERENCES


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