A fattening trial with yearling rams of the Saudi Arabian Najdi and Arabi breeds

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Received 11 September 1969

Summary

An orientating trial was conducted concerning the fattening abilities and slaughter characteristics of yearling Najdi and Arabi rams. The fattening ration was based on alfalfa (*Medicago sativa*), both hay and green. There was little difference between the breeds. The Najdi tended to produce a heavier carcass, whereas a better dry-matter conversion was found in the Arabi.

Introduction

The major breeds of sheep found in the Eastern Province of Saudi Arabia are the Najdi and Arabi. Both are fat-tailed and hairy-wooled. The colour of the Arabi is uniformly black or brownish-black. The Najdi's colour is also black but the head is white. Both breeds are multipurpose, kept for the production of milk, carpet wool and mutton. Mature rams in fat condition may exceed 85 kg liveweight.

Data pertaining to the fattening abilities of these important desert breeds are believed to be non-existent. In order to gain some knowledge about this aspect a fattening trial involving 8 Najdi and 8 Arabi yearling rams was conducted at the Qatif Experimental Farm ¹ near Dammam between 18th February and 19th May 1969. Owing to the large variability between the individual animals and the small number of rams used in the trial, most differences between the breeds were statistically not significant. However, the data collected during the trial may be of interest for further research in this field.

Objectives of the trial

To study the fattening abilities of yearling Najdi and Arabi ram lambs on an alfalfabased ration and to assess the slaughter results.

Fattening ration

The fattening ration consisted of green alfalfa and alfalfa hay. The alfalfa was grown on the Qatif Experimental Farm practising border irrigation and the crop was harvested just before the flowering stage. Hay, stored for 3 weeks at a maximum, was

¹ Jointly financed by the Saudi Arabian Government and UN Special Fund through FAO. The farm was established and managed between 1964 and 1969 by the International Land Development Consultants N.V. (ILACO), Arnhem, the Netherlands.

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fed ad libitum. Green alfalfa was cut daily except on Fridays and each ram received 1 kg. As from 5 April 1968 barley meal was offered to 4 animals out of each breed, but only accepted by 3 animals out of each group, at the daily rate of 500 g per animal.

To ensure a supply of trace minerals, seasalt collected in the nearby Saihat flats was offered free of choice throughout the trial period.

The available laboratory facilities only allowed the determination of the dry matter contents of green alfalfa and alfalfa hay. The dry matter in the barley meal was supposed to be $90 \ \theta_0$.

Experimental stock

No experimental animals from the Qatif Experimental Farm being available, the required stock was purchased in the Hufuf market. The desirability of collecting 16 animals of good phenotype and as uniform as possible restricted the choice to yearling ram lambs which are offered for sale in large number at the Hufuf market. Naturally it was not feasible to purchase rams of exactly the same age, but all animals finally collected had 2 broad teeth.

Facilities and design of the trial

The existing facilities comprised of an experimental unit of 16 separate concretefloored pens of 1.2 by 1.7 metres each with access to a run of 1.2 by 4.5 metres. The pens are lined up under a double-built roof orientated north-south. The hay was stored in a cement block building adjacent to the trial unit. During 10 days prior to the actual fattening period of 13 weeks all animals were kept in the pens, alternatively a Najdi and an Arabi ram. During this period the stock was accustomed to the ration and the surroundings and all animals were dewormed with Thibenzole and ear-tagged. After completion of the fattening period only drinking water was offered and all feed withheld for 24 hours. Thereupon the rams were slaughtered.

Data and recordings

The following data were collected and recorded:

Feed consumption (daily);

- Weighing (weekly on 2 subsequent days at the same hour and just before slaughtering);
- Dry-matter content of green alfalfa and alfalfa hay analysed from samples taken once weekly. (Dry matter in the barley meal was supposed by 90 %).) Dry matter in fresh alfalfa ranged between 14.2 and 24.1%, in alfalfa hay between 85 and 91%;

After slaughter: weights of carcass, fleece, tail, head and tongue, trotters, liver, heart, lungs and kidneys, reproductive organs, intestines and glands.

For practical and technical reasons it was impossible to determine the amount of blood.

Results of the trial

General

The variability of practically all aspects studied proved to be wide to very wide within

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| | Najdi | Arabi | Difference | |
|------------------------------------|--------|--------|------------|--------------------------|
| Live weight at start or trial (kg) | 29.1 | 26.7 | 2.4 | n.s. |
| Live weight at end of trial (kg) | 40.8 | 40.8 | _ | |
| Growth over 13 weeks (kg) | 11.7 | 14.1 | 2.4 | n.s. |
| Growth per day (g) | 128.6 | 154.9 | 26.3 | n.s. |
| Total dry-matter intake (kg) | 161.78 | 155.72 | 6.06 | n.s. |
| Dry-matter conversion 1 | 13.83 | 11.04 | 2 79 | 0.05 > P > 0.025 |
| Feed costs per kg growth (US \$) * | 1.63 | 1.30 | 0.33 | $0.05 \leq P \leq 0.025$ |

Table 1 Average weights, growth, dry-matter conversion and feed costs

¹ Amount of kg dry matter consumed to produce 1 kg growth.

² Based on a price of US \$ 118 per ton of dry matter.

the breed groups and most pronounced in the Najdi group. The data were statistically analysed according to Fisher's t-test method.

Weights, growth, dry-matter conversion and feed costs

A summary is presented in Table 1.

The average group weight at the start of the trial was lower in the Arabi group, the difference being due to the presence of 3 Arabi rams with decidedly low weights. The widest variation was found in the Arabi group (9.5 kg). At the end of the trial the average live weights of both breeds were equal, suggesting a more favourable





| | Najdi weight | | Arabi weight | | Difference Najdi–Arabi | | |
|-----------------------|--------------|--------------|--------------|------------|---------------------------|------------|-------------------|
| | (kg) | (% of LAS) 1 | (kg) | (% of LAS) | (kg) | (% of LAS) | |
| Carcass ² | 15.23 | 39.3 | 13.83 | 36.4 | + 1.40 | 2.9 | 0.025 > P > 0.025 |
| Fleece | 4.28 | 11.0 | 4.61 | 12.1 | - 0.33 | 1.1 | n.s. |
| Tail | 2.57 | 6.6 | 2.80 | 7.4 | 0.23 | 0.8 | n.s. |
| Head and tongue | 1.64 | 4.2 | 1.58 | 4.2 | +0.06 | | n.s. |
| Trotters ³ | 0.87 | 2.2 | 0.94 | 2.5 | - 0.07 | 0.3 | n.s. |
| Liver | 0.62 | 1.6 | 0.57 | 1.5 | +0.05 | 0.1 | n.s. |
| Heart, lungs, kidney | 0.87 | 2.2 | 0.85 | 2.2 | +0.02 | | n.s. |
| Reproductive organs | 0.49 | 1.3 | 0.34 | 0.9 | +0.15 | 0.4 | < 0.001 |
| Intestines and glands | 4.52 | 11.7 | 4.70 | 12.4 | - 0.18 | 0.7 | n.s. |
| Blood and losses 4 | 7.66 | 19.8 | 7.78 | 20.5 | 0.12 | 0.7 | n.s. |
| Total (LAS) | 38.75 | 99.9 | 38.00 | 100.1 | + 0.75 | | n.s. . |

Table 2 Average slaughter results

¹ LAS = liveweight at slaughter.

² Air-cooled during 30 minutes (slaughtered at night).

³ Cut at knee and hock joints.

Calculated.

growth in the Arabi. However, the difference was statistically not significant. Moreover an element of recuperative growth may be involved, as the three smaller Arabi rams gained on the average 15.2 kg during the trial period against 13.5 kg in the remainder of the group. Considering the age of the animals the weekly gain of about 1 kg live weight does not seem unsatisfactory. The growth was almost linear as illustrated in Fig. 1.

The variation in dry-matter conversion was extremely wide between individuals. The conversion rate ranged between 10.8 and 17.9 in the Najdi and between 8.7 and 14.7 in the Arabi. Notwithstanding the deviations there was an indication that dry-matter conversion was better in the Arabi (significance at 5 0/0 level).

At a retail price of US \$ 1.33 per kg meat and bone in the local markets (no price differentiation according to quality), the fattening of yearling rams on a ration of irrigated alfalfa and barley meal as practised in the trial could not be considered a paying proposition.

Slaughter results

The slaughter results are compiled in Table 2.

The slaughter results, as a whole, indicated that there was little difference between the two breeds. Seen from a practical view point the Najdi produced a heavier carcass without being bonier than the Arabi. These aspects are in accordance with the preference for the Najdi to the Arabi for slaughter purposes by the local tribesmen. A striking difference was found in the genital organs (testicles) which were significantly heavier in the Najdi.

Conclusions

The results of the trial indicated:

1. There was little difference in fattening abilities and slaughter results between Najdi

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and Arabi yearling rams as used and fed in the trial.

- 2. The dry-matter conversion tended to be better in the Arabi.
- 3. The Najdi produced a heavier carcass.
- 4. The genital organs were distinctly heavier in the Najdi.
- 5. The fattening of yearling rams as practised in the trial is not a paying proposition with the current mutton prices in the local markets.

Acknowledgment

The trial could only be successfully conducted because of the efficient and dedicated supervision of Mr B. J. Bonhof, Animal Protection Technician with ILACO.