

The Possibility of Utilizing Imported Frozen Bull Semen in the Libyan Arab Republic (L.A.R.)

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ABSTRACT

A survey of cattle population, breeds and distribution in the Libyan Arab Republic was made. Future plans for cattle development were studied. It was found that artificial insemination, using locally processed or imported frozen semen, could be introduced.

Frozen semen ampules of Friesian bulls were purchased from abroad, stored in liquid nitrogen and utilized successfully. The cost of one ampule of frozen semen arriving in Tripoli ranged from 2.27–2.75 L.D. while it was 5.31 L.D. for that of a natural service. This difference would be greater if the genetic superiority and the saving in valuable man hours and feedstuff were considered.

It was suggested that imported frozen semen could be an asset to cattle development plans or to supplement future artificial insemination service.

INTRODUCTION

In addition to the existing Friesian (Holstein) herds, a plan has been drawn up to introduce a large number of Friesian cows in the near future (3). In most case these cows are accompanied with a reasonably selected sires. Due to the high cost of feeding and management in this country, these sires could contribute tremendously to the overall production expenses. Replacing such sires would constitute technical difficulties since breed registration and systematic performance recording are not widely practiced. Developing artificial insemination service would be a great asset to dairy farming here, as it has been in other countries (1,2,5,8) in propagating genetic superiority and in eliminating unnecessary expenditures associated with natural breeding. As it will take sometime before locally processed semen of proven dairy sires are made available to the majority of dairy farms, an alternative interim method should be investigated.

In this paper an attempt was made to study the possibility of utilizing imported frozen bull semen as a feasible mean to improve the genetic make up of future cattle herds.

MATERIALS AND METHODS

A study of the existing cattle population and breeds was made. Special attention was paid to future plans for the development of dairy cattle farming. The basic requirements

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for the importation, storage and utilization of frozen semen were identified. Foreign breeding association were contacted and three hundred ampules of frozen bull semen were purchased. Semen ampules were stored in a liquid nitrogen container that was charged once every ten days at a local firm.¹ Friesian cows were mated to bulls kept on the University farm or artificially inseminated by a trained technician utilizing frozen semen. Healthy calves have resulted from both breedings. The cost of one ampule of frozen semen arriving in Tripoli and the expenses involved in maintaining it were calculated and compared with that of a natural service. A critical evaluation of large scale importation of frozen semen to the L.A.R. was made.

RESULTS AND DISCUSSION

1. Cattle Population in the L.A.R.

It can be seen from Table 1, that cattle population was made up of 120,750 head or approximately 0.06 head per capita. Due to the absence of a well defined breeding policy in the past, a relatively large number of foreign breeds was introduced (7). Present programs for the development of dairy cattle are mainly promoting the introduction of Friesian Breed, and large farms have already been established (Table 2). These farms have constituted a favourable ground for artificial insemination to develop, and to by-pass problems encountered in other developing countries (4).

2. Importation of Frozen Semen

a. Economic aspects Frozen semen can be imported to the L.A.R. from various sources abroad, preserved in liquid nitrogen and utilized successfully at a reasonable cost. The price per ampule of frozen semen arriving in Tripoli, as shown in Table 3, was 2.27–2.27 L.D., while it was 5.31 L.D. for that of a natural service (Table 4). This difference in cost could be much greater if large quantities of semen were imported and if the liquid nitrogen was obtained at a lower cost. Valuable feedstuffs, veterinary care and man-hours, necessary for the maintenance of dairy bulls for natural service (Table 4), were entirely saved.

Table 1 Distribution of Cattle population on the various Muhafada in the Libyan Arab Republic (3).

Muhafada	Cattle population (head)
Tripoli	31,890
Zawia	14,260
Garian	1,000
Homs	7,390
Misurata	10,930
Al-Khaleej	170
Benghazi	7,490
Gebel Akhdar	39,420
Derna	8,120
Sebha	0,080
Total	120,750

¹Libyan Gas Company, Tripoli, Libya.

b. Genetic aspects All sires in service in the L.A.R. have not been genetically proven, since they were imported as young bulls. Frozen semen was obtained from proven sires whose transmitting abilities and genetic superiorities were known. The genetic superiority of imported frozen semen however, should be taken with reservation, since it was estimated from the performance of the sire's daughters under completely different environmental conditions and managerial practices. In this study, it was felt that frozen bull semen could be used as an interim mean to cattle development or to supplement future artificial insemination service. In both cases full utilization could be attained if the basic requirements were met (6,9).

Table 2 Size and Location of Friesian Cattle farms developed by the public sector in the Libyan Arab Republic (3).

Farm	Location (Muhafada)	Size (Head)
Sidi El-Mesri	Tripoli	5,000
Judaem	Zawia	250
Zawia	Zawia	500
Guea	Tripoli	500
Garabulli	Tripoli	500
Bnaina	Benghazi	500
Fuaihat	Benghazi	250
Bugerar (I)	Benghazi	500
Bugerar (II)	Benghazi	500

Table 3 Approximate cost of frozen semen ampule arriving in Tripoli.

Item	Approximate cost in Libyan Dinars (L.D.)
Average cost per ampule imported from the U.S.A.	2.5 ¹
Average cost per ampule imported from the Federal Republic of Germany	1.92 ²
Liquid Nitrogen per ampule per year	0.125
Freight and insurance	0.125
Total cost per ampule imported from the U.S.A. and Maintained for One year.	2.75
Total cost per ampule imported from Germany and Maintained for one year.	2.27

Table 4 Cost of maintaining a dairy bull on the university farm.

Item	Cost per year (L.D.)
Labor	156
Feeding	365
Veterinary care	010
Total Cost	531
Cost per service (Assuming 100 services per bull per year).	5.31

¹Quotations supplied by American Breeding Service, De Forest, U.S.A.

²Quotations supplied by Spermex, Neustadt, West Germany.

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