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الجمهورية التونسية  
وزارة الداخلية

20. 23 نوفمبر 1989

REGIONAL SYMPOSIUM ON GENETIC IMPROVEMENT  
OF CATTLE IN THE SOUTHERN MEDITERRANEAN  
CLIMATIC CONDITIONS  
Tunis, 26 - 29 November 1989

CSA 6662

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#### Summary:

The potential of a range of new technologies for improving animal production, and particularly for enhancing genetic change, is needed in Libya. Embryo transfer in nucleus herd breeding schemes seems to offer special promise in most of the developing countries. If low cost embryo production becomes possible, through in vitro fertilization or cryonic cloning, widespread use of the technique will be justified to provide a continuous supply to the dairy farms in the country.

#### Introduction:

The human population in Libya is 4m. People upto 1986 (World development report, 1986) are expected to grow substantially in number in the coming years, with an annual growth of 3.6% (1986 to 2000).

Population growth alone will eventually require an increased availability of animal products, especially meat and milk. A modest increase in per capita intake of meat from 17 to 20 kg per head would push this more for the demands of meat, and in the same sense and increase of milk consumption will have a higher increasing rate.

In the Mediterranean countries these increased requirement of 6m tonnes of meat and 20m tonnes of milk are rather close to the trend based projections for the year 2000, given a study from the International Food

Policy Research Institute ( Khaldi, 1984 ). Agricultural development is one of the basics for the development of animal production in Jazairia. Their far and from many points of view, technical improvement of dairy production in Libya is called for. The objective of this study to produce the use of the most recent development genetic improvement programs which suit the Libyan environmental condition.

#### Genetic Plan:

Cited by Cunningham (1989) that the use of new genetic and reproductive technology in animal production has been reviewed in a number of recent conferences proceeding (1,4,9). Broadly speaking, the new development can be categorized into four groups:-

- Embryo technology
- Gene technology
- Hormone and Bruno technology
- Vaccine technology

The area of embryo and reproductive technology is the last prospect of developments of particular relevance in developing countries, and Libya is one of them.

The improvement currently achieved in dairy cattle in Libya is through continuous importation of dairy cattle from Europe mainly W. Germany, from the economical point of view this will be considered as negative improvement, even if selection is subjected to the existing imported animals, the

Policy Research Institute (Raidi, 1984). Agricultural development is one of the basics for the development of animal production in Somalia. Their far and near many points of view, technical improvement of dairy production in Libya is called for. The objective of this study to produce the use of the most recent development genetic improvement programs which suit the Libyan environmental condition.

#### Genetic Plans

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- Embryo technology
- Gamete technology
- Hormone and tissue technology
- Machine technology

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principally function of accuracy and intensity of selection of Sire, is based on progeny test data, which also economically unfavourable because of time consumed. It has been pointed out (7,10) that, in theory, higher rates of genetic gain can be achieved without progeny testing, but with the systemic use of embryo transfer in limited nucleus (Breeding farm) which will be controlled by the Dairy development scheme. The nucleus will contain a highly selected animals, or imported pedigree ones.

The base of the system is the shortening of the generation interval, and the enhanced selection intensity among females which becomes possible by importing outstanding individuals or selecting ones from the dairy farms, the latter will reduce the effect of the environmental condition of the contributed offspring.

The potential of this multiple ovulation embryo transfer (MOET) system is now being explored for its particular reference in developing countries, and it is conceivable that the breeding farm of a few hundred cows could be assembled beside (A.I) station, where controlled reproductive technology required for embryo transfer could be sustained.

The diagram attached reflect the prospects of the following generation after the start of the project.

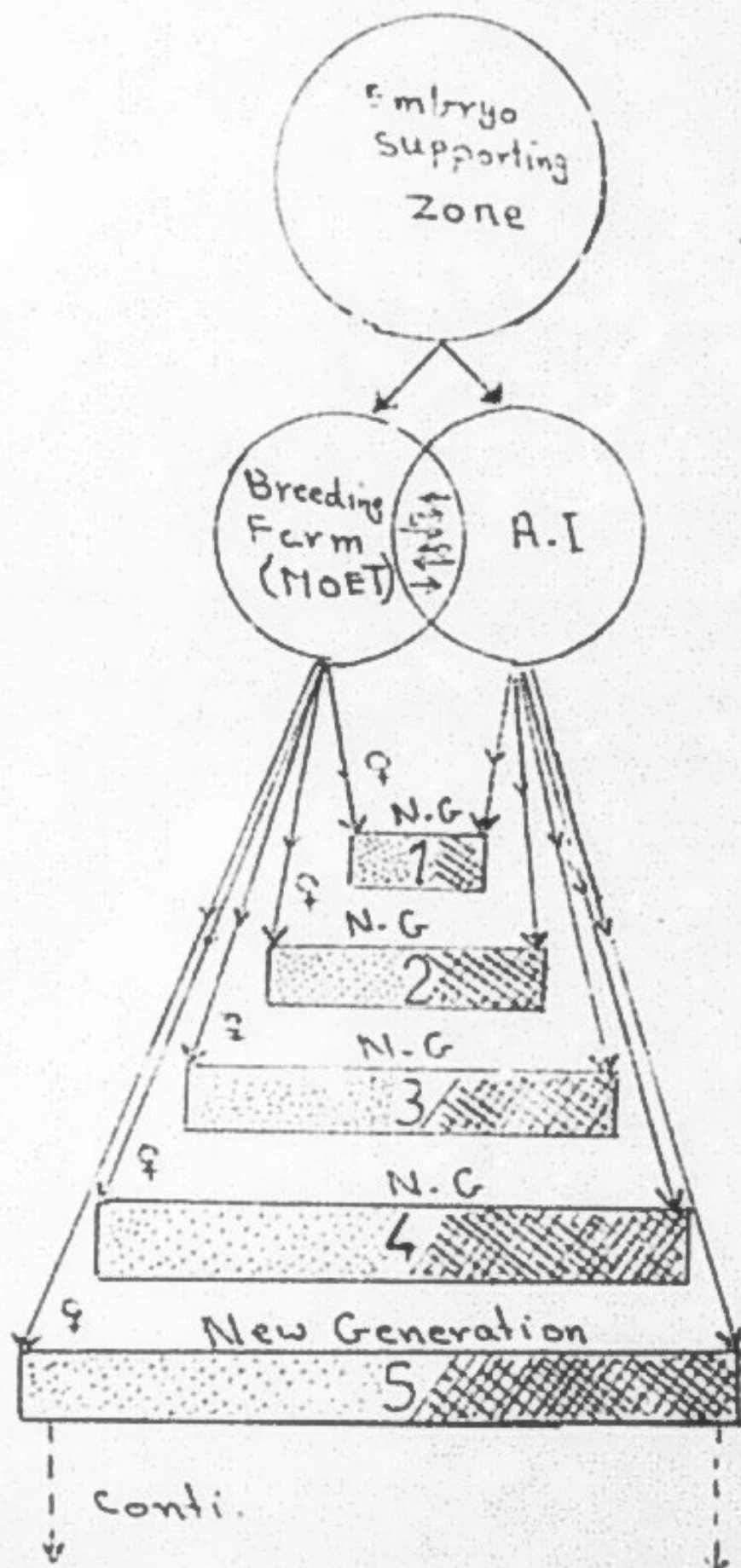
Cunningham (1989) documented, it is evident from the difficulties of sustaining an A.I. services in many development countries, but on long term policy embryo cost can be reduced enough, and success rates will be of a great evidence for animal development.

Technical needs:

To start the improvement programme the support from EAWP, FHO, C.I.H.R.A.M. and I.C.R.P.S.A. is needed. The support consist of the following:-

- 1- Embryoes from well documented zone.
- 2- Technical training for Libyan technicians.
- 3- Technical equipment considering that for embryo transfer and A.I. services.
- 4- Scholarship for higher study on the field embryo technique, A.I. and Reproduction.
- 5- Recording system.
- 6- Data collection and statistical analysis supported by computer programmes.
- 7- Local training for embryo transfer and A.I. technique through well trained personnel from abroad.

# BREEDING PLAN



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