INCREASING AND IMPROVING MILK AND MEAT PRODUCTION (RAF/5/046) D3

New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US $	US $	US $	m/d	US $	m/d	US $	US $	US $	US $	US $
1999	2/0	29,400	80,000	80,000	0/0	0	0/0	0	0	0	0	189,400
2000	3/0	46,350	60,000	120,000	0/0	0	0/0	0	0	0	0	226,350
2001	2/0	32,400	60,000	70,000	0/0	0	0/0	0	0	0	0	162,400

First Year Approved: 1999

OBJECTIVES: The long term objective is to increase productivity and profitability in milk and meat production. The immediate objectives are to assess the performance of AI programmes in AFRA Member States, with the identification of constraints; to formulate and assist in the implementation of remedial measures using appropriate strategies; to establish sustainable routine non-pregnancy diagnosis and related services to farmers; and to harmonize managerial and field practices and share expertise within the region.

BACKGROUND: Africa is endowed with considerable animal wealth (14% of the world's cattle, 16% of its sheep, 33% of its goats and more than 50% of its camels), and also has favourable livestock population/land ratio. Nevertheless, the contribution of livestock is not commensurate with the number of animals or the extent of land resources used, and although cattle numbers, for example, have increased by about 10% over the past decade, milk and meat production per animal (i.e. animal productivity) has remained almost static. This trend, coupled with the high annual population increase of about 3%, has resulted in a sharp decline in animal protein production per head of population, and in significant increases in the import of livestock and animal by-products (meat, milk, butter). The central problem to be tackled is the poor reproductive performance in dairy cattle, which is far below international standards. Over the past two decades, the Agency has been assisting its African Member States in their efforts to improve livestock productivity in Africa by addressing three interrelated problems: firstly, to improve animal reproductive efficiency; secondly, to improve animal nutrition; and thirdly, to improve the diagnosis and control of major animal diseases which are endemic to the region and cause death or result in impaired growth and reproductive performance. This is usually caused by a combination of factors, including climatic and other stresses, and poor nutrition and management. Artificial insemination (AI) has been introduced in the majority of AFRA countries in order to improve the local breed and to increase the reproductive performance of livestock which will, in turn, increase milk and meat production. However, the success rate of AI programmes is relatively poor, and does not exceed 50% at best. This deficiency is attributed to poor quality of semen, inaccuracy in heat detection and poor nutrition. Results obtained under other projects have shown the value of using progesterone measurement to determine the factors which influence the success rate of AI under diverse systems of dairy production and management, and to detect non-pregnancy and other ovarian disorders at an early stage. Such techniques in conjunction with clinical and other data generate the information required to introduce efficient breeding, feeding and management practices and to identify breeds with superior reproductive behaviour under given environmental conditions. In each country, special effort will be made to sustain a routine service to farmers and cattle associations for diagnosis of non-pregnancy and infertility to support AI programmes. The project rationale is thus based on the need to assist farmers and livestock breeders/co-operatives to make full use of the progesterone assay methodology for improving detection of heat and the early diagnosis of non-pregnancy and infertility in dairy cattle in order to increase milk and meat production, and the efficiency of AI programmes in AFRA countries. AFRA Member States have requested that a demonstration be included in this project to illustrate how an efficient and effective routine AI service can be established and operationalized under African conditions. This demonstration will be implemented as a Model Project in order to highlight the expected impact, promote replicability in other countries using TCDC, and maximize the transfer of know-how through the full participation of the other countries in the implementation of all activities foreseen under the demonstration. A first survey showed that an ongoing AI programme in Morocco has all features of a Model Project in the field as well as the necessary requirements for future replication in other AFRA countries. These include: (i) 87% of the programme being controlled by the milk and meat production co-operatives and farmer associations, which implies that the commitment of the real end users is ensured; (ii) having a basic infrastructure, including operational extension services, logistic support, 300 inseminators, laboratory facilities for preservation of fresh semen, three RIA laboratories, and enforced legislation and regulations; (iii) using progesterone methodology on a routine basis; and (iv) producing a quantifiable impact. Thus, the ultimate objective of this programme will be the conclusive demonstration of the relative costs and benefits of these services to farmers.

PROJECT PLAN: The programme will focus mainly on dairy and dual-purpose cattle. Target farms for the programme will be smallholder farms, but other farm sizes, particularly dairy co-operatives, will be considered. The programme has two major components, which will have to be undertaken by two groups of collaborators in most situations. The first component is the collection of samples and background data from the farmers, interpretation of progesterone and other diagnostic results and provision of appropriate feedback to the farmers. This will usually be the responsibility of the organization(s) providing AI services and extension support to farmers. The second component is the assay of progesterone in milk samples, performance of other diagnostic tests, reporting of results and the evaluation of responses from the field. This will usually be the responsibility of the national institution that has adequate laboratory facilities for performing progesterone assays. Strong partnership between all stakeholders will therefore be essential in this programme. Once the programme is under way, decentralized laboratories will be set up at AI centres for the performance of progesterone assays and other diagnostic tests. Participants in the programme should initially conduct a survey to establish the current status of fertility in herds subject to AI, together with information on nutrition, management and disease status if this is not already available. Concurrently, a routine service for diagnosis of non-pregnancy and infertility should be established on a sustainable basis. Subsequently, necessary interventions and improvements will be planned and executed. These may include one or more of the following: (1) changing management and feeding practices; (2) improving efficiency of oestrous detection; (3) more accurate timing of AI; (4) improving the quality and handling of semen; (5) improving the performance of AI technicians; (6) better disease control; and (7) the maintenance and use of appropriate farm records. Some of these activities may be implemented through training workshops for AI technicians, seminars and group discussions involving farmers and farmer organizations. The interventions must be evaluated, using progesterone measurement together with other information, during and after implementation in order to assess the success of the programme. The key to sustainability is the ability of the service providers to recover the costs for such a service from the end users, i.e. the livestock farmers. In many Member States where rural livestock production systems are still a part-time activity of subsistence farmers, these services will initially have to be provided cost-free or subsidized. However, with effective demonstration of the benefits, and as farming systems improve and inevitably become more semi-intensive and commercial, it is expected that the services will be in increasing demand. A mechanism for cost recovery will therefore be built in to the programme, which may operate through dairy co-operatives or milk collecting and processing organizations.

NATIONAL COMMITMENT: Participating governments should have a strong commitment to implementing the results of the programme if these are found to be appropriate and beneficial to the farming community. If necessary, a government should even be in a position to recommend the re-organization of the AI services, assist in continuing follow-up and provide incentives to those responsible for implementation of the programme. Requirements for participation by Member States include: (i) an operational AI programme and functional extension services; (ii) a database on current structure, organization and results of the AI programme; (iii) adequate trained staff and laboratory facilities; (iv) adequate logistic support for field work (vehicles, staff, etc. for collection of samples, data and follow-up); (v) designation of a project AI co-ordinator; (vi) formation of a national steering committee, composed of representatives of all AI stakeholders. The AFRA field management will monitor progress through the project scientific consultant (PSC) and ensure that participating countries which fulfil the conditions for upgrading their national AI programmes to a Model Project receive adequate support.

AGENCY INPUT: To strengthen laboratories in Morocco, the Agency will provide RIA equipment such as gamma counters, centrifuges, supplies and RIA kits, and arrange for the training of inseminators and laboratory technicians, and co-ordination meetings for the AI co-ordinators. Expert services will also be provided on request to advise on national AI programmes. Advisory assistance will also be provided through the AFRA field management and the PSC to facilitate the replication of the Moroccan demonstration and for the promotion of transfer of know-how through TCDC. The Agency will also support sensitization programmes at national and regional levels.

PROJECT IMPACT: The project is expected to demonstrate the cost effectiveness of a routine service to farms for diagnosis of non-pregnancy and infertility and to promote the replication of such services in all participating countries. Ultimately, this will result in substantial increases in the productivity of meat and milk, thereby increasing farm profitability, improving farmers' socio-economic status, reducing importation of animal by-products and thus saving hard currency, and contributing to national and regional food security.