



**INTERNATIONAL
FOUNDATION
FOR SCIENCE**

IFS WORK 1974 - 1983

ANIMAL PRODUCTION



The International Foundation for Science, a non-governmental, non-profit organization, is established to promote and support in developing regions of the world meritorious research in the fields of the natural and social sciences and in technology.

The Foundation will provide young scientists and technologists of outstanding merit from developing countries with financial and other support in their work.

A condition is that the research activity shall take place in the territory of a developing country.



**INTERNATIONAL
FOUNDATION
FOR SCIENCE**

**GREV TUREGATAN 19
S-11438 STOCKHOLM
SWEDEN**

FOREWORD

By 1972, the year the International Foundation for Science was founded, scientists, academics, and policy makers interested in development aid had long recognized the difficult situation faced by young scientists from developing countries. Research opportunities did not exist in their countries, or if they did, they were reserved for senior and well-established researchers.

The need for an organization that could enable young scientists to pursue a career of research in their homelands was clear, and in 1972 Sweden and Canada provided the initial funds to establish such an organization, the IFS. Since then France, the Federal Republic of Germany, the Netherlands, Belgium, Norway, Switzerland, Nigeria, the United States, Australia and UNESCO have joined as donors of the Foundation. Member Organizations--scientific academies, research councils, and royal societies--from 65 countries advise the IFS on policy and promote its activities.

In the past ten years the IFS has awarded grants to nearly 800 scientists in 78 developing countries for research within a granting programme that includes Aquaculture, Animal Production, Food Crops, Afforestation and Mycorrhiza, Fermentation and Applied Microbiology, Natural Products, and Rural Technology. The grantees were selected based on the recommendations of the IFS Scientific Advisers, specialists in the IFS scientific areas who serve the IFS voluntarily and in a personal capacity.

The grants are modest (normally not more than USD 10 000) and can be awarded up to four times per grantee. Since the institute of the grantee provides a salary and facilities, IFS grants are devoted to purchasing the basic tools of research--equipment, expendable supplies, literature. Because grantees often face isolated and difficult conditions, because they are young and inexperienced, the IFS provides more than financial support.

Workshops are arranged on behalf of the grantees and are attended by IFS Scientific Advisers. These advisers provide guidance to grantees on such occasions, as well as by mail and visits to research sites.

The IFS was founded because there was no other organization providing this kind of support to developing countries. Today, ten years later, the IFS is still unique among organizations. This was the conclusion reached by a 1981-82 evaluation of the

FOREWORD

IFS commissioned by the IFS Sponsors and conducted by an external panel headed by Dr Francisco Sagasti of Peru and Prof Geoffrey Oldham of the United Kingdom. The panel also concluded that the IFS had succeeded in reaching the intended target group of young and well-educated scientists and had provided them with research opportunities in their own countries that would not otherwise have been available. The panel was satisfied with the selection of grantees and the quality and relevance of the research done by these scientists.

The panel made a number of recommendations for future activities. The proportion of grants given to scientists in Latin America and Africa should be increased in order to balance the geographic distribution between these continents and Asia. Because of the importance of the IFS Scientific Advisers to the success of the IFS activities, their number should be increased. The Foundation has implemented both of these recommendations.

The most important recommendation was that the IFS increase the scope of its activities. The need for such an increase is reflected by the number of applications received by the Foundation. Today the IFS is able to provide support for only one out of every three applicants. The IFS is making concerted efforts to seek additional funds that such a recommendation, and such a need, imply.

Gordon Butler
President

GUIDE TO IFS WORK

ANIMAL PRODUCTION

This report is a chapter of the IFS WORK, which includes chapters of all the scientific areas of the IFS granting programme: A, Aquaculture; B, Animal Production; C, Food Crops; D, Afforestation and Mycorrhiza; E, Fermentation and Applied Microbiology; F, Natural Products; G, Rural Technology. These other chapters have also been printed individually and are available from the IFS Secretariat.

The chapter ANIMAL PRODUCTION presents in numerical order the names and institutions of grantees who have received grants in this scientific area during the years 1974 - 1983. The title, a short summary, and subject descriptors (taken from the OECD MACROTHESAURUS; those not found in the OECD publication are preceded by asterisks ***) are included as well as the amount of funding provided by the IFS. These amounts are given in SEK, Swedish Crowns. The funding dates coincide with the year of the award. Completed projects are indicated by a date; when no such date appears, the project is active as of 1983.

A brief introduction of the scientific area was written by the IFS Scientific Secretary Ms Christina Arosenius. There are two indexes: one by subject descriptor, the other by country.

The summaries of the projects were written at the IFS Secretariat and submitted to the grantees for their approval.

The information contained in the IFS WORK is part of a database created for sharing project information, the International Development Research Information System (IDRIS). The system, in the pilot project stage, is being hosted by the International Development Research Centre (IDRC) of Canada. The database is stored in the Centre's minicomputer, which uses MINISIS software. MINISIS processors were used to extract the information for the printing of the IFS WORK.

Ms Judith Furberg, Information Secretary, was responsible for the compilation and editing of the IFS WORK 1974 - 1983.

ANIMAL PRODUCTION

Animals have always provided man with the necessities of life-- food, clothing, working power, transportation, fertilizers, and fuel. With an ever-growing population, man needs more of these products, which in turn necessitates more animals, better production, and new species for domestication.

Most methods of feeding, disease prevention, and breeding have been studied in developed countries, where the climate favours animal production and the economy promotes the development of sophisticated technology.

Developing countries face very real limitations to animal production: heat, humidity, droughts, and monsoons. Animal diseases are many in these countries, and they take their toll in deaths and reduced production. These countries can neither benefit from the methods perfected in developed countries nor can they afford them. What is needed is research that takes these limitations into consideration and includes basic studies and surveys. The IFS encourages this kind of research.

Grantees are conducting research on feed production and animal nutrition. Since the feed available in developing countries is different from that in developed countries, alternatives have to be found, so new plants are being examined for energy and protein content and possible toxicity. Agricultural wastes and by-products are also being studied for possible use as feed. The list is long and reflects the resourcefulness of these men and women: banana leaves, sugar cane juice, cassava roots, sago-residues, algae, and sisal pulp have all been used as possible sources of feed. Since their nutritive value is often low, IFS grantees are also developing techniques to improve their quality. The goals of such research are to reduce malnutrition, increase production, and produce feed of good quality from locally-available sources. To date, the IFS has channelled 45% of its budget for this scientific area to research that can contribute to the fulfillment of this goal.

The second largest area of support has gone to scientists doing research on breeding and genetics. Here too, IFS grantees have focused on the needs of and conditions in their homelands. They are studying local breeds neglected by scientists in Western countries. It is just these breeds that can best be exploited for animal production--they are already adapted to the environment and very often resistant to disease. Other breeds, not normally considered as domestic animals, can provide food

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and other products. Quite a few grantees have studied the potential of such animals as guinea pigs, rabbits and grass-cutters (a rodent of Africa). Among large animals studied by IFS grantees are water buffaloes and camels, both of which are multipurpose animals of tremendous cultural importance in many countries. About 25% of the Animal Production budget has gone to the improvement of animals through genetic and breeding methods.

IFS grantees are also working in the area of animal health. They conduct surveys of existing parasites, their incidence in species, geographical distribution, and seasonal occurrence. The importance of controlling these parasites cannot be underestimated. Parasites can cause and complicate malnutrition and vitamin deficiency. They weaken the general health of animals and leave them susceptible to other diseases. Parasites can moreover kill young animals. The study of viral diseases has attracted other grantees and some have successfully produced new vaccines as a result of their IFS supported research. About 12% of the budget has been devoted to grantees doing parasitology and vaccine production research.

The two remaining areas of research, reproduction and integrated farming systems, each account for less than 10% of the budget.

Traditionally, reproduction work has focused on male animals, on the study of semen quality and conservation and on artificial insemination. Recently, a great deal of attention has been given to female animals, to the advanced technique of egg and embryo transplantation.

Integrated farming systems are based on traditional small-scale farming as practised in Asia. Some examples taken up by grantees are swine-duck-fish-vegetable integration, goat-muscovy duck, broiler-swine-sericulture-mulberry trees, and goat-cashew nuts. New and possibly better combinations of animals and agricultural products and by-products are being tested.

The IFS supports at present 128 grantees in Animal Production; 30 in Latin American, 54 in Africa, 41 in Asia and 3 in the Pacific.

The geographical break-down of projects in the various areas that make up this part of the granting programme is: in Latin America, nutrition (66%), breeding and genetics (16%), and

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animal health (10%); in Asia, nutrition (44%), reproduction (24%), and integrated farming systems (22%); and in Africa, breeding (39%), nutrition (33%), animal health (15%), and reproduction (13%).

More and more scientists are recognizing the need for healthy and fertile animals. This need is also reflected in the IFS granting programme by a shift in emphasis from research on animal nutrition to animal health and reproduction, and it is very possible that this trend will continue.

The IFS has held a series of workshops for grantees working in the area of Animal Production: Rabbit Husbandry, Tanzania, 1978; Camels, Sudan, 1979; Animal Production Systems for the Tropics, Philippines, 1980; and Small Ruminant Research, Ethiopia, 1983. These workshops have resulted in Provisional Reports.

During 1984 the IFS will hold a Spanish-speaking workshop on nutrition in Dominican Republic, Nutritional Value of Alternative Feed Resources. The IFS will also co-sponsor a workshop on the same subject in Thailand.

ANIMAL PRODUCTION

Grantee B076: Dr I Made Nitis, Department of Animal Nutrition and Pasture Agronomy, Universitas Udayana, Jalan Jendral Sudirman, Sanglah, DENPASAR, Bali, Indonesia

"Performance of Bali cattle fed grass supplemented with stylosanthes"

IFS funding:	22000 SEK 1975	27900 SEK 1977
	42300 SEK 1978	36770 SEK 1979
	Completed 1981	

Stylosanthes guianensis is a drought-resistant leguminous crop, which can be valuable as a companion crop to cassava. Dr Nitis will study methods to improve both the stylosanthes and the cassava yields and the possible role of stylosanthes as a nitrogen supplier. Competition for light, nutrients and water, and the importance of stylosanthes to natural vegetation other than cassava will also be studied. It is hoped that the cassava/stylosanthes will create a feed resource, prevent soil erosion and lead to more effective land use.

/feed production/ /leguminosae/ /cassava/ /intercropping/
/erosion control/ /soil improvement/

Grantee B098: Dr Manuel Carpio P, Departamento de Producción Animal, Universidad Nacional Agraria, Apartado 456, La Molina, LIMA, Peru

"Assessing methods of selection to improve production in sheep"

IFS funding:	26400 SEK 1975	12000 SEK 1977
	21285 SEK 1979	

A small programme has been started on performance, selection and breeding of rams. The work will begin in a cooperative farm in the highlands and will later be extended to other farms. Individual fleece and body weight will be recorded and used as selection parameters within the breeding programme, leading to improvement in wool and meat production. Most of the Peruvian highlands have native pastures which are utilized by the grazing sheep (14 million heads). The present productivity of meat and wool is usually very low, but might be doubled by improved sheep husbandry.

/animal husbandry/ /animal breeding/ /genetic improvement/
/animal products/ /sheep/

ANIMAL PRODUCTION

Grantee B099: Dr Ogbonnaya Nduaka, Veterinary Division,
Ministry of Agriculture and Natural Resources,
OWERRI, Imo State, Nigeria

"Rinderpest vaccine for Pneumonia Enteritis complex in sheep
and goats"

IFS funding: 35200 SEK 1975 Completed 1977

The causative organism of the Pneumonia enteritis complex has been isolated, identified and characterized as the virus "Peste des Petits Ruminants" (PPR). It has also been found that Tissue Culture Rinderpest Vaccine (TCRV) confers some protection. Dr Nduaka will try to establish the protection potential, the duration of immunity, and the effectiveness of TCRV under field conditions. He also intends to attenuate the virus (PPR) isolated by passage through tissue culture and, if possible to produce a vaccine against the Pneumonia enteritis complex. If successful, vaccination of sheep and goats will be carried out by workers of the Veterinary and Livestock Division.

/virology/ /vaccines/ /animal diseases/ /disease control/
/sheep/ /goats/

Grantee B100: Dr Gabriel Kiwuwa, Department of Animal Science,
Makerere University, P O Box 7062, KAMPALA,
Uganda

"The effect of feeding crop residues and industrial waste
by-products on meat production of Ugandan goats"

IFS funding: 30800 SEK 1975 26400 SEK 1977

There is a local abundance of crop residues (green chop from maize stalks, cotton seed cake, banana peelings, and maize bran) as well as industrial waste by-products which could be used to increase productivity and reduce the cost of goat meat production under intensive and semi-intensive management systems. The effect of different rations and management regimes on growth and meat production of goats at 12-15 months of age will be investigated. Dr Kiwuwa also intends to compare reproductive efficiency, growth of kids and mothering ability of female goats under indoor and outdoor management systems.

/animal husbandry/ /reproduction/ /feed production/
/agricultural wastes/ /industrial wastes/ /goats/

ANIMAL PRODUCTION

Grantee B113: Dr Charles Katongole, Faculty of Veterinary
Medicine, Makerere University, P O Box 7062,
KAMPALA, Uganda

"Hormonal factors in the reproduction of local breeds of goats"

IFS funding: 30800 SEK 1976

Dr Katongole will make observations of the reproductive behaviour of local goat breeds, the oestrus behaviour and length of cycle. Radio-immunoassays will be set up to decide quantity of gonadotrophin and gonadal hormones in the blood of the goats. These techniques will then be used to investigate the changing levels of these hormones during the different development stages and the changes in reproductive cycles as affected by exogenous administration of hormones. The consequent oestrus synchronization will thus be a means of fertility control.

/reproduction/ /goats/ /hormones/

Grantee B114: Dr El-Hadji-Gueye, Centre de Recherches
Zootechniques de Kolda,
Institut Sénégalais de Recherches Agricoles,
(ISRA), B P 53, KOLDA, Senegal

"Genetic improvement of the Casamancan sheep Djallonké"

IFS funding: 30800 SEK 1976 30100 SEK 1979
Completed 1981

There is a considerable sheep stock in Senegal, the genetic potential and reproduction factors of which are rather unknown. The aim of this project is to elucidate these characters and to improve meat production of these sheep. Dr Gueye will study growth and conformation, as well as sexual periods, fertility, pregnancy and lambing periods. He will also work on oestrus synchronization and examine the ram semen for possible insemination. Cross-breeding between Casamancan sheep and peulh-peulh or Touabire sheep from Northern Senegal will also be made.

/animal production/ /reproduction/ /genetic improvement/
/artificial insemination/ /sheep/

ANIMAL PRODUCTION

Grantee B117: Mr Joshua Mtimuni, Livestock Production
Department, Bunda College of Agriculture,
University of Malawi, P O Box 219, LILONGWE,
Malawi

"Swine production research"

IFS funding: 4910 SEK 1976 36000 SEK 1978

The project aims at finding means of increasing swine production by improved management methods including the use of local crop by-products and wastes. The basic production and conformation data of different breeds and strains of swine will be measured, and their performance under improved feeding regimes and management systems studied. Relative efficiencies of different breeds and strains in converting local crop by-products and wastes into meat, and the effects of selection and breeding systems will be investigated.

/animal husbandry/ /animal breeding/ /genetic improvement/ /feed
production/ /agricultural wastes/ /swine/

Grantee B118: Dr Peter Makhambera, Livestock Production
Department, Bunda College of Agriculture,
University of Malawi, P O Box 219, LILONGWE,
Malawi

"Rabbit research project: investigation of the use of the rabbit
as a means of increasing domestic meat supply in Malawi"

IFS funding: 47800 SEK 1976 17550 SEK 1978

Dr Makhambera will investigate methods of rabbit production suitable for small farmers to provide additional food and income. Areas to be investigated include utilization of locally-available feed, development of low-cost housing systems and use of various insecticides for external parasite control. In addition, the project is intended to provide a nucleus of breeding stock, and to extend advice for the initiation and expansion of small-scale rabbit production.

/animal husbandry/ /animal breeding/ /animal production/
/rabbits/ /animal health/

ANIMAL PRODUCTION

Grantee B119: Dr Geoffrey Williams, Department of Animal Science, Faculty of Agriculture, University of Ghana, P O Box 68, LEGON, Ghana

"Studies on ducks in rural Ghana for egg and meat production"

IFS funding: 17600 SEK 1976

Dr Williams will study the nutrient requirement of ducks under tropical conditions during the three phases of growth - starting, growing and breeding. Maturity age and pattern of laying up to 500 days of age will be recorded, and the influence of water availability will be investigated. Recording of growth rate and estimation of the economical optimum weight for slaughter will be made, as well as health studies and estimation of male to female ratios for optimum fertility.

/animal breeding/ /reproduction/ /feed/ /animal nutrition/
/poultry/

Grantee B120: Dr Ravindra Srivastava, Chandra Shekhar Azad University of Agriculture & Technology, College of Veterinary Science and Animal Husbandry, MATHURA 281 002, India

"Biochemical investigations on exotic ram semen and development of artificial insemination programme using diluted and frozen semen"

IFS funding: 30800 SEK 1976

Dr Srivastava will carry out biochemical investigations on semen of exotic rams, and attempt to evolve a suitable diluent for freezing the semen suited to tropical conditions. The diluted and frozen semen will be used for artificial insemination to improve the genetic potential of the indigenous stock.

/reproduction/ /artificial insemination/ /sheep/

ANIMAL PRODUCTION

Grantee B121: Mr Solomon Ramahefarison, Departement de
Recherches Zootechniques et Veterinaires,
(CENRADERU), B P 904, Amatobe, ANTANANARIVO,
Madagascar

"A zootechnical study of local goat species and their
cross-breeding with Angora goat (Texan)"

IFS funding: 35200 SEK 1976

In the south of Madagascar there is a tradition of producing
articles from goat hair. Mr Ramahefarison will attempt to
cross-breed local species with Angora goats to obtain a breed
adapted to conditions in Madagascar for production of goat meat
and hair of higher quality. The behaviour of the goat species in
question will be studied and information on meat production in
relation to cross-breeding, performance, fertility,
productivity, etc., will be recorded.

/animal breeding/ /genetic improvement/ /animal products/
/goats/

Grantee B150: Dr Mathew Antwi, Animal Research Institute,
P O Box 20, ACHIMOTA , Ghana

"Plant poisoning of livestock in Ghana"

IFS funding: 21750 SEK 1976

Ruminants have salivated heavily and collapsed after having
grazed on pastures with Crotalaria spp., Dichapetalum
quineense, Fleurva spp., Urtica spp., Datura stramonium,
Solanum verbascifolium, Cassia absus. Dr Antwi intends to
establish an arboretum of poisonous plants to provide live
specimens for reference and as a source of supply for laboratory
and other experiments. Tests in which different parts of
poisonous plants are fed to ruminants will be carried out, and
artificial pastures interspersed with poisonous plants will be
established to study the grazing behaviour of the animals.
Farmers will be provided with this information in order to
identify the plants and treat poisoned animals.

/animal diseases/ /poisoning/ /grazing/ /ruminants/

*** /taxonomy/

ANIMAL PRODUCTION

Grantee B151: Dr Lee Mu Hwan, Research Institute of Animal Science, Jeju National University, 1 Ara-dong, JEJU, 590, Republic of Korea

"Studies on the processing of low-quality algae for animal feed and their feeding efficiency for various Korean farm animals"

IFS funding:	10900 SEK 1976	20150 SEK 1977
	28600 SEK 1979	16600 SEK 1980
	Completed 1982	

The original target for this project was to investigate the possibility of using algae (mainly Sargassum spp.) as animal feed. To find out its basic properties, algae will be treated with alkaline or acid solution, and fermented, and in vitro digestibility of the silages will be measured by using rumen fluid collected from cattle and sheep. Dr Lee will also measure the effects of processed algae meal on the performance of sheep, goats, and rabbits.

/feed production/ /algae/ /fermentation/ /sheep/ /goats/
/rabbits/

Grantee B152: Dr Dharmapuram Prasad, Department of Animal Science, College of Veterinary Science, Andhra Pradesh Agricultural University, TIRUPATI 517-502, India

"Improving the nutritive value of certain agricultural waste products for sheep "

IFS funding:	23500 SEK 1976	11000 SEK 1981
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Dr Prasad intends to improve the utilization of wastes from sorghum, maize, cereals, groundnuts, bagasse and sugar cane. The wastes will be subject to various treatments like ensiling with urea and molasses. The digestibility of the treated wastes will be investigated by in vitro techniques and forage dry matter analysis. In the succeeding in vivo experiments, adult rams will be fed with the treated product to determine digestibility and nitrogen retention. Growth trials will be conducted with lambs fed with the treated product. The performance of these animals will be compared to that of traditionally-fed animals.

/feed production/ /agricultural wastes/ /urea/ /sheep/ /silage/

ANIMAL PRODUCTION

Grantee B154: Dr Abdul Latif Ibrahim, Department of Veterinary Pathology and Microbiology, Science, Universiti Pertanian Malaysia, (UPM), SERDANG, Malaysia

"Evaluation of immunity in chicken vaccinated with Newcastle disease virus vaccine"

IFS funding:	34800 SEK 1976	30550 SEK 1978
	12450 SEK 1980	Completed 1982

One of the biggest threats to the poultry industry in Malaysia is Newcastle disease. Although there is a widespread use of Newcastle disease virus vaccine, breakdown of resistance in vaccinated chickens often occurs. In this project a study will be made on the immune response in chickens vaccinated with lyophilized Newcastle disease virus (NDV) wet vaccine prepared from the "F" and "Mukteswar" strains of NDV. Investigations will be conducted to study the possibility of using other NDV strains, such as the V4, as vaccine. This would eliminate the use of wet vaccine, which may be unstable if improperly stored. Subsequent to these experiments, the duration of immunity, stability of vaccine, etc., will be evaluated.

/virology/ /vaccines/ /animal diseases/ /disease control/
/poultry/

ANIMAL PRODUCTION

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/virology/ /vaccines/ /animal diseases/ /disease control/
/poultry/

ANIMAL PRODUCTION

Grantee B195: Dr Soedomo Reksohadiprodjo, Faculty of Animal Husbandry, Universitas Cadjan Mada, Sekip Unit II, YOGYAKARTA, Indonesia

"The feeding of crop residues and industrial waste by-products in systems of goat production in Indonesia"

IFS funding:	35200 SEK 1977	25800 SEK 1979
	25000 SEK 1981	Completed 1983

Crop residues, such as straw, sugarcane pith, peanut and coconut meal will be fed to goats to increase productivity and minimize the cost of meat production. Based on nutritive evaluations, the effects on growth and production of various feed supplements will be investigated. The supplements will consist mostly of locally-grown feeds such as Leucaena glauca, which may be grown on eroded soils and thus prevent further erosion. Digestibility and metabolic trials will be carried out to enable the establishment of economic feeding programmes.

/feed/ /agricultural wastes/ /leguminosae/ /nutritive value/
/erosion control/ /goats/ /feed supplements/

Grantee B196: Dr A Ramamohana Rao, Department of Animal Reproduction and Gynaecology, College of Veterinary Science, Andhra Pradesh Agricultural University, TIRUPATI 517 502, India

"Study on semen characteristic and preservation of native bucks"

IFS funding:	25000 SEK 1977	Completed 1981
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The productivity of sheep and goats in South India is low both for milk and meat production. The situation can be changed by proper cross breeding, and for this purpose Dr Rao will seek the basic information on reproductive characteristics and breeding behavior of native goats. Semen quality varies considerably due to environmental factors and in order to establish standards, a comprehensive investigation on the semen characteristics of bucks during different seasons will be carried out. Quality of diluted semen stored at +5 degrees C and frozen during different periods will be investigated. Fertility tests will be carried out on animals maintained in the scheme and those maintained by farmers in the surrounding villages.

/reproduction/ /genetic improvement/ /semen/ /sheep/ /goats/

ANIMAL PRODUCTION

Grantee B197: Mr Muze Mgheni, Animal Science and Production
Department, University of Dar es Salaam, P O Box
643, MOROGORO, United Republic of Tanzania

"Effect of selecting for body weight and litter size on
reproductive efficiency in rabbits"

IFS funding: 22000 SEK 1977 18500 SEK 1981

A base population of 300 rabbits will be founded by collecting different strains from all over Tanzania. These rabbits will be reared. A selection programme will be established in order to study, e.g., the genetic and phenotypic variation of different parameters (body weight, litter size, meat quality, fertility, mothering ability, etc.) at 150 days of age. Based on obtained data the possibility of setting up breeding models for increased production will be investigated. To give advice on management practices is an important part of the project.

/animal husbandry/ /animal breeding/ /rabbits/

*** /animal genetics/

Grantee B239: Dr Farouk El Amin, Department of Animal
Husbandry, Faculty of Veterinary Science,
University of Khartoum, P O Box 32, KHARTOUM
NORTH, Sudan

"Performance recording of Sudan desert sheep"

IFS funding: 48000 SEK 1977

There are about 15 million sheep in Sudan. Most live in the marginal and desert land, and have low productivity. A demonstration nucleus flock of selected, identified, and weighed sheep of known age will be established. Pre- and post-weaning growth data will form the basis of a selection programme. The best weaning and mating age is not yet known for the desert sheep and will be studied together with various other data, such as breeding season(s) and semen characteristics. Dr El Amin will then try to establish practical methods to be used by farmers in selecting their own flocks.

/animal breeding/ /reproduction/ /semen/ /sheep/

ANIMAL PRODUCTION

Grantee B242: Ms Ernestina Gutierrez V, Facultad de Medicina Veterinaria y Zootecnia, Universidad de Yucatán, Apartado Postal 116-D, MERIDA, Yucatán, Mexico

"Studies on sisal pulp as feed for ruminants"

IFS funding:	27840 SEK 1977	27950 SEK 1979
	37500 SEK 1981	

The objective of this project is to study if the abundant sisal pulp can be given to ruminants. Sisal pulp is similar in composition to derinded sugar cane - low in protein and high in soluble sugars. The rumen flow rate and the effect of sisal pulp on rumen microbial production and on volatile fatty acid ratios will be investigated, as well as the effect of various starch supplements. The optimum level of urea supplement will be determined, and also the effect of extra roughage.

/animal nutrition/ /vitamin deficiency/ /feed/ /sisal/
/agricultural wastes/

Grantee B243: Dr Jaime Descailleux D, Departamento de Ciencias Biológicas, Universidad Nacional Mayor de San Marcos, Apartado 11010, LIMA 14, Peru

"Nature and biological significance of the partial deficiency of chromosome 1 in guinea pig Cavia porcellus"

IFS funding:	35520 SEK 1977	12865 SEK 1980
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The guinea pig is traditionally a valuable source of food for people in the Andes. It is known that the guinea pig has a structural chromosomal hetero-morphism in the pair 1, apparently without phenotypic manifestations. This project aims at elucidating the nature and effect of the chromosomal deficiency on the viability of homozygotic and heterozygotic animals. The study will attempt to determine whether the homozygote deficiency causes less production of ribosomes and a high rate of abortions. Tests will be carried out to determine the frequency of spontaneous abortions in breeding groups.

/reproduction/ /rodents/

*** /animal genetics/

ANIMAL PRODUCTION

Grantee B246: Mr Pontien Ndabaneze, Faculté des Sciences,
Université du Burundi, B P 2700, BUJUMBURA,
Burundi

"Inventory, distribution and cytotaxonomy of grasses as a base
for forage crop policy"

IFS funding: 28800 SEK 1974 17600 SEK 1980
 22500 SEK 1982

The Rusizi plain has been overexploited by uncontrolled overgrazing during the last twenty years, and many plant species have disappeared. The plain is in danger of becoming a desert, and this must be prevented. Mr Ndabaneze will first study the ecological conditions in the Rusizi plain, as well as the local plant species and their phenology. With this knowledge he will try ways to improve the grassland by re-establishing disappearing species or by introducing new forage crops.

/reforestation/ /grassland/ /forage crops/

Grantee B265: Dr Mohammad Nasim Siddiqi, Zoology Department,
University of Peshawar, N.W.F.P., Pakistan

"Taxonomy, incidence, intensity and seasonal variation of
helminth parasites of sheep and goats of N.W.F.P., Pakistan"

IFS funding: 23500 SEK 1978

In many parts of the province of Peshawar, sheep and goat breeding is the main occupation. The animals wander in the pastures to feed and pick up various parasites of animal origin. Various parasites cause poor meat and skin quality, weight losses, and even death. To devise suitable control measures, Dr Siddiqi will investigate in which species the helminthic infections occur, including a survey of the intensity, incidence and seasonal variations of the different parasites. Viscera will be collected at abattoirs in Peshawar, where animals from the whole region are brought. Four goats and four sheep will be examined each week for one year. The parasites found will be taxonomically identified; the intensity of infection will be investigated by determining the total worm burden.

/parasitology/ /animal diseases/ /disease control/ /sheep/
/goats/ /animal health/

ANIMAL PRODUCTION

Grantee B266: Mr Marc Ngendahayo, Institut des Sciences Agromomiques du Rwanda, B P 138, BUTARE, Rwanda

"Selection of local sheep in Rwanda"

IFS funding:	27260 SEK 1978	17200 SEK 1979
	54000 SEK 1982	

The sheep stock in Rwanda amounts to about 300 000 head, and is increasing. Intensive breeding is therefore important for future production. A nucleus flock of local sheep will be established by selection, and the production potential will be investigated under controlled conditions. By crossing with exotic breeds, Mr Ngendahayo will improve size, growth rate and meat quantity and quality, but retain desirable characters of the local sheep, e.g., its early maturity, fertility and hardiness. Selected cross-bred rams will be used under rural conditions to evaluate their adaptability and the performance of their offspring under field conditions.

/animal breeding/ /reproduction/ /genetic improvement/ /sheep/

Grantee B267: Dr Akpan Uko Mba, Department of Animal Science, University of Ibadan, IBADAN, Nigeria

"Use of local feed indigenous and exotic breeds of goats"

IFS funding:	30550 SEK 1978	Completed 1979
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Goats are abundant in Nigeria but the growth rate and milk production of the goats are low, since little is known of their nutritional requirements. Prof Mba will collect different breeds of goats from different areas and investigate their requirements for water, energy, protein, minerals and vitamins. A comparative study will be made on imported cross-breeds. Four animals of the same breed, age, sex and physiological state will be used for digestion and metabolism studies at different dietary levels. Faeces, urine, milk and blood will be collected and chemically analyzed. Nutritional data, such as digestible energy and protein, total digestible nutrients, metabolizable energy, etc., will give a better understanding of requirements and production potential of the different breeds.

/animal breeding/ /animal nutrition/ /feed/ /goats/

ANIMAL PRODUCTION

Grantee B284: Mr Rhodes Mero, Livestock Production Research Institute, Private Bag, MPWAPWA, United Republic of Tanzania

"Evaluation of a range monitoring programme for Tanzania"

IFS funding: 21500 SEK 1979 22000 SEK 1980
 34800 SEK 1982

Rainfall in Tanzania is uneven, geographically and over the years, and often there is not enough feed for the livestock. Dr Mero will monitor the growth of grasses and browse plants at six ranches in different ecological zones, estimate the net primary production, and develop optimum stocking rates for the following year. Recommendations for moving livestock between the six ranges will be made on the basis of these rates, with consideration for a national model. The rates will be tested at each ranch in paddocks stocked with cattle, sheep and goats.

/forage crops/ /ecological research/ /climatic influence/
/animal husbandry/

Grantee B289: Ms Peni Hardjosworo, Faculty of Animal Husbandry, Institut Pertanian Bogor, (IPB), Jalan Raya Pajajaran, BOGOR, Indonesia

"A study on the nutritional requirements, performance and economic value of Indonesian egg-type ducks under confinement"

IFS funding: 27000 SEK 1978

Duck eggs are much appreciated in Indonesia, and half of the total egg production are duck eggs. A native duck species, the "Indian runner", lays a large number of eggs, and has thus desirable genetic characteristics. Non-genetic factors, such as feed, disease control and management remain to be improved. Ms Hardjosworo will investigate the suitable protein and calorie content of the feed, and the study disease problems, management and economics of intensive duck raising.

/animal husbandry/ /animal nutrition/ /feed/ /disease control/
/poultry/

ANIMAL PRODUCTION

Grantee B290: Dr Mohamed Mahyuddin Dahan, Department of Animal Sciences, Universiti Pertanian Malaysia, (UPM), SERDANG, Selangor, Malaysia

"Integration of goats under coconut plantation"

IFS funding: 31500 SEK 1978

There are about 245 000 hectares of coconut plantations in Malaysia, most of them operated by small holders. The most common cover crop is Calopogonium caeruleum, a leguminous plant with a high crude protein content. Dr Mahyuddin will evaluate the nutritive value of C. caeruleum, and investigate the type of management needed for these pastures, including the need for fertilization. Comparative studies on the performance of goats on fertilized and unfertilized pastures will be made with respect to weight gain and carcass quality.

/animal husbandry/ /feed production/ /leguminosae/ /nutritive value/ /fertilization/ /goats/ /pastures/

Grantee B291: Mr Bhuma Seshi Reddi, College of Veterinary Science, Andhra Pradesh Agricultural University, TIRUPATI 517 502, India

"Fattening of local male swine using agro-industrial by-products"

IFS funding: 19800 SEK 1978

The swine in India feed by scavenging, and their growth rate is very low. Mr Seshi Reddi will study the effect of feeding male swine with agro-industrial by-products and forages. Growth rate, feed conversion, as well as carcass characteristics, digestibility and nitrogen balance will be studied. Comparative studies will be made with castrated swine. This project is carried out in close cooperation with Dr A Sriramamurty (IFS grantee No B292).

/animal husbandry/ /animal nutrition/ /feed/ /agricultural wastes/ /industrial wastes/ /swine/

ANIMAL PRODUCTION

Grantee B292: Dr Ayyagar Sriramamurty, College of Veterinary Science, Andhra Pradesh Agricultural University, TIRUPATI 517 502, India

"Studies on growth and reproduction in local swine"

IFS funding: 21600 SEK 1978 Completed 1982

There is no organized rearing of pigs in Andhra Pradesh in India, and virtually no data are available on the various aspects of their growth, reproduction and productivity. Dr Sriramamurty will study the age of maturity, pattern of the oestrus cycle, litter size, mortality and growth of the swines to get a better understanding of their productivity potential. This project is carried out in close cooperation with Mr B Seshi Reddi (IFS grantee No B291).

'animal husbandry/ /animal breeding/ /reproduction/ /swine/

Grantee B293: Dr Nicanor Ibanez H, Departamento de Microbiología y Parasitología, Universidad Nacional de Trujillo, Apartado 315, TRUJILLO, Peru

"Prevalence and incidence of helminth parasites in sheep and goats in Peru"

IFS funding: 18000 SEK 1978 17200 SEK 1979
Completed 1982

Protozoa and helminth parasites in sheep and goats have a negative effect on quality of meat, wool and skin. They also cause weight losses and even death of the host animal. Dr Ibanez will examine viscera and identify the parasites found. Data about the prevalence, incidence, taxonomy and seasonal variations will be collected, and recommendations about better management will be made to encourage sheep and goat breeding in the region.

/parasitology/ /animal diseases/ /sheep/ /goats/ /animal health/

*** /taxonomy/

ANIMAL PRODUCTION

Grantee B294: Dr Alhassane Yenikoye, Faculté d'Agronomie,
Université de Niamey, B P 10662, NIAMEY, Niger

"Study of reproduction criteria of sheep"

IFS funding: 45000 SEK 1978 48750 SEK 1981

The 'oudah' sheep is well adapted to the hot, dry climate and to the scarce pastures in the Sahel region. Almost no research has been done on the productivity potential of the native sheep. Dr Yenikoye will study the age and weight at maturation, the oestrus cycle, fertility, etc., to get a better understanding of critical factors for improved productivity. The results will be used at sheep farms in collaboration with the National Institute for Agricultural Research.

/animal breeding/ /reproduction/ /sheep/

Grantee B295: Mr Mongi Ben Dhia, Institut National de la
Recherche Agronomique de Tunisie, (INRAT),
Avenue de l'Indépendance, ARIANA, Tunisia

"Utilization of agro-industrial by-products for animal feeding"

IFS funding: 22500 SEK 1978 25000 SEK 1981

Tunisia imports cereals and soybean flour to feed cattle for milk and meat production. Mr Ben Dhia will investigate the possibilities of replacing these feeds with agro-industrial wastes such as olive pulp. The chemical composition, digestibility and toxicity will be investigated. Different means of improving the nutritive value will be developed, and acceptability with the animals will be tested in growth trials.

/feed production/ /agricultural wastes/ /nutritive value/ /toxic substances/

ANIMAL PRODUCTION

Grantee B296: Dr Geoffrey Maloiy, Department of Animal
Physiology, University of Nairobi, P O Box 30197,
NAIROBI, Kenya

"Digestion, mechanics and energetics of locomotion as well as
efficiency of work output in camels"

IFS funding: 36000 SEK 1978 20750 SEK 1980
 Completed 1983

In East Africa the camel is used as a pack animal and for human transportation in most of the semi-arid regions. Camels also provide considerable quantities of meat and milk. To investigate the productivity potential of the one-humped camel, Dr Maloiy will study the physiological and nutritional functions in its gastro-intestinal tract as well as the energetics and mechanics of locomotion. Particular attention will be paid to the efficiency and capacity for load carrying.

/animal nutrition/ /animal power/ /camels/

Grantee B297: Mr Pasene Tauialo, School of Agriculture,
University of the South Pacific, Alafua Campus,
P O Box 890, APIA, Samoa

"An investigation into the productive efficiency and social implications of the introduction of new or improved animal enterprises into Western Samoan "

IFS funding: 27000 SEK 1978 43000 SEK 1979
 Completed 1981

Development work has been difficult in Western Samoa because of the complicated social structure. A villager is expected to contribute one of his pigs whenever the village has an important ceremony. The ceremonies can be rather frequent and only the best pigs can be offered. This affects pig breeding and makes measures to improve practices difficult. Mr Tauialo will try to establish a programme for improved breeding along with the keeping of traditional breeds of hens, pigs and goats which can be used for consumption. Four animal enterprises with broilers, laying hens, pigs and goats will be set up in suitable villages to improve the production of Western Samoan livestock.

/animal breeding/ /swine/ /goats/ /poultry/

ANIMAL PRODUCTION

Grantee B298: Ms Nongluck Suthiwanich, Department of
Agro-Industry, Faculty of Natural Resources,
Prince of Songkla University, HAAD YAI, Thailand

"Utilization of liquid fish and cassava meal in feed mixture for
animals in Thailand"

IFS funding: 28800 SEK 1978 23000 SEK 1981

Thailand is the world's largest producer of cassava products. Ms Suthiwanich will try to promote Thai livestock production by developing protein-enriched, cassava-based feed. Liquid fish products will be prepared by acid treatment and by microbial fermentation. A technique to process liquid fish and cassava meal into pellets will be developed. The composition of the feed mixtures will be investigated and tested in feeding experiments.

/feed production/ /fermentation/ /cassava/ /fish meal/ /animal
production/

Grantee B299: Ms Angela Fernandez de Almonte, Consejo Estatal
del Azúcar, División de Ganadería y Boyada,
(CEAGANA), Apartado 1253, SANTO DOMINGO,
Dominican Republic

"Banana forage for cattle production"

IFS funding: 38250 SEK 1978

About 50% of the world production of bananas comes from Central America and the Caribbean. The forage residues amount to around 13 million tons; preliminary results show a digestibility of more than 70% when fed to cattle. Ms Fernandez de Almonte will investigate the effect of plant population and recycling of fertilizers from cattle on the production of banana plants. The nutritive value of the different parts of the banana plant, separate and combined, will be determined, and suitable supplements will be tried to promote growth and milk production when fed to cattle.

/feed production/ /agricultural wastes/ /bananas/ /nutritive
value/ /fertilizers/ /cattle/ /feed supplements/ /manures/

ANIMAL PRODUCTION

Grantee B300: Dr Richard Ndumbe, Institut de Recherches
Zootechniques (IRZ), B P 80, BAMENDA, United
Republic of Cameroon

"The values of banana plants as a forage source for ruminant
feeding"

IFS funding: 38250 SEK 1978

Bananas and plantains are widely grown in the United Republic of Cameroon for the fruit. The rest of the plant is not used, but has a potential as cattle feed. Dr Ndumbe will investigate the chemical composition and yield of different parts of the banana plant. Diets with and without energy and protein supplements or pretreatments will be tried on cattle to determine the best methods of exploiting the banana forage. By comparative studies the best banana varieties will be determined.

/feed production/ /agricultural wastes/ /bananas/ /nutritive
value/ /chemical analysis/ /cattle/ /feed supplements/

Grantee B301: Dr Arturo Romero V, Colegio Superior de
Agricultura Tropical, Apartado Postal 24,
H CARDENAS, Tabasco, Mexico

"Banana feeding systems"

IFS funding: 33750 SEK 1978

Dr Romero V will develop complete systems for using the banana plant as animal feed based on the high production of banana forage per unit area. Agronomic and nutritional aspects will be covered, and different management systems for growing the bananas will be explored. A series of animal experiments will be run in conjunction with the crop experiments in order to evaluate the nutritive value of the banana forage produced in different ways and for different kinds of domestic animals.

/feed production/ /agricultural wastes/ /bananas/ /nutritive
value/

ANIMAL PRODUCTION

Grantee B302: Dr Manuel Castro P, Facultad de Medicina Veterinaria y Zootecnia, Universidad de Yucatán, Apartado Postal 116- D, MERIDA, Yucatán, Mexico

"Leucaena as a protein supplement for animal production"

IFS funding: 15750 SEK 1978 35000 SEK 1981

Leucaena spp. have been used for many years for human and animal consumption in Yucatán, where many indigenous Leucaena species are common. Information on the use of Leucaena in cropping and feeding systems is scarce. Dr Castro P will determine the nutritional value of Leucaena and its effect on rumen fermentation. Feed combinations with sisal pulp, sugar cane, molasses, etc., will be tried, and practical management systems developed.

/feed production/ /leguminosae/ /agricultural wastes/ /nutritive value/

Grantee B303: Mr Raúl Godoy M, Facultad de Medicina Veterinaria y Zootecnia, Universidad de Yucatán, Apartado Postal 116- D, MERIDA, Yucatán, Mexico

"Bananas as feed for ruminants"

IFS funding: 26325 SEK 1978

Mr Godoy M will investigate the rumen fermentation in fistulated animals given feed mixtures with banana forage to determine the nutritive value of different parts of the banana plant. Feeding trials will be carried out with cattle to obtain data on weight gain, voluntary intake and digestibility. Practical management systems for small farmers will also be developed.

/animal husbandry/ /feed production/ /agricultural wastes/
/bananas/ /nutritive value/ /ruminants/

ANIMAL PRODUCTION

Grantee B330: Dr Kunwar Singh, Department of Animal Sciences,
College of Agriculture, G B Pant University of
Agriculture and Technology, PANTNAGAR, District
Nainital, India

"Studies on the use of rice bran in poultry feeds"

IFS funding: 17600 SEK 1979

India produces about four million tons of rice bran as a by-product of the rice milling industry. Rice bran is the major feed ingredient for poultry in the country. Dr Singh will measure the development of rancidity in rice bran during storage, and determine its effect on the feeding value. Necessary changes in ration composition as a consequence of rancidity variations will be tried out. The nature of the growth-depressing agents will be elucidated, and simple physical-chemical treatments to remove them will be developed, as well as simple tests to evaluate the rice bran as feed.

/feed production/ /agricultural wastes/ /rice/ /poultry/

Grantee B331: Dr Constant Mampouya, Institut de Développement
Rural Université Marien NGouabi, B P 69,
BRAZZAVILLE, Congo

"Breeding of the grass-cutter, Thryonomis swinderianus, in captivity"

IFS funding: 17600 SEK 1979 43000 SEK 1981

Meat is, to a large extent, imported into the Congo, due to the incidence of trypanosomiasis in cattle. To investigate possibilities for other kinds of meat production, Dr Mampouya will try to domesticate the grasscutter, Thryonomis swinderianus, the meat of which is much appreciated. Different types of confinement will be tried to determine the best environmental conditions for breeding. The reproductive and digestive physiology will be studied, as well as feeding habits and feed preferences. Feed conversion and growth rate will also be investigated.

/animal breeding/ /reproduction/ /feed/ /animal feeding/
/rodents/

ANIMAL PRODUCTION

Grantee B333: Mr Putra Sastrawan, Department of Parasitology,
Universitas Udayana, Jalan Jendral Sudirman,
Sanglah, DENPASAR, Bali, Indonesia

"Prevalence of the gastro-intestinal nematode parasites of Bali
cattle"

IFS funding: 13200 SEK 1979

Bali cattle are mainly kept for meat production. Helminthosis is common and may cause severe economic losses to the farmer, due to decreased productivity. Mr Sastrawan will study the gastro-intestinal parasites with relation to age, sex, and nutritional status of the animal, stocking rate on pastures and climatic conditions. The species and seasonal variations will be recorded and suitable helminth control programmes developed.

/animal diseases/ /parasitology/ /cattle/ /animal health/

Grantee B334: Mr Edgardo Castillo, Palawan National
Agricultural College, (PNAC), ABORLAN, Palawan,
Philippines

"Giant African snail-based farming system"

IFS funding: 40832 SEK 1979 30800 SEK 1980

The African snail has a very high reproduction rate and a crude protein content of about 45%. Preliminary studies have shown that snail meal can be used as a protein supplement in animal and fish breeding. Different integrated farming systems will be tried. Areas of 30 x 20 m will be surrounded by water-filled ditches to confine the snails, which will feed on trees and plants growing in the confined area. Goats and hogs raised intensively will be fed snail meal as supplementary feed to increase their productivity. In some experiments, the ditches will be replaced by ponds for fish and duck breeding. Studies on the feeding, morphology and environmental requirements of the African snail will be carried out. Feeding and management trials with fish and animals will be done in accordance with established practices.

/mixed farming/ /animal husbandry/ /fish culture/ /feed
production/ /feed supplements/

*** /snails/

ANIMAL PRODUCTION

Grantee B335: Mr Antonio Repollo Junior, Palawan National Agricultural College (PNAC), ABORLAN, Palawan, Philippines

"Feedlot goat raising integrated with cashew production"

IFS funding: 39160 SEK 1979 44000 SEK 1981

Cashew products are economically important in the Philippines, and in Palawan about 6 000 hectares are planted with cashew trees. Mr Repollo Junior will evaluate the adaptability and productivity of improved grasses and pasture legumes grown under cashew trees, and determine the most suitable composition with relation to the nutritional requirement of goats. Stocking rate of the pastures both for feedlot and free-range systems will be studied to determine which system is viable for the small farmers. The productivity of the cashew tree will also be evaluated.

/animal husbandry/ /mixed farming/ /goats/ /cashew nuts/

Grantee B336: Ms Juana Rodriguez D, Instituto de Investigaciones Avícolas, 15 #851, Vedado, HABANA 4, Cuba

"Research on the rational employment of available energy sources under subtropical conditions"

IFS funding: 30800 SEK 1979 25000 SEK 1981

Poultry production in Cuba largely depends on grains as feed. To investigate alternatives to grain feeding, Ms Rodriguez D will study the nutritive and energy values of various by-products from the sugar cane industry, in particular molasses. These products will be tested as grain substitutes. The performance of the poultry will be evaluated and a comparative carcass examination will be made.

/feed production/ /agricultural wastes/ /nutritive value/
/poultry/

ANIMAL PRODUCTION

Grantee B369: Prof Akin Ademosun, Department of Animal Science,
University of Ife, ILE-IFE, Nigeria

"Helminth and protozoan parasites of dwarf goats in Southern
Nigeria"

IFS funding: 23650 SEK 1979 Completed 1982

Sheep and goats are of great socio-economic importance in Nigeria and account for approximately 30% of the total meat supply in the country. The dwarf goat is one of the most common breeds in southern Nigeria. Prof Ademosun will make an initial survey on slaughtered animals to identify the major helminth and protozoan parasites. Seasonal fluctuations of parasitic incidence will also be recorded. The impact of parasitic infections on the performance of the dwarf goat under traditional management will be investigated, and alternative management systems to control parasites developed.

/animal diseases/ /parasitology/ /goats/ /animal health/

Grantee B370: Mr Luis Aliaga R, Dirección de Programa
Académico de Zootecnia, Universidad Nacional del
Centro del Peru, Ciudad Universitaria, HUANCAYO,
Peru

"Investigation to improve guinea pig breeding as a means of
increasing the production of meat for consumption by the rural
population in Peru"

IFS funding: 25800 SEK 1979

Guinea pig meat is much consumed by the rural population of Peru. The animals are usually bred in indoor cages in the household or commercially. Mr Aliaga R has developed a housing system with movable cages allowing the animals to feed directly from the ground on improved pastures. This system seems to reduce disease occurrence considerably and improve reproduction, particularly litter size. The effect of different forage plants and non-traditional feed on growth performance, oestrus, fertility and sexual maturation will be investigated.

/animal husbandry/ /animal breeding/ /reproduction/ /disease
control/ /animal feeding/ /rodents/

ANIMAL PRODUCTION

Grantee B371: Dr Rajadurai Rajamahendran, Department of Animal Science, University of Peradeniya, PERADENIYA, Sri Lanka

"Reproductive physiology of local swamp buffalo"

IFS funding: 18920 SEK 1979 33600 SEK 1981

The swamp buffalo is the local buffalo breed of Sri Lanka. To improve its milk production it has been cross-bred with highly productive Indian river buffaloes. The genetic variation between the two breeds is apparently quite wide. More in-depth information is available only about the Indian river buffalo. Dr Rajamahendran will investigate the productivity potential of the swamp buffalo. The reproductive pattern will be studied on heifers from their prepubertal stage. Blood analyses will be made at regular intervals during different phases of the oestrus cycle, pregnancy and parturition. Suitable treatments to improve the production can then be given to correct endocrine disorders which are common in domesticated buffaloes.

/genetic improvement/ /reproduction/ /water buffaloes/

Grantee B372: Dr Guindolino Gerona, Department of Animal Science and Veterinary Medicine, Visayas State College of Agriculture, (VisCA), BAYBAY, Leyte 7127, Philippines

"Goat/muscovy duck based farming system in hilly lands".

IFS funding: 21500 SEK 1979

Cogon grass (Imperata cylindrica) and shrubs are the main vegetative cover of the unproductive hilly lands and deforested areas in the Philippines. Dr Gerona will make efforts to check erosion by planting Leucaena with the cogon grass; Leucaena will simultaneously improve the pastures. Comparative feeding trials with goats on these pastures will be made. The feasibility of keeping muscovy ducks (Cairina moschata) to utilize extra root crops commonly grown will be investigated in terms of weight gain and feed efficiency when fed cassava meal with varying levels of dried goat manure.

/erosion control/ /leguminosae/ /grasses/ /feed/ /cassava/
/goats/ /poultry/

ANIMAL PRODUCTION

Grantee B373: Dr Ndu Ihe Dim, Department of Animal Science,
Faculty of Agriculture, Ahmadu Bello University,
P M B 1044, ZARIA, Nigeria

"Genetic studies of guinea fowl"

IFS funding: 17200 SEK 1979

Meat production from indigenous poultry is low in Nigeria, and so parent stock and commercials are imported. Guinea fowl exists wild and semi-domesticated. Dr Dim will investigate the productive capacity of the guinea fowl under improved conditions in order to find out if guinea fowl can be competitive as a meat and/or egg producer. Selection for better growth rate, egg production, feed conversion and hatching rate will be carried out on guinea fowls from different parts of the country.

/animal production/ /animal breeding/ /poultry/

Grantee B374: Mr Reuben Njwe, Département des Sciences
Animales, Ecole Nationale Supérieure Agronomique,
Centre Universitaire de Dschang, B P 138,
YAOUNDE, United Republic of Cameroon

"An investigation on the characteristics and potentials of the
blackbelly sheep of Cameroon"

IFS funding: 30100 SEK 1979 35000 SEK 1981
64000 SEK 1983

The Cameroon blackbelly sheep is reputed for its high productivity under traditional management. A comparative study will be made on the general characteristics, growth and reproductive performance under traditional and improved management systems. Animals will be purchased from several regions, and information on feeding, diseases and physical characteristics will be collected. Investigations will be made on their reproduction and growth performance under improved feeding, housing and veterinary care. Collaboration will also be established with goat-owners in the different regions, and their stock will be used for the comparative studies.

/animal husbandry/ /animal breeding/ /genetic improvement/
/feed/ /sheep/ /animal health/

ANIMAL PRODUCTION

Grantee B375: Mr Mana Latu, Cooperative Department, Tonga,
P O Box 49, NUKU'ALOFA, Tonga

"Comparison of different poultry production systems"

IFS funding: 17200 SEK 1979

Most poultry products in Tonga are at present imported. The shortage of eggs and broiler meat is largely due to lack of tradition and knowledge about poultry husbandry. Mr Latu will construct hen houses made out of locally-available building material. Different designs will be tried for broilers and layers. Feeding trials will also be carried out. The project will become a demonstration unit for cooperatives and schools, and the possibility for wider system adoption will be analysed.

/animal husbandry/ /animal feeding/ /poultry/ /rural industry/
/animal housing/

Grantee B376: Mr Alekisanata Sisifa, Department of Agriculture,
Ministry of Agriculture, Forestry and Fisheries,
P O Box 14, NUKU'ALOFA, Tonga

"Use of local materials for feeding pigs and poultry"

IFS funding: 27950 SEK 1979

The short supply of locally-produced animal feed and the high price of imported feed are limiting factors for animal production in the Pacific. Mr Sisifa will make feed trials with pigs, using roots and foliage of cassava, pawpaw and other locally-available bulk feeds supplemented with, e.g., copra meal or cassava foliage meal. Analogue trials will be carried out with poultry for breeding of broiler chickens and layers. It is hoped that economic feeding systems using locally-available feed can be developed to encourage animal breeding in the Pacific.

/feed production/ /agricultural wastes/ /food crops/ /animal
production/ /poultry/ /feed supplements/

ANIMAL PRODUCTION

Grantee B377: Mr Ramdeo Ramchurn, School of Agriculture,
University of Mauritius, REDUIT, Mauritius

"New feed resources for rabbit production"

IFS funding: 23650 SEK 1979

Beef production in Mauritius is limited by the lack of sufficient supplies of suitable feed. Rabbit meat would be an alternative which is acceptable to all ethnic groups of the population. Mr Ramchurn will study the possibility of using locally-available feed for rabbit breeding. Different types of feed, including sugar cane, will be tried with various supplements. Digestibility trials related to growth performance will be made, and suitable management systems for small-scale rabbit farming developed.

/feed production/ /sugar cane/ /animal husbandry/ /animal
nutrition/ /animal production/ /rabbits/ /feed supplements/

Grantee B412: Ms Irma Tejada de Hernández, Instituto Nacional
de Investigaciones Pecuarias, Apartado Postal
41-652, MEXICO, D F, Mexico

"Manipulation of silage fermentation"

IFS funding: 16600 SEK 1980

Conventional ensiling techniques will often not produce acceptable silage from tropical feeds such as sugar cane and maize. In this project strong alkali treatment will be used to improve silage quality and increase animal performance. The microbiology and chemistry of this new type of silage will be studied in the laboratory and its feeding value will be determined in experiments with sheep.

/feed production/ /agricultural wastes/ /fermentation/ /animal
feeding/ /sheep/ /silage/

ANIMAL PRODUCTION

Grantee B416: Mr Miguel Pacheco, Facultad de Medicina Veterinaria y Zootecnia, Universidad de Yucatán, Apartado Postal 116-D, MERIDA, Yucatán, Mexico

"Integrated use of sugar cane for animal feed and fuel"

IFS funding: 41500 SEK 1980 36400 SEK 1981

Sugar cane is one of the most efficient plants for utilizing solar energy and has a large capacity for production of biomass, which mainly consists of sugar and fiber. It is proposed to use the cane both as a source of fuel and for animal feed. About 65% of the cane will be extracted as juice and fed to cattle and pigs. The remainder, containing fiber and residual sugar, will be used for the production of both charcoal and producer gas. Mr Pacheco will try to develop procedures for preserving the cane juice to control fermentation and set up feeding systems based on cane juice. Charcoal production from residual stalks will be carried out by methods that can be used on a small scale.

/feed production/ /agricultural wastes/ /fermentation/ /fuels/

*** /producer gas/

Grantee B417: Mr Ranjith Senaratne, Department of Agronomy, Ruhuna University College, MAPALANA, Kamburupitiya, Sri Lanka

"Package programme to maximize land utilization of small holdings through crop and stock integration based on known technology"

IFS funding: 33615 SEK 1980

The size of agricultural holdings in Sri Lanka has decreased during the last decades. About 45% of the farms are less than one acre and 88% are less than five acres. Through stock and crop integration it is possible to increase both crop and animal production. Mr Senaratne will evaluate different models, such as integration of coconut/pasture/livestock production, rubber/livestock production, and rice/livestock production. Leucaena and Gliricidia trees will be included in all models to provide protein feed for the livestock.

/mixed farming/ /livestock/ /coconuts/ /rice/ /leguminosae/
/rubber/

ANIMAL PRODUCTION

Grantee B418: Dr Laksiri Goonewardene, Department of Animal Science, University of Peradeniya, PERADENIYA, Sri Lanka

"Evaluation of rabbit production potential in Sri Lanka"

IFS funding: 18675 SEK 1980 12000 SEK 1983

Meat prices have increased considerably in Sri Lanka due to high costs of feed concentrates. It is therefore relevant to investigate to what extent animals fed only with herbage can be exploited for meat production. Rabbits have not yet received much attention in Sri Lanka, although there are no prejudices against rabbit meat and the potential for rabbit production is good. In the present project, different breeds of rabbits will be tested, under Sri Lanka conditions, and local herbages suitable for rabbits will be evaluated. The aim of the project is to devise a rabbit production package that involves recommendations for breed, cages, feed production and management.

/animal husbandry/ /animal breeding/ /feed/ /food production/
/rabbits/ /agricultural training/

Grantee B460: Mr Cornelio Subsuban, Southern Mindanao Agricultural Research Center, University of Southern Mindanao, Kabacan, NORTH COTABATO 9311, Philippines

"Tilapia silage (Tilapia mossambica) as fish meal substitute for growing and finishing swine"

IFS funding: 33800 SEK 1980

Swine production in the Philippines is not sufficient to meet the demand. The primary constraints are the irregular supply and high cost of protein feeds, mainly fish meal. Aquaculture is now being developed in Mindanao; tilapia is the main crop fish. Mr Subsuban will determine the feed value of tilapia silage, and to what extent it can be fed to the swine. A suitable cheap ration for swine based on tilapia will be formulated to encourage farmers to start both swine breeding and aquaculture.

/feed production/ /fish meal/ /mixed farming/ /fish culture/
/swine/

ANIMAL PRODUCTION

Grantee B461: Dr I Gusti Suweta, Department of Physiology,
Faculty of Veterinary Science and Animal
Husbandry, Universitas Udayana, Jalan Jendral
Sudirman, Sanglah, DENPASAR, Bali, Indonesia

"Prevalence of liver fluke infection in Bali cattle"

IFS funding: 24200 SEK 1980 52500 SEK 1982

Bali cattle are important for meat production in Indonesia. Liver fluke infestation in the cattle is common, and is one of the major obstacles to increased meat production. Dr Suweta will make a survey of the prevalence of liver fluke infestation by examining livers of Bali cattle from eight abattoirs in different regions in Bali. Data about the animal, such as sex, age, body weight, and place of origin will be recorded and correlated with the degree of infestation. Data about the soil conditions in the pastures will also be collected. A programme for liver fluke control will then be formulated.

/animal diseases/ /parasitology/ /cattle/ /animal health/

Grantee B463: Mr André Nivyobizi, Faculté des Sciences
Agronomiques Université du Burundi, B P 2940,
BUJUMBURA, Burundi

"Goat breeding in Burundi"

IFS funding: 44000 SEK 1980 37500 SEK 1983

Burundi is one of the poorest countries in Central Africa. There might be some 1.5 million goats in Burundi, but very little has been done to exploit them better. Mr Nivyobizi will study the present goat breeding conditions and compare the productivity with that of goats kept under improved conditions with better feeding and housing. A study of the actual and potential market for goat products will also be made. The results from these studies will be important for subsequent trials to improve goat production by cross-breeding with imported breeds.

/animal husbandry/ /animal products/ /goats/

ANIMAL PRODUCTION

Grantee B464: Dr Said Benlamlih, Institut Agronomique et
Vétérinaire Hassan II, 8 P 704, RABAT-AGDAL,
Morocco

"Water balance of ruminants during pregnancy and lactation"

IFS funding: 42240 SEK 1980 19720 SEK 1982

Animal production is important for the agricultural economy of Morocco. The number of livestock is relatively high, and most are kept under extensive conditions. Inadequate water supply may limit livestock reproduction since water requirements of the animals increase during pregnancy and lactation. Dr Benlamlih will elucidate the hormonal changes which occur during pregnancy and lactation, and correlate the changes with the fluid and electrolyte balance of the animals. A better knowledge of the physiological regulating mechanisms, with particular attention to improved breeds resistant to climate stress will be valuable to increase animal production.

/physiology/ /genetic improvement/ /ruminants/

Grantee B465: Dr Justus Munyua, Department of Biochemistry,
University of Nairobi, P O Box 30197, NAIROBI,
Kenya

"Effects of lactoperoxidase/thiocyanate/hydrogen peroxide system
(LP-system) on the quality aspects of raw milk"

IFS funding: 44000 SEK 1980

Lack of adequate transport and refrigeration makes the collection of milk difficult in Kenya. Most milk is destroyed by microorganisms upon arrival at the processing centres. If lactoperoxidase/thiocyanate/hydrogen peroxide (LP-system) is added to the milk, it controls the growth of microorganisms. Dr Munyua will study the influence of the LP-system on the vitamin contents, on the essential amino acids, and on the unsaturated fatty acids. The research will be carried out under both laboratory conditions and during milk collection. It is expected that this project will show that utilization of the LP-system to preserve milk will have no adverse effects on the milk nutrients.

/food preservation/ /milk/

ANIMAL PRODUCTION

Grantee B466: Mr Luong Tat Nho, Institut d'Elevage, Thuy
Phuong, Tu-Liem, HANOI, Viet Nam

"Preparation and storage of swine semen for artificial
insemination"

IFS funding: 21430 SEK 1981

Artificial insemination has been an important means of improving swine production in Viet Nam. If a system for diluting and storing the semen, suitable to existing conditions can be developed, semen from superior breeds can be used more extensively for household pig breeding. Mr Nho will determine the chemical composition and the physiochemical characteristics of pure semen, and then develop a suitable system for diluting and preserving the semen. The activity of some enzymes, such as phosphatase, and isoenzymes will be studied, as well as semen dehydration techniques to develop a suitable method for lyophilization.

/reproduction/ /artificial insemination/ /swine/

Grantee B467: Mr Nguyen Nghi, Institut d'Elevage, Thuy Phuong,
Tu-Liem, HANOI, Viet Nam

"Storage of tubers, stems and leaves of sweet potatoes, potatoes
and manioc, and their utilization as pig and poultry feed"

IFS funding: 33000 SEK 1980 80000 SEK 1983

Sweet potatoes, potatoes and manioc are harvested immediately before the rainy season, and sun drying of the crops is not possible. Mr Nghi will make silages with the mentioned crops, and investigate the changes in nutrients, organic acids and pH during the silage process. Feeding trials with different types of pigs will be carried out to determine suitable rations. Studies will also be carried out on manioc leaf meal as protein feed, and the effect of leaf harvesting on the tuber production.

/feed production/ /root crops/ /fermentation/ /nutritive value/
/swine/ /silage/

ANIMAL PRODUCTION

Grantee B468: Mr Pinta Malem Ginting, Universitas Gadjah Mada,
Bulaksumur PES 314, YOGYAKARTA, Indonesia

"Supplementation of Leucaena leucocephala for beef cattle"

IFS funding: 22000 SEK 1980 30000 SEK 1982

Nusa Tenggara Timor is an Indonesian province that has a good stock of Bali cattle. The dry season is quite long, and lack of adequate feed during this season is a drawback for cattle production. Growth rate is low, with an average of 0.2 kg/day. Leucaena leucocephala are now being extensively planted, and are a source of feed throughout the year. Mr Ginting will investigate the effect on the growth rate of cattle of L. leucocephala supplements, fed in different rations. Average daily weight gain, feed intake and feed conversion ratio will be measured. Suitable low-cost feed rations will then be formulated.

/feed production/ /leguminosae/ /animal nutrition/ /cattle/

Grantee B469: Dr Jhon Rasambainarivo, Département de
Recherches Zootechniques et Vétérinaires,
CENRADERU, B P 904, Ambatobe, ANTANANARIVO,
Madagascar

"Utilization of agricultural by-products as feed for ruminants during the dry season"

IFS funding: 23320 SEK 1980

Feed shortage during the dry season is a severe problem for cattle production in Madagascar. The cattle, mainly zebu, are traditionally fed rice straw, which has a very low nutritive value. Dr Rasambainarivo will improve the nutritive value of rice straw based diets by treatment of the straw, and by studying the effect of supplements consisting of locally-available agro-industrial by-products, such as press cakes or bean pods. Particular interest will be directed to the nutrition of lactating cows and weaned calves, which are especially sensitive to malnutrition.

/nutritive value/ /agricultural wastes/ /industrial wastes/
/animal nutrition/ /cattle/ /feed supplements/

ANIMAL PRODUCTION

Grantee B470: Mr Ibrahim Kassambara, Station d'Élevage et de
Recherches Zootechniques du Sahel, B P 12, NIONO,
Mali

"Investigation of the nutritive value of agro-industrial
by-products in Mali"

IFS funding: 44000 SEK 1980 55200 SEK 1983

Productivity in cattle or small ruminants in Mali is low and new sources of feeds are essential to increase the production. Mr Kassambara will determine the nutritive value of locally-available agro-industrial by-products with respect to contents of nitrogen, fats and cellulose. Voluntary intake and digestibility will be recorded, and suitable feed rations formulated.

/nutritive value/ /agricultural wastes/ /industrial wastes/
/ruminants/

Grantee B501: Mr Situru, Faculty of Agricultural Sciences,
Universitas Hasanuddin, UJUNG PANDANG, Indonesia

"The utilization of sago-residue as substitute for corn as an
ingredient of swine feed during fattening period of pigs"

IFS funding: 26680 SEK 1981

The eastern part of Indonesia, including South Sulawesi, is the main sago producer of the country. The sago-residue is considered a waste product. Mr Situru will investigate the feasibility of feeding local swine with sago-residue instead of corn, which is also a staple food for people in the region. Different feed rations with varying levels of sago-residue content will be tried to establish a suitable feed standard. The feed trials will be carried out with regard to weight gain, conversion efficiency, carcass quality and economics of the new feed system.

/feed production/ /agricultural wastes/ /animal nutrition/
/swine/

ANIMAL PRODUCTION

Grantee B510: Mr Elvigio Evina, Palawan National Agricultural College, (PNAC), ABORLAN, Palawan, Philippines

"Development of technology for winged bean farming integrated with poultry and animal production"

IFS funding: 50000 SEK 1981

Shifting cultivation is practiced in many areas in the Philippines. After one or a few growing seasons, what was formerly forest land is abandoned and exposed to erosion. Mr Evina will test the suitability of growing winged beans in such areas. Its perennial growth and productivity in successive years will be studied. The beans and the different parts of the plant will be tested as ingredients in different farm animal feeds, e.g., for poultry, ducks, swine or goats. A system for winged bean cultivation integrated with animal production will be developed, and a cost-benefit study will be carried out.

/mixed farming/ /feed production/ /leguminosae/ /erosion control/ /poultry/ /swine/ /goats/

Grantee B511: Dr Nganjo Endeley, Département des Sciences Animales, Ecole Nationale Supérieure Agronomique, Centre Universitaire de Dschang, B P 138, YAOUNDE, United Republic of Cameroon

"Collection, selection, breeding and nutrition of indigenous Cameroon fowl breeds"

IFS funding: 40000 SEK 1981 40200 SEK 1982

Little knowledge is available about the indigenous fowl breeds, which are important for the rural economy. Dr Endeley will identify the different breeds and ensure a sufficient gene pool for each one to produce improved stock. Comparative studies of indigenous and imported breeds as to meat and egg production will be carried out, and suitable cross-breeding to upgrade indigenous breeds will be made. The feed requirements will also be investigated.

/feed/ /animal products/ /poultry/

*** /animal genetics/

ANIMAL PRODUCTION

Grantee B512: Mr M Ferreiro G, Instituto Nacional de Investigaciones Pecuarias (INIP), Apartado Postal 682, CHIHUAHUA, Chih, Mexico

"Inefficiency of energy utilization in tropical feeds"

IFS funding: 47500 SEK 1981 52800 SEK 1983

The use of cereal grains for animal feed is decreasing because of increased demands for human consumption. Consequently, there are proposals to increase the use of by-products from sugar cane industries as additives to animal fodder. High levels of molasses as energy feed for cattle appear to be inefficiently utilized. This could be caused by vitamin B deficiency, the high content of minerals in the molasses, or the intake pattern. Mr Ferreiro G will investigate vitamin B supplements in order to improve the digestion. Different feed rations will be applied and the level of digestion products in rumen fluid, blood and urine will be determined. Retention time and digestion rate of fibre in the rumen will be studied as well as the intake pattern (time spent eating, ruminating or resting).

/feed production/ /agricultural wastes/ /animal nutrition/
/cattle/ /feed supplements/

Grantee B513: Mr Mohamed Abdirahman Ibrahim, Tsetse & Trypanosomiasis Control Project, P O Box 924, MOGADISHU, Somalia

"Preliminary investigations into the epizootology of tsetse-borne trypanosomes in the dromedary"

IFS funding: 55000 SEK 1981

The camel population of Somalia is estimated at about five million head. Droughts have forced the camels into tsetse infested areas, where they are exposed to trypanosomiasis, which is causing high annual losses. Mr Ibrahim will study the epizootology of tsetse-borne trypanosomes. Blood examinations will be carried out daily; clinical symptoms will be studied and histological studies of affected tissues made. The effectiveness of some currently utilized drugs will also be investigated. A suitable prophylactic and curative treatment for the disease will then be developed.

/animal diseases/ /disease control/ /parasitology/ /camels/

ANIMAL PRODUCTION

Grantee B514: Dr Metha Wanapat, Department of Animal Science,
Faculty of Agriculture, Khon Kaen University,
KHON KAEN, Thailand

"Improvement of rice straw utilization for water buffaloes
during the dry season. I: Water hyacinth and urea"

IFS funding: 61350 SEK 1981 81750 SEK 1983

The feed supply for ruminants is scarce in Thailand during the dry season. Rice straw is the main forage available; its nutritive value and the voluntary intake is low, and the animals cannot maintain their body weight when fed only rice straw. Dr Wanapat will try to improve the nutritive value and voluntary intake by ensiling a mixture of chopped rice straw and water hyacinths. Urea will be added to increase the nitrogen content of the rations. The digestibility of different rations will be determined. Suitable duration of ensiling will be investigated in an in vitro method.

/feed production/ /agricultural wastes/ /urea/ /nutritive value/
/animal nutrition/ /ruminants/ /silage/

Grantee B551: Mr Balraj Rajkomar, Cureripe Livestock Breeding
Station, Animal Production Division, Ministry of
Agriculture and Natural Resources and the
Environment, CURERIPE, Mauritius

"Utilization of sugar cane products and by-products of sugar
manufacture as basic feed sources for ducks"

IFS funding: 49000 SEK 1981

Mauritius is almost self-sufficient in chicken meat and eggs, but the production is dependent on imported feeds. Mr Rajkomar will try to develop duck production systems based on locally-available feeds. Diets will be formulated with graded levels of molasses with or without sugar supplementation and compared with cereal based diets. Trials with sugar cane juice will also be carried out. Local protein-rich forages, such as algae, water ferns, Leucaena, sweet potato vines (Ipomoea batatas) and Azolla will be tried to replace imported protein feed. Growth performance of ducks in an integrated system with the recycling of the duck excreta in fish ponds will also be studied.

/mixed farming/ /animal husbandry/ /feed production/ /molasses/
/sugar/ /algae/ /fish culture/ /feed supplements/

ANIMAL PRODUCTION

Grantee B552: Mr Peter Einyu, Uganda Trypanosomiasis Research Organization, P O Box 96, TORORO, Uganda

"Ecology and behaviour of Glossina pallidipes in relation with the prevalence of bovine trypanosomiasis"

IFS funding: 16800 SEK 1981

About 6.5 million km² in Africa are denied to cattle because of infestation of trypanosome vectors, Glossina spp. Population growth has forced Glossina either to adapt to new habitats or to change their hosts in many areas. Mr Einyu will study the ecology and feeding pattern of Glossina in order to formulate new control measures. Population density and fluctuations, age structure, and mortality patterns will be determined. Infection rates and types of trypanosomes will be studied by dissection of flies. Types of hosts will be established by the blood meal method from engorged flies. Frequency of feeding will be determined by hourly catches with biconical traps.

/animal diseases/ /disease control/ /parasitology/ /cattle/

Grantee B553: Mr Kenneth Okello-Lapenga, Department of Veterinary Pathobiology, Makerere University, P O Box 7062, KAMPALA, Uganda

"The potential of goat production as a source of protein"

IFS funding: 33430 SEK 1981

Goat production has been neglected in Uganda as far as modern husbandry is concerned. Mr Okello Lapenga will carry out a detailed study of the performance of goats as to reproduction, growth, and meat and milk production. Disease factors that limit the production in the traditional village system will also be studied. Traditional goat keepers will be interviewed to find out their meat consumption habits and preferences, and willingness to supplement the family's diet with goat meat. Performance under intensive conditions will also be studied. Supplementary feeds from underutilized crop residues, such as straw, husks, peelings of bananas, potatoes, and cassava will be tried in different rations, all supplemented with soybeans as protein feed. The results will be compared to those related to trials under extensive conditions.

/animal husbandry/ /feed production/ /agricultural wastes/
/animal diseases/ /goats/ /feed supplements/

ANIMAL PRODUCTION

Grantee B554: Mr Rommel Tañgonan, Southern Mindanao
Agricultural Research Center, University of
Southern Mindanao, Kabacan, NORTH COTABATO 9311,
Philippines

"Food requirements of the Philippine carabao at various
workloads using nutrient equivalents of the energy system"

IFS funding: 39200 SEK 1981

The carabao (Babalus carabanensis) is the major draft animal in the Philippines, particularly in lowland rice farming and in cultivation of marginal land. The carabao also provides a major share of the milk production. Mr Tañgonan will determine the feed requirements in terms of dry matter and nutritive value while the animal is physically active. The best combination of indigenous feed will be formulated with relation to the body constitution and performance of the animal. Empirical relationships will be determined considering live weight, work performed, bulk and nutritional intake, and net feed efficiency. The experiments will be carried out during both the wet and the dry season.

/animal nutrition/ /feed/ /animal power/ /water buffaloes/

Grantee B555: Mr Lilito Gavina, College of Agriculture and
Forestry, Don Mariano Marcos Memorial State
University, BACNOTAN, La Union, Philippines

"Swine-duck-fish-vegetable integration in skyponds of La Union,
Philippines"

IFS funding: 26710 SEK 1981

The major part of La Union is hilly or mountainous with many natural springs where skyponds have been established. These ponds are used for monocultivation of freshwater fish and prawns. Mr Gavina will establish a suitable integrated production system based on these ponds. Ipomoea aquatica and Azolla will be grown fertilized with swine and duck manure. These plants will then be used as feed for swine, ducks, and freshwater fish. The optimum stocking rate of the different animal species and plants for the integrated production system will be determined, and a cost/benefit analysis will be made.

/mixed farming/ /animal husbandry/ /fertilization/ /feed
production/ /fish culture/

ANIMAL PRODUCTION

Grantee B556: Mr Made Mastika, Department of Animal Nutrition and Pasture Agronomy, Universitas Udayana, Jalan Jendral Sudirman, Sanglah, DENPASAR, Bali, Indonesia

"The integration of pig and chicken production"

IFS funding: 53090 SEK 1981

Chicken production is usually based on all-mash diets, which require the ingredients to be ground to a relatively homogeneous mixture, which is often given in pelleted form. Mr Mastika will investigate to which extent chicken fed with whole grains and protein concentrate ad lib are able to regulate their intake according to their requirements for optimum growth, production and efficiency. Piglets will be kept under the chicken cages to investigate the feasibility of utilizing the chicken manure and feed wastes as feed supplements.

/animal feeding/ /feed/ /mixed farming/ /poultry/ /swine/ /feed supplements/

Grantee B579: Mr Guillermo Pardo C, Universidad de Camagüey, Carretera Circunvalación Norte, CAMAGUEY, Cuba

"Utilization of agricultural waste products in the feed ration of swine in their different stages"

IFS funding: 33700 SEK 1981

In Cuba the nutritious products of agricultural wastes constitute an important resource in the feeding of swine, commonly called P.L.P. Mr Pardo C will try to add dry food of local origin (mainly forage) to the P.L.P. to obtain a balanced dry mixture capable of increasing the weight gain.

/agricultural wastes/ /nutritive value/ /swine/

ANIMAL PRODUCTION

Grantee B589: Mr Abou Bacayoko, Institut Polytechnique Rural de
Katibougou, B P 6, KOULIKORO, Mali

"Supplementation of straw for animal feed in Mali"

IFS funding: 43500 SEK 1982

From October until June and sometimes until July, there is no feed available for grazing other than straw. The nutritive value of unsupplemented straw is, however, too low to support proper growth of animals. Mr Bacayoko will investigate the effects of supplementing straw with various agricultural by-products on its digestibility and nutritive value. For his experiments he will use sheep, and the supplements will consist of by-products from the processing of rice, sugar-cane, cotton and peanuts.

/agricultural wastes/ /nutritive value/ /sheep/ /feed
supplements/

Grantee B590: Dr Weerasak Wongsrikeo, Department of Animal
Science, Faculty of Agriculture, Khon Kaen
University, KHON KAEN, Thailand

"Effect of urea-ensiled rice straw supplemented with ipil-ipil
and/or rice bran during gestation and lactation on
reproduction performance of buffaloes"

IFS funding: 40600 SEK 1982

During the dry season buffaloes feed almost entirely on rice straw. Pregnant buffaloes usually lose weight and show poor health during this period. Furthermore, they give birth to unhealthy calves which sometimes die a few weeks after birth. Dr Wongsrikeao will treat rice straw with urea to improve its nutritive value. He will then study the effect of treated straw supplemented with ipil-ipil and/or rice bran on the health of buffaloes during late gestation and early lactation as well as the effect on the new-born calves. Also, the postpartum reproduction performance will be investigated in relation to the ensiled straw and supplements.

/animal health/ /feed/ /agricultural wastes/ /rice/ /urea/
/nutritive value/ /reproduction/ /water buffaloes/ /silage/
/feed supplements/

ANIMAL PRODUCTION

Grantee B591: Mr Alfredo Mena, Secretaria de Estado de Agricultura, Centro de Investigaciones Pecuarias, (CENIP), Autopista Duarte Km 24, Apartado 227-9, SANTO DOMINGO, Dominican Republic

"Development of swine production systems using tropical feed resources: Use of sugar cane juice and high protein forages"

IFS funding: 49300 SEK 1982

Swine production is now being introduced again in the Dominican Republic after an outbreak of swine fever necessitated the slaughter of the entire swine population. This situation offers the possibility to introduce a new, more efficient swine production system. Mr Mena will utilize sugar cane juice as the major energy source for pregnant and lactating sows and their young. He will also introduce a leaf meal from foliage of cassava, Leucaena and sweet potato as a source of vegetable protein. The effect of these diets on the reproductive rate, lactation performance, milk composition and weight gains will be studied.

/feed production/ /agricultural wastes/ /cassava/ /sweet potatoes/ /reproduction/ /swine/

Grantee B592: Mr George Kanyama-Phiri, Bunda College of Agriculture, P O Box 219, LILONGWE, Malawi

"Pasture and fodder production and utilization"

IFS funding: 59740 SEK 1982

With decreasing land areas available for pasture and fodde production in Malawi, it is important to maximize output. Mr Kanyama-Phiri will study various cropping systems for animal feed. Undersowing of pastures with maize, mixed cultivation of grasses and legumes, as well as ways to utilize crop residues will be investigated. The capacity of these systems to provide adequate feed for livestock will also be studied.

/feed production/ /agricultural wastes/ /maize/ /leguminosae/ /intercropping/ /pastures/

ANIMAL PRODUCTION

Grantee B594: Mr Perrin Saint-Ange, Livestock Division,
Department of Agriculture, Ministry of National
Development, P O Box 199, Seychelles

"Collection of data on production parameters for cattle"

IFS funding: 29000 SEK 1982

There is a need in the Seychelles to make better use of the available land for agricultural output. The government wants to achieve this by encouraging and increasing activities on small farming units. In order to define the limiting factors of animal production, Mr Saint-Ange will collect data on the existing production in the Seychelles. The data will be analyzed and provide a basis for design of and advice on improved animal management appropriate for small farming units.

/animal husbandry/ /animal production/ /data analysis/

Grantee B595: Dr Gao Yong-He, Department of Veterinary
Medicine, Gangsu Agricultural University, WUWEI,
Gangsu, China

"Factors inducing ovulation in the Bactrian camel"

IFS funding: 30800 SEK 1981 34800 SEK 1982

The Bactrian camel is still important for transportation, and meat, milk and wool production in Central Asia. More information on the events leading to ovulation is needed in order to increase the fertility by artificial insemination. Dr Gao will continue the research of Dr Chen, who has shown that ovulation is induced by seminal plasma. The reproductive hormones, luteinizing hormone, progesterone, 17 β -estradiol will be studied during the follicular cycle in order to understand the endocrinological events which are associated with ovulation.

/reproduction/ /artificial insemination/ /endocrine system/
/camels/

ANIMAL PRODUCTION

Grantee B628: Dr Virgilio Libunao, Don Mariano Marcos Memorial
State University, BACNOTAN, La Union, Philippines

"Broiler-swine-sericulture integration in mulberry farms"

IFS funding: 37500 SEK 1982

Studies have shown that mulberry leaves can be used as a feed supplement for chicken and swine. The leaf yield can be improved by the use of organic manure. Dr Libunao will study an integrated system using mulberry leaves will be used as a feed supplement animal wastes as a fertilizer for the mulberry bushes. The system may provide animal products and a textile industry. Other beneficial aspects of the system are the reforestation and the biogas production.

/mixed farming/ /feed production/ /biogas/ /fertilizers/
/silkworms/ /swine/ /poultry/ /reforestation/

Grantee B629: Mr Carlos Rodriguez, Secretaria de Estado de
Agricultura, Centro de Investigaciones Pecuarias,
(CENIP), Autopista Duarte Km 24, Apartado 227-9,
SANTO DOMINGO, Dominican Republic

"Intensification of goat production in semi-arid regions"

IFS funding: 41250 SEK 1982

Considerable areas of the Dominican Republic are covered with leguminous shrubs and trees, a protein-rich feed resource. Another potential source of feed could be provided by sugar cane waste products such as molasses and sugar cane tops, which are rich in energy. Mr Rodriguez wants to study the possibilities of improving goat production in the semi-arid conditions of the Dominican Republic by allowing the population, unconfined, to browse on shrubs and trees with sugar cane by-products as a feed supplement. Included in the study will be a comparison of the performance of goats under confined conditions, which are fed on Leucaena with sugar cane by-products as a supplement. The grantee will also study the effect of suckling on milk production.

/animal production/ /feed/ /leguminosae/ /sugar/ /grazing/
/goats/ /feed supplements/

ANIMAL PRODUCTION

Grantee B630: Mr Domingo Pérez, Universidad Central del Este,
Av de Circunvalación, SAN PEDRO DE MACORIS,
Dominican Republic

"Effect of quantity and quality of feed on work performance,
milk production and reproduction of multi-purpose cattle"

IFS funding: 67500 SEK 1982

While the Dominican Republic imports virtually all its fossil fuels, it depends on the export of sugar for income, which has been greatly reduced in recent years due to a fall-off in demand for sugar. To date, little consideration has been given to what could be done with the surplus sugar cane. Mr Pérez will study the possibility of using some of it (specifically the pressed stalk, bagasse) as the basic energy feed for draught animals. Currently, these animals feed on sugar cane tops during the harvest and graze on the land the other six months. By using bagasse as feed, valuable land would be freed for more productive use. Mr Pérez will also examine the possibility of using lactating cows for draught power.

/feed production/ /agricultural wastes/ /sugar/ /land use/
/animal power/ /cattle/

Grantee B631: Dr El Tahir Haroun, Faculty of Veterinary
Science, University of Khartoum, KHARTOUM NORTH,
P O Box 32, Sudan

"Animal fascioliasis: Epizootiology, pathogenesis and control"

IFS funding: 75000 SEK 1982

A high incidence of disease and mortality in animals in Sudan is caused by the fluke infections fascioliasis and schistosomiasis. Currently available methods of prevention and treatment of animal fascioliasis in the Sudan are unsatisfactory and a reassessment of methodology is needed. Dr Haroun will study the pathogenesis of Fasciola gigantica infections in cattle, sheep and goats. The transmission dynamics and the seasonality of fascioliasis will also be investigated. Particular efforts will be made to study the immunity mechanisms of the infection with the aim to develop a vaccine which is effective for both fascioliasis and schistosomiasis.

/animal diseases/ /disease control/ /parasitology/ /vaccines/

ANIMAL PRODUCTION

Grantee B632: Dr Boonlom Cheva-Isarakul, Department of Animal Husbandry, Faculty of Agriculture, Chiang Mai University, CHIANG MAI, Thailand

"Nutritive value of various rice straw varieties in North Thailand"

IFS funding: 64500 SEK 1982

During the dry season, rice provides an important supplementary source of feed for cattle and buffaloes. Several rice varieties are grown in Thailand, and these varieties differ in nutritive value. These variations are of course reflected in the nutritive value of straw products. Dr Cheva-Isarakul will collect rice varieties from and analyse their nutritive value by chemical studies and digestibility experiments. The results of the research should be of immediate practical use for cattle and buffalo production.

/animal production/ /feed/ /nutritive value/ /agricultural wastes/ /rice/ /cattle/ /water buffaloes/

Grantee B633: Dr Ndiaga Mbaye, Laboratoire National de l'Élevage et de Recherches National, Institut Sénégalais de Recherches Agricoles, (ISRA), B P 2057, DAKAR, Senegal

"Studies on the seasonal nutritive problems in animals raised in open pastures with special regard to mineral deficiencies"

IFS funding: 67500 SEK 1982

The silvi-pastoral zone in Senegal occupies an area of 60 000 km², corresponding to one-fourth the area of Senegal. This area supports more than one-third of the country's livestock. The animals in this area are characterized by slow growth and maturation as well as a high rate of mortality among young animals. One of the major reasons for these production inefficiencies is believed to be mineral deficiency. Dr Mbaye will study the mineral content of the available feed resources in the silvi-pastoral zone, identifying the minerals needed, with the aim of designing an effective programme of mineral supplementation for livestock.

/animal nutrition/ /minerals/ /animal health/

ANIMAL PRODUCTION

Grantee B634: Mr Luis Bautista S, Secretaria de Estado de Agricultura, Centro de Investigaciones Pecuarias, (CENIP), Autopista Duarte Km 24, Apartado 227-9, SANTO DOMINGO, Dominican Republic

"Evaluation of new protein sources for poultry"

IFS funding: 66375 SEK 1982

The poultry industry in the Dominican Republic is dependent on imported feed, mainly maize and soybean products. Both jack bean (Canavalia ensiformis) and Azolla are plants which are well adapted to the tropics and also rich in proteins. Mr Bautista S will investigate under which conditions they can be optimally produced. He will then conduct feeding trials in order to ascertain the value and acceptability of these plants as feed for chickens and ducks. He will also take into account the eventual necessity of processing the plants into more suitable products before use.

/feed production/ /leguminosae/ /nutritive value/ /poultry/

Grantee B658: Dr Baik Dong Hoon, Department of Animal Science, College of Agriculture, Jeonbug National University, JEONJU, 520, Republic of Korea

"Selection of Korean native goats for high meat production"

IFS funding: 54375 SEK 1983

The consumption of meat is rapidly increasing in the Republic of Korea and this demand is met by imports. In order to find an alternative to this situation, the native goats should receive more attention. Dr Baik will try to improve the important characteristics of the native Korean goat by selection. The goal of this research is to develop a goat strain which is highly productive in terms of meat.

/animal breeding/ /goats/

ANIMAL PRODUCTION

Grantee B663: Mr Khassoum Dieye, Laboratoire National de l'Élevage et de Recherches Vétérinaires, Institut Sénégalais de Recherches Agricoles, (ISRA), B P 2057, DAKAR, Senegal

"Studies on the forage potential and analysis of the degradation process in pastoral ecosystems in the Ferlo region"

IFS funding: 47610 SEK 1983

The Ferlo region is situated in the Sahel part of Senegal where the yearly amount of rain is 300-400 mm. The livestock in this region is maintained in a pastoral management system. Mr Dieye intends to study the Sahelian ecosystem of North Senegal with a view to obtain a better understanding of the factors affecting the environment, i.e., the climate-soil relationship and its impact on productivity.

/arid zone/ /ecosystems/ /pastures/

Grantee B664: Mr Budiarmo, Faculty of Animal Husbandry, Universitas Sam Ratulangi, MANADO, Indonesia

"The production performance of broilers fed supplemented Leucaena leucocephala leaf meal"

IFS funding: 41250 SEK 1983

Leucaena leucocephala is a widely grown tree legume in North-Sulawesi in Eastern Indonesia. It is one of the cheapest protein sources for animals and can also be used in food, e.g., soybean meal, fish meal. Mr Budiarmo will investigate the performance of broilers fed L. leucocephala leaf meal and compare this with broilers fed conventional feed. He will also study the possibility to neutralize mimosine, a toxic substance in the leaf, by supplementation with a chelating substance.

/poultry/ /feed supplements/ /animal feeding/

ANIMAL PRODUCTION

Grantee B665: Dr Mohamed El Houadfi, Institut Agronomique et
Vétérinaire Hassan II, B P 6202, RABAT-INSTITUTS,
Morocco

"Isolation and serotyping of local strains of infectious
bronchitis virus and production of a vaccine based on local
isolates"

IFS funding: 75000 SEK 1983

In spite of a regular vaccination programme against infectious
bronchitis virus (IBV) the poultry production in Morocco is
severely affected by the disease caused by this virus. Dr El
Houadfi will collect virus isolates locally and serotype the
isolates. His hypothesis is that the serotypes in the vaccine do
not correspond to the serotypes of the local disease outbreaks.
The research will test this hypothesis and eventually result in
the development of a new vaccine containing the relevant local
virus isolates.

/vaccines/ /virology/ /poultry/

Grantee B666: Mr Tayeb Ameziane El Hassani, Institut
Agronomique et Vétérinaire Hassan II, B P 704,
RABAT-AGDAL, Morocco

"Improvement of irrigated foraging systems in Northeast
Morocco"

IFS funding: 52500 SEK 1983

Increased forage resources are needed as a result of efforts to
increase cattle production. The irrigated plain of Gharb in
Northeast Morocco is planned to provide 30% of the Moroccan milk
production in 1990 as compared to the current 20%. Mr Ameziane
El Hassani intends to study various grasses and leguminous
plants in order to improve fodder production in irrigated
areas. These studies will include research on the effects of
fertilization, growth cycles and combination of plants in order
to achieve optimal outputs.

/feed production/ /forage crops/ /grasses/ /leguminosae/
/agricultural management/

ANIMAL PRODUCTION

Grantee B667: Dr Nandasena Tilakaratne, Veterinary Research Institute, Gannoruwa, PERADENIYA, Sri Lanka

"Investigation into genetic and environmental influences on the performance of indigenous swine of Sri Lanka"

IFS funding: 48200 SEK 1983

In Sri Lanka pork is in high demand, far exceeding the supply. Its production is also a source of supplementary income to a major proportion of households, particularly in the fishing villages. About 90% of the population is indigenous, probably as a consequence of inbreeding over a number of generations. Dr Tilakaratne intends to evaluate the performance of the swine pigs under free-range conditions as well as on an experimental farm. He also intends to study the response to genetic selection based on mature weight, litter size, feed conversion efficiency and back fat thickness. The findings should result in applicable recommendations on appropriate breeding, feeding and management practices in order to improve the performance of the indigenous pigs.

/animal production/ /animal breeding/ /swine/

Grantee B668: Mr Andres Cuellar G, Universidad Nacional de Colombia, Apartado Aéreo 568, MEDELLIN, Colombia

"Fattening of 'carnero africano' using sugar cane juice, Leucaena and Glericidia"

IFS funding: 67500 SEK 1983

There is a substantial surplus in sugar cane production in Colombia at the same time as there is an increasing demand for meat. "Carnero africano" is a sheep breed which has hitherto not attracted much research interest. Mr Cuellar G wants to investigate the effect on fattening of this sheep using sugar cane juice as source of energy and the two legumes Leucaena and Glericidia as nitrogen sources.

/feed/ /leguminosae/ /sugar cane/ /sheep/

ANIMAL PRODUCTION

Grantee B669: Mr Roberto Belmar C, Facultad de Medicina
Veterinaria y Zootecnia, Universidad de Yucatan,
Apartado 116-D, MERIDA, Yucatan, Mexico

"Nutritive value of Canavalia ensiformis seeds in the diets of
broilers and laying hens"

IFS funding: . 37500 SEK 1983

The poultry industry in Mexico and the Caribbean region is based on cereal-soya diets, normally imported from outside. Canavalia ensiformis can produce large quantities of high protein seeds even in unfertilized poor soils and in relatively harsh climates. Mr Belmar C will investigate the performance of broilers and laying hens on balanced diets containing ground seeds of Canavalia ensiformis. He will also study various methods to detoxify the seeds, using feeding trials as well as biochemical methods.

/feed production/ /leguminosae/ /poultry/

Grantee B670: Mr Loni Buga Bamuhiga, Institut Supérieur
Pédagogique, B P 727, KISANGANI, Zaire

"Cattle breeding in the Ituri province in Northeast Zaire"

IFS funding: 11895 SEK 1983

Cattle breeding is only partially recognized as a national asset for Zaire, inasmuch as ownership of cattle is a mark of affluence for the owners. As a consequence there has been little interest in developing cattle breeding and improving cattle production. Mr Bamuhiga is going to make a socio-economic study of the cattle breeding in the province of Ituri in Northeast Zaire in order to provide background information for its improvement.

/sociological analysis/ /animal breeding/ /cattle/

ANIMAL PRODUCTION

Grantee B708: Mr Fernando Herrera, Facultad de Medicina Veterinaria y Zootecnia, Universidad de Yucatán, Apartado 116-D, MERIDA, Yucatán, Mexico

"An agronomic evaluation of jack bean (Canavalia ensiformis) in Yucatán"

IFS funding: 46800 SEK 1983

The jack bean (Canavalia ensiformis) is an important crop and one that could become a substitute for high-protein grains, which must be imported. Mr Herrera is going to evaluate agronomic techniques for jack bean production by examining time of sowing, plant density, yields, use of fertilizers, etc., in controlled field experiments. The crop will also be studied under village conditions. The aim of the project is to develop technology for jack bean production in the rocky alkaline soils of the Yucatán peninsula.

/feed production/ /leguminosae/

Grantee B709: Dr Makhdoom Abdul Jabbar, Livestock Production Research Institute, BAHADAR NAGAR OKARA, Pakistan

"Comparative study of the rumen metabolism, nitrogen balance and digestibility of fodder in camel, nili-ravi buffalo and sahiwal cows"

IFS funding: 68320 SEK 1983

Although there are extensive studies done in the nutrition of cows, very little has been done on buffaloes and almost nothing on camels. Dr Abdul Jabbar will do a comparative study of fodder consumption and fodder efficiency in cows, buffaloes and camels. He will also compare the efficiency of urea utilization in each species. The study will reveal the possibility of utilizing camels as dairy animals in semi-desert zones in Pakistan and elsewhere.

/animal nutrition/ /camels/ /cows/ /urea/

*** /buffaloes/

ANIMAL PRODUCTION

Grantee B710: Mr Velmurugu Ravindran, Department of Animal Science, University of Peradeniya, PERADENIYA, Sri Lanka

"Evaluation of rubber seed meal and dried distillery residues in poultry and swine feeding in Sri Lanka"

IFS funding: 40000 SEK 1983

Swine and poultry are considered to have the greatest potential for increasing animal production in Sri Lanka, thus increasing the amount of animal protein in people's diets. The greatest limitation to production is the scarcity of suitable feed ingredients. Rubber seed (Hevea braziliensis) meal and dried distillery residues are locally available in quantity and at a cheap price. Mr Ravindran will conduct a series of trials to evaluate these products in diets for swine and poultry. The feeds will be analysed for mineral and amino acid compositions and for their potential energy value. Productivity measures of the animals, such as growth rate, egg production, etc., will also be recorded.

/feed/ /agricultural wastes/ /poultry/ /swine/

Grantee B711: Mr Léon Monnet, Ecole Nationale Supérieure Agronomique, (ENSA), B P 35, ABIDJAN 08, Ivory Coast

"Improvements of the traditional poultry breeding"

IFS funding: 80000 SEK 1983

The need to investigate and improve local poultry breeds in Africa is great. So far, the poultry industry is largely based on industrial farming utilizing expensive imported feed. Mr Monnet intends to study the potential of both the animals and feed. He will analyse local agricultural by-products and their effects on the animals. He will also do genetic studies on such characteristics as heat resistance and feed conversion.

/agricultural wastes/ /poultry/

*** /animal genetics/

ANIMAL PRODUCTION

Grantee B712: Dr Olanrewaju Smith, Department of Animal Science, University of Ife, ILE-IFE, Nigeria

"Rumen degradability of tropical forages, browse plants and agro-industrial by-products"

IFS funding: 72000 SEK 1983

The majority of ruminants in Nigeria has, so far, been fed on forages. The potential nutritional value of browse plants and agro-industrial by-products has recently been recognized. Dr Smith's study will use a nylon bag technique on fistulated animals for evaluating these feeds. The study will involve cattle, sheep and goats of local breeds.

/animal nutrition/ /cattle/ /sheep/ /goats/

Grantee B713: Dr Ogbonnaya Onwudike, Department of Animal Science, University of Ife, ILE-IFE, Nigeria

"Effect of some tropical browse plants on rabbit growth and reproduction"

IFS funding: 51200 SEK 1983

Rabbit meat is becoming an important source of animal protein in Nigeria. It has been observed that growth and reproduction problems occur in these animals during the dry season. Access to green feed appears to improve their growth and reproduction. Dr Onwudike will test the feed value of two browse plants, (Glyricidia sepium and Leucaena leucocephala) available also during the dry season. Their effect on reproductive performance and growth will be studied.

/feed/ /forage crops/ /animal breeding/ /rabbits/

ANIMAL PRODUCTION

Grantee B714: Mr José Giraudo, Facultad Agronomía y
Veterinaria, Universidad Nacional de Río Cuarto,
5800 RÍO CUARTO, Argentina

"Bovine mastitis. Epidemiological surveys and incidence in
Argentinian cattle"

IFS funding: 64000 SEK 1983

In Argentina there are more than 40 000 dairy farms producing about 5 500 million liters of milk per year. It has been estimated that mastitis causes a yearly loss of 1 000 million liters. Mr Giraudo will investigate the occurrence of bovine mastitis at a large number of representative farms in the Córdoba Province. Milk samples from the chosen farms will be subjected to cell counts, microbiological and biochemical testing to determine the prevalence and nature of bovine mastitis. The information obtained will provide a basis for a mastitis control programme.

/animal diseases/ /cattle/ /bacteriology/

Grantee B715: Dr Edgardo Moreno, Centro de Investigación en
Biología Celular y Molecular, Universidad de
Costa Rica, SAN JOSE, Costa Rica

"Immunological studies of bovine viral leucosis"

IFS funding: 77920 SEK 1983

About 40% of the dairy and 10% of the beef cattle in Costa Rica are infected with bovine leucosis virus. The infection lowers the quality of the animals and their products. Dr Moreno will investigate the immunology of bovine viral leucosis, studying the humoral as well as cellular immune response. Modern serologic techniques will be used for the diagnosis of the disease, giving further information on the incidence of the disease in Costa Rica. The ultimate goal of the project is to develop a vaccine against bovine viral leucosis.

/animal health/ /immunology/ /virology/ /cattle/

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