

**Systemwide Livestock Research
Programme**
A Proposal Submitted to TAC

August 1994

THE ROCKEFELLER FOUNDATION

August 29, 1994

To: *Members of the Consultative Group on
International Agricultural Research*

From: *R.D. Havener, Consultant
The Rockefeller Foundation*

Subject: *THE 1995 PLAN OF WORK AND BUDGET FOR
THE INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE (ILRI)*

Recently you should have received a letter dated August 5, 1994 from Dr. Robert Herdt, Director of Agricultural Sciences of the Rockefeller Foundation, reporting on progress toward the establishment of the new global International Livestock Research Institute (ILRI). In that letter, Dr. Herdt provided considerable detail which I will not repeat here. Perhaps it is sufficient to report that all diplomatic and administrative arrangements appear to be in place for ILRI to be officially created as an international organization on September 21, 1994 in Berne, Switzerland. Following that event, the founding Board of Trustees of ILRI will assume the crucial next steps of recruiting a director general and negotiating a headquarters agreement. Fortunately, the Implementing Advisory Group (IAG) has assisted with a great deal of the required preliminary work in these important areas.

Enclosed you will find the 1995 Program of Work and Budget for ILRI, plus a supplement which contains a proposal for a CGIAR System-Wide Livestock Initiative to begin in the coming year.

As you know, ILRI is being asked by the System to develop a truly global livestock research program while at the same time continuing the relevant and important portions of the current work of ILCA and ILRAD. We believe the proposed 1995 Program of Work and Budget meets this challenge.

The ILRI Strategic Planning Task Force has worked closely with the management and staff of ILCA and ILRAD in preparing these documents. The resulting plans have twice been discussed with TAC. The Implementing Advisory Group has reviewed all documents carefully and has formally approved of their contents.

I would like to use this opportunity to specifically thank the management and staff of ILCA and ILRAD for their hard work and cooperation. Without these it would have been impossible for the implementing agency to present a strong global research program and budget to the Group. Because of their participation we believe we have done so. As implementing agency, we commend these documents and the proposed level of funding for your consideration and support.

We look forward to an opportunity to discuss these plans with you during the upcoming International Centers Week in Washington, D.C. In the meantime I am sure Dr. Herdt would welcome your comments or questions.

cc: *CGIAR Secretariat*

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**SYSTEMWIDE LIVESTOCK RESEARCH PROGRAMME
PROPOSED WORK PLAN AND BUDGET (1995-1998)**

SUMMARY

1. The International Livestock Research Institute (ILRI) will have a strong integrated core research programme comprising animal health, animal genetics, integrated production systems, socio-economics and livestock policy, and institution building and technology transfer. In addition, it will lead a systemwide livestock research programme that will involve several CGIAR centres in research initiatives in Asia, Latin America and the Caribbean (LAC), sub-Saharan Africa (SSA), and the West Asia/North Africa (WANA) regions.
2. Following the Mid-term Meeting in New Delhi in 1994, the Implementing Advisory Group (IAG) assigned responsibility to ILCA to guide the process of developing the Systemwide Livestock Research Programme. Robert Herdt wrote all CGIAR Centre Directors inviting them to submit systemwide research proposals, and additional contacts were made. Fourteen of the 17 centres responded. Their responses included well developed proposals, well advanced concepts requiring further consultation with partners on work plans and budgets, and important ideas requiring substantial early consultation to develop research concepts. These proposals are itemized in an annex to this document.
3. In the time available it has not been possible to uniformly develop these proposals into a fully researched systemwide livestock programme. This document therefore presents the work plan and budget in outline form. It also describes the due process by which the fully articulated programme will be developed over the coming months.
4. The mechanism proposed to oversee the development and management of the programme is the Inter Centre Livestock Programme Management Group (LPG). It has been described in some detail in the Strategic Plan for ILRI. It could start to function under the authority of ILRI and the other centres involved as early as October 1, 1994. The intention is that it should complete its first round of project evaluation and recommendations in time to present detailed proposals for the TAC meeting in March 1995.
5. The largest part of the systemwide programme (about 60% in financial terms) concerns new ecoregional activities. These are predominantly in Asia, but also in LAC and WANA. They mainly concern feed resource provision in the context of different mixed farming systems.

6. A global programme is proposed in livestock policy research, particularly in relation to natural resource management. An important element in this deals with the impact of policy on land use patterns in the WANA region.
7. Global programmes are also proposed in animal and forage genetic resources. The latter builds on existing activities, while the former is largely new work.
8. Well developed proposals were submitted for market-oriented smallholder dairy research. These have benefited from consultations over the past year with IITA, ICRISAT, ICRAF, CIRDES, SACCAR, and NARS in sub-Saharan Africa. The programme includes three major new ecoregional proposals for the SADC region, subhumid/humid West Africa and subhumid/semi-arid West Africa, respectively. The research will form a single programme with results comparable across sites.
9. In all programme areas, consultations have taken place with the relevant CG centres. In addition, where appropriate, the projects will be linked to other systemwide programmes, such as the ICRISAT-convened Desert Margins Initiative, the IPGRI-convened Genetic Resources Programme, the IFPRI-convened policy research projects, and the ICRAF-convened East African Highlands Initiative.
10. It is ILRI's intent to establish a Systemwide Livestock Programme Group, comprised of leadership of the IARCs (and NARS), that will be involved with this initiative. This group will help to define the scope of the System Wide Livestock Research Programme (SWLRP), review proposals, and make recommendations on funding. While consultations with some IARCs have occurred, ILRI intends to bring this mechanism more fully into action in the fall of 1994 to develop final recommendations to TAC on this initiative. The Chair of TAC has informally endorsed the concept of bringing forward at this time an abbreviated statement of recognized opportunities which ILRI believes will more than fully subscribe the potential funds available for the initiative. The outline of the proposed programme is shown in the indicative budget shown in Table 1. It can be expected that the proposed distribution of funds will change after the Livestock Programme Group's deliberations.

The intention is, with TAC's concurrence, to bring forward a set of fully developed proposals in time to be considered at the March meeting of TAC. It is our understood that this may be done without jeopardizing the opportunity for funding of the initiative in 1995. The Indicative Budget proposes 1995 funding at the level of \$2.825 million, which is what can be forecast with confidence at this point. It is the intent of ILRI to propose full funding for the initiative in 1995, after receiving the advice of the Systemwide Livestock Planning Group to be developed in the fall of 1994. There is also need for the flexibility to react to full programme definition

from the Systemwide Livestock Programme Group for outyear funding (1996-8). Funds committed to the system wide initiative are intended to leverage further resources both within the IARCs and in collaborating institutions in developing countries.

The body of this document is intended to clearly show that there exist well thought out and highly relevant proposals for research projects under the SWLRP which, after due deliberation by the Planning Group, will provide a basis for making a consensus based set of definitive recommendations.

TABLE 1. SYSTEM-WIDE LIVESTOCK PROGRAM - OUTLINE OF INDICATIVE BUDGET

Activity		1995	1996	1997	1998
New Ecoregional Programs	Asia	300	1000	1000	1000
	LAC	200	500	500	500
	WANA	150	400	400	400
Global Programs	Livestock Policy - Natural Resource Management	500	500	500	500
	Animal Genetic Resources	200	300	350	350
	Forage Genetic Resources	325	250	200	200
Special SSA Smallholder Dairy Program		900	900	900	900
System-wide Livestock Program Group		300	150	150	150
		2825	4000	4000	4000

BACKGROUND

Objectives of the Systemwide Livestock Research Programme

11. The principal objectives of the Systemwide Livestock Research Programme (SWLRP) will be to:
 - Build and strengthen linkages with plant-oriented centres so as to develop integrated research and research-related programmes on livestock feed and production systems; and
 - Leverage CGIAR resources invested in centre programmes, ecoregional initiatives and other systemwide programmes in order to most effectively address development-oriented livestock research priorities.
12. The Programme will engage the strengths of the CGIAR system. Each sub-programme will be developed and carried out by a combination of IARCs, NARS and other players such as advanced research centres and NGOs that is most appropriate to the research being undertaken. The tasks within the sub-programmes will be allocated to those best able to execute them.
13. The productivity and sustainability of livestock production systems depend on the feed supply, the state of natural resources (including plants and animal biodiversity), and the socio-economic environment. Research on these factors will, therefore, be common parts of the systemwide livestock research sub-components. There will be research aimed at improving the productivity of smallholder livestock production systems (CGIAR activity category 3.2) and research intended to improve the socio-economic, political and ecological environments in which livestock production occurs (CGIAR activities 1, 2 and 4).

Funding

14. TAC has set aside funds for four systemwide research programmes, including a sum of US\$ 4 million for an inter-centre livestock research initiative. The proposals outlined below indicate the intentions of ILRI and its partners for the disposition of these resources as summarized in Table 1. More complete funding proposals will be developed from the outline proposals submitted to TAC.
15. Where there has not been sufficient consultation with NARS and other potential partners, funding is requested for the consultations necessary to develop proposals for submission for consideration by the Livestock Programme Group.

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Contribution to Ecoregional and Other Systemwide Programmes

16. ILRI's systemwide sub-programmes will aim at maximizing the impact of CGIAR input into the sub-programmes themselves, but they will also strive to maximize the impact of CGIAR research resources devoted to ecoregional and commodity research. Ensuring this will be an important aspect of the consultations that will be held in Asia, LAC and WANA during 1995. In Asia, the SWLRP will take full cognizance of the eco-regional programmes being convened by ICRISAT for semi-arid lands and IRRI for the humid zones. Both ICRISAT and IRRI have contributed enormously to the development of cropping enterprises within crop-livestock systems in these zones. ILRI will seek to increase the impact of that research by improving livestock production in integrated systems. In LAC, the SWLRP activities will take advantage of CIAT's research on pastures and forage production and at the same time seek to contribute to the research on fragile lands being convened by CIAT. In the WANA region, ICARDA and ILRI scientists have identified a major research opportunity in crop-range-livestock systems involving fat-tail sheep. This is a product of ICARDA's collaboration in systems research with NARS in the region. Returns to ICARDA's barley research will be greatly enhanced if the smallholders can increase the value added to barley straw through improved sheep production.
17. NARS in sub-Saharan Africa have gone through very hard times in recent

years. Their governments have been preoccupied by more immediate priorities and the resources provided for research have sharply declined. In recognition of the extreme seriousness of this situation for regional food security in the medium and long term, African NARS have engaged in major restructuring of agricultural research, internally and across national boundaries. National master plans for agricultural research have been or are being prepared. These master plans are being drawn into regional Frameworks For Action (FFAs) in agricultural research which are being developed by groups of neighbouring countries belonging to the same economic ecoregions. Four such groupings have been formed:

- The countries party to the Agreement for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA);
 - The Conference of Ministers of Agriculture of West and Central Africa;
 - The Comité inter-etats de lutte contre la sècheresse dans le Sahel (CILSS); and,
 - The members of the Southern African Centre for Cooperation in Agricultural Research (SACCAR);
18. The decision-making arrangements vary in each case, but the underlying principles are the same. The FFAs will seek to maximize the cost-effectiveness of agricultural research by identifying regional priorities on which to focus the available resources. The critical mass available for research on different topics will be increased by rationalizing the research agendas of the different NARS and other agricultural research institutions active in a given subregion. Although the technical and policy conditions vary radically between the regions, market-oriented smallholder dairying has been identified as a high priority in each FFA. ILRI and the associated collaborative research support networks - African Feed Resources Network (AFRNET), Cattle Research Network (CARNET) and Small Ruminant Network (SRNET) - will work closely with the NARS to develop systemwide sub-programmes that are consistent with the priorities of the FFAs.
19. The policy research proposed in the SWLRP, and the characterization and conservation of forage and animal genetic resources, will make vital contributions to the CGIAR ecoregional programmes which will be very much involved with issues concerning natural resource management and conservation of biodiversity.
20. Research on deriving draught power from crossbred cows is a component of ILCA's ongoing research on smallholder dairying. The technology is in an advanced state of research and development in Ethiopia and plans are in hand for a regional project on the transfer of this technology to other highland areas of East and Central Africa. This will contribute significantly to the options available for improved resource management within the

CGIAR East African Highlands Initiative convened by ICRAF.

21. **ILRI's expanded programme on forage genetic resources will increase the collection and characterization of indigenous forage plants from semi-arid areas. This will provide vital back-stopping for the Desert Margins Initiative being convened by ICRISAT and involving ICRAF, ILRI and UNEP, which has among its objectives research on the impact of livestock production and cropping on vegetation composition, resilience, and soil erosion in the arid zone and research on optimal stocking rates and livestock mobility patterns to control land degradation and vegetation biodiversity losses in the cropped zone.**

Systemwide Livestock Programme Group

22. **The implementation of a unified systemwide research programme will require a clear and agreed delineation of responsibilities and a corresponding division of credit for inputs and outputs. But this must be achieved while preserving the primacy of Centres' roles. It is proposed to manage the unified programme through an Inter-Centre Management Group on Livestock Research or for short the Livestock Programme Group (LPG). The Group will accept responsibility for CGIAR livestock research that is not in ILRI's sole mandate, wherever this occurs. Further, it will provide TAC with opportunities to review the implementation of the unified systemwide strategy.**
23. **The main roles of the Group will be to:**
 - **Bring global coherence to and efficiency in the application of CGIAR livestock research resources;**
 - **Approve priorities for new strategic research on livestock themes to be pursued by the CGIAR;**
 - **Agree which CGIAR centres, national centers or advanced institutes are best placed to lead and collaborate in priority research thrusts, and to allocate responsibility for convening consortia to support such lead institutions; and**
 - **Approve the location and allocation of resources available to new livestock research capacity**
24. **The Livestock Programme Group will normally be chaired by ILRI's Deputy Director General for Research. Organizational procedures will be developed by early 1995. These will address such issues as, for instance: 1) should representatives be drawn only from centres currently active in the SWLRP or from all centres which may at some time participate; 2) what level of representation is appropriate for non-CGIAR partners in the SWLRP (e.g. CIRDES, SACCAR, CATIE, CARDI, ICIPE, NARS), etc.**

SUB-PROGRAMMES COMPRISING THE SYSTEMWIDE LIVESTOCK RESEARCH PROGRAMME

Consultation process

25. ILRI will not start with the same advantages in Asia, LAC and WANA from the same advanced level of institutional consultation and collaboration it enjoys in sub-Saharan Africa. Thus, extensive consultation with NARS and regional IARCs will be needed to identify the highest priorities and develop research proposals.
26. Asia: It is expected that consultations will focus around the prospects for NARS/IARC consortia for research on market-oriented smallholder dairying. This will concern both the semi-arid and the humid zones. In the semi-arid zone the research will probably aim at improving the contribution of livestock to sustainable crop-livestock systems through increased milk production. ILRI will base its contribution in this zone on experience gained in increasing milk and meat production and improving nutrient cycling in the semi-arid areas of Africa. In the humid zones, the consultations will, at least initially, focus on the potential for developing fully integrated crop-fish-livestock systems that take advantage of the diverse functions of livestock, especially in providing draught power and converting low-quality crop residues into milk. ILCA has considerable experience in research in deriving draught power from lactating cows that has aroused considerable interest in Asia.
27. Latin America and the Caribbean: The consultations will most probably centre around the potential for ILRI to improve the contribution of livestock to the development of sustainable production systems in the fragile lands of this region. ILRI will provide economic and social analysis of smallholder circumstances at representative locations; validated simulations of alternative production strategies for use in preparing extension programmes for smallholder crop-livestock producers in fragile lands; and proven alternative technical options for meeting feed quantity and quality demands of smallholder livestock enterprises, without degrading fragile lands.
28. WANA: Based on ICARDA's extensive research on the farming systems in the WANA region, and ILCA's own connections with NARS in the region, a proposal has been advanced for research on improved utilisation of small ruminant genetic resources for sustainable production in livestock-crop-rangeland production systems in the region. The ultimate objectives of the research will be to characterize fat-tail sheep and develop innovations for sustainable increases in the productivity of smallholder production systems.

Market-oriented Smallholder Dairying

29. Stimulated by recent structural adjustment programmes that have liberalized agricultural marketing, smallholder dairying is possibly the fastest growing subsector of agriculture in Africa. However, the scientific base to support this policy-stimulated expansion is inadequate.
30. The proposed programme for market-oriented smallholder dairying in sub-Saharan Africa will be organized to fit with the priorities of the regional frameworks for action (FFAs) in agricultural research. New initiatives are proposed that will be underwritten by strategic research that is already funded and being conducted by ILCA at Debre Zeit, the Institute of Agricultural Research (IAR) at Holetta, Ethiopia, at IITA, Ibadan, and at the National Animal Production Research Institute at Zaria, Nigeria. Other relevant research is being conducted with the Kenya Agricultural Research Institute (KARI) and other members of ASARECA in East Africa; by KARI, ICRAF and the British Natural Resources Institute (NRI) at Embu, Kenya; and by CARNET members in West Africa. One new systemwide research initiative is proposed for southern Africa, and two for West Africa. These new programmes will require new funds. The existing research and the new proposals will form a single coordinated programme by following an agreed conceptual framework for research in market-oriented smallholder dairying.
31. Southern Africa: The NARS members of SACCAR and ILCA have developed a proposal for "Research to improve market-oriented smallholder dairying in Southern Africa Development Community (SADC) countries". Its principal objective will be to increase supplies of dairy products, reduce dairy imports and improve the welfare of smallholder farmers through higher incomes. The research will focus on animal health, animal genetics, livestock nutrition, smallholder dairy production systems, natural resource management and human capacity building for sustained research in dairying. The research consortium will include SACCAR member NARS, IITA, ICRISAT, ICRAF, and perhaps CIMMYT, as well as ILRI.
32. West Africa: In the wetter borders of the subhumid zone of West Africa, milk production is a relatively recent development. Formerly trypanosomiasis and other diseases associated with humid areas discouraged milk production in the zone, although adapted indigenous breeds such as the Muturu were present. In many areas trypanosomiasis is no longer as serious a constraint to the use of more susceptible breeds. This is leading to accelerated immigration by cattle keepers from drier parts of the subhumid zone and adoption of cattle keeping by resident farmers. However, systems of production are not directly transferable from other regions, and research on this is required. Animal health management is a particular difficulty because the prevailing humidity and warmth favour disease organisms to

persist and multiply. High rainfall, on fragile easily leached soils, also creates problems in feed quality and natural resource management. Since dairying is a new industry in this region, research is required to develop policies that will promote local production as opposed to facilitating importation of dairy products. Apart from NARS, it is anticipated that ILRI, IITA, ICRAF, IFPRI and CIRDES will collaborate with CARNET members in this research.

33. **West Africa:** Low-input milk production is a traditional practice in the interface between the subhumid zone and the semi-arid zone, but producers engaging in commercially oriented dairying face many constraints. Principal amongst these is the poor feed quality of indigenous grasses which is due to the combination of good growing conditions and poor-quality soils. The grasses indigenous to the zone provide adequate feed quality for only about three months of the year before they start to head. This requires research on matching feed requirements to feed availability and to develop recommendations for breeding and rearing strategies for dairy cattle of different genotypes. Multi-disciplinary research will be necessary to develop appropriate crop, fodder tree and forage production packages and to analyze alternative policies for the improvement of services and markets for market-oriented smallholder dairy producers in this region. The research is likely to involve CARNET members, ILRI, IITA, ICRISAT, ICRAF and CIRDES.

Livestock and Resource Management Policy

34. Inappropriate policies have been identified as causes of slow uptake of available innovations and of the pursuit of unsustainable resource management practices, especially by inhabitants of fragile lands. The issues and priorities for research on livestock and resource management policy were discussed at a research planning workshop held at ILCA in 1992. One of the conclusions from this workshop was that there would be mutual advantages in joint policy research by IFPRI and ILRI and this is reflected in the systemwide proposals that the two institutions have developed jointly. Amongst the most advanced are:
 35. Policy research for sustainable intensification of land-use systems in fragile areas of LAC, Asia, WANA and sub-Saharan Africa: Demographic pressures are forcing more people to farm fragile areas. The deleterious effect of this is compounded by inappropriate policies. The research will have two principal goals: examine the intensification process in various crop-livestock situations in fragile areas and draw implications for the evolution of property rights.
 36. Policy research in fragile dryland areas: In the fragile dryland environments, pastoralists have kept the balance between the demands of the livestock for

feed and the vegetation by traditionally moving their herds long distances to alternative sources of feed and by converting them into cash to purchase food and more animals when there is more feed available. There are increasing restrictions on movements of herds due, for example, to farms being opened up on the traditional stock routes. This makes it increasingly important for the livestock owners to be able to obtain reasonable prices for their animals and livestock products. If they cannot do this, they may be forced to engage in cultivation in order to subsist. These and other survival measures can be harmful to the environment. A good understanding of the demand for livestock products is required for the formulation of sound marketing policies. Research is proposed that will 1) assess the structure and characteristics of household demand for animal products; and 2) quantify the influence of economic, social, demographic and environmental factors on the structure of demand.

37. **Research on food policy and agricultural technology to improve diet quality and nutrition:** This will involve a case study of the adoption of crossbred cows and will be linked to ILRI research on Market-oriented Smallholder Dairying. The success of interventions is usually measured in monetary terms (Internal Rates of Return etc.) but this measure is not adequate if, as in the case of crossbred cow technology, it is intended that the adoption of the technology should lead to improved human nutrition, as well as increased income. To ensure the efficacy of policies meant to promote dietary modification through the introduction of ILCA crossbred cow technologies, this study will investigate the effects of technology introduction on rural household members. Before- and after-analyses of the effects of the technology package on the nutritional status and health of the study population will use data from detailed household surveys.
38. **Policy analysis to support appropriate reform of markets for animal health inputs in sub-Saharan Africa:** The provision of animal health inputs to smallholder and pastoralists has deteriorated in most African countries over recent years, in parallel with declining resources available to governments. A new approach with many alternative degrees of privatization has been propounded to improve the situation. Policy environments enabling privatization are not typically in place at this time. The main objective of this research will thus be to understand the conditions for the successful reform of markets for animal health inputs.
39. **Better understanding of the impact of macroeconomic and structural adjustment programmes on agricultural and livestock sector performance:** Arguably the most significant economic phenomenon of recent years in Africa has been the introduction of structural adjustment programmes. However, relatively little is known about these macroeconomic reforms, regional integration and the livestock sector. A detailed analysis will be

conducted which will permit the identification of those policies that promote agricultural growth and rural welfare and those which do not. The study will offer guidelines on the mix and order in which reform programmes need to be undertaken. Results of the regional studies will permit policy makers to make informed decisions on trade policies.

Forage Genetic Resources

40. The systemwide feed resources programme will have three components: forage genetic resources, feed evaluation, and building NARS capacity in forage genetics and feed evaluation. ILRI will be the focal point for coordination and information sharing with other Centres and will act as adviser on research linked to feed utilisation by livestock.
41. An International Network for Forage Genetic Resources will provide a global perspective to the CGIAR forage genetic resources component. It will concentrate on adding new germplasm and on efficient management of existing germplasm. The network will be linked to the systemwide plant genetics programme. It will aim at ensuring safe conservation of species with potential use for forage or soil improvement and to develop a mechanism to ensure free access to all users, in accordance with the spirit of the Convention on Biological Diversity.
42. The feed evaluation component will include research on forages, fodder trees, crop residues and natural pasture/rangeland. Feed utilization and farming systems/socioeconomics research will be an integral part of the feed evaluation process. This systemwide component will be the focal point for livestock feeds development, coordinating related activities within other ecoregional programmes.

Animal Genetic Resources

43. Up to now plant genetic resources have received most attention, and most public concern for the conservation of animal biodiversity has been directed to wild animal populations. However, while there has not been much action, there is increasing awareness of the value of genetic diversity in domesticated livestock and aquatic animal populations. It is anticipated that they will receive more attention in the future. As this happens, there will be need for good communications between different actors and the adoption of common approaches and methodologies.
44. An Animal Genetic Resources Coordinating Unit will be established jointly by ILRI, IPGRI and ICLARM. It will:
 - Serve as the CGIAR contact point for non-CGIAR institutions concerned with animal genetic resources (e.g. FAO, other IARCs, international NGOs, etc.);

- **Provide a base of expertise on animal genetic resources conservation within the system wide genetic resources program;**
- **Ensure that scientists and management at ICLARM and ILRI are kept well informed and involved in emerging issues about genetic resources within the CGIAR; and**
- **Ensure that IPGRI has full access to current issues and developments in world animal genetic resources, and that animal genetic resource issues feature appropriately in the IPGRI public awareness activities.**

ANNEX 1

Proposals and Suggestions Submitted for Consideration

System Wide Livestock Research Programme

International Livestock Research Institute

August 11, 1994

SOURCE	Proposal Title	Annual Funding USD x 1000
CIAT	Feed resources for smallholders in Southeast Asia	960
CIAT	International network on forage genetic resources	200
CIAT	Use and management of forages as feed resources for soil enhancement in frontier areas of the forage margin	710
CIAT	Development of seed supply systems	250
CIAT	Enhancement and use of forage diversity in sub-humid areas of West Africa	230
CIAT	Feed resources information network in Latin America	200
CIP	Livestock, feed and natural resource management research in the Andes as part of the CONDESAN research consortium	to be developed
ICARDA	Improved utilisation of small ruminant genetic resources for sustainable production in livestock-crop-range production systems in WANA	to be developed

ILCA-SACCAR	Improving market oriented smallholder dairying in Southern Africa Development Community (SADC) countries	1,600
ILCA-IITA	Smallholder crop-dairy systems in moist savannahs of sub-humid West and Central Africa	1,250
ILCA-ICRISAT	Natural resource management and increased productivity in crop-livestock systems in West Africa	700
IFPRI	Macroeconomic reforms, regional integration and the livestock sector in West Africa	433
IFPRI	Policy research for the sustainable development of fragile land areas	600
IFPRI	Animal health input market reforms	310
IMMI	Livestock and water management in SSA, WANA and Asia	to be developed
IPGRI, ICLARM	Animal genetic resources - conservation research and coordinating unit	to be developed
WARDA	Animal traction and livestock feed resources in the inland valleys of West Africa	to be developed
All	Total Funding, not including budgets to be developed	7,443