

**REPORT ON THE MID-TERM REVIEW OF THE DAIRY CATTLE
NUTRITION PROJECT (DNCP)**

BY

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19 - 23 AUGUST 1996

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DAIRY CATTLE NUTRITION PROJECT (DCNP) SANTA CRUZ, BOLIVIA

REPORT OF THE MID TERM REVIEW AUGUST 19 TO 23 1996

BACKGROUND

The Dairy Cattle Nutrition Project implemented by the Milk Producers Association (ADEPLE) in Santa Cruz, started in July 1994 with the arrival of a TCO Animal Nutritionist, Dr Elizabeth Alderson. The project was expected to run for two years.

2. The wider aim of the project was to improve the incomes of small and medium scale farmers in Santa Cruz Department through improved dairy livestock productivity. This would be achieved by developing simple guidelines on improved animal feeding practices and establishing capacity within ADEPLE for dissemination to member farmers. Of particular concern was the problem of providing sufficient feed of good quality during the drying off season (April to September) in order to prevent the drying off of lactating animals and the consequent drop in milk production.

3. Project outputs were to be an improved knowledge of the chemical composition of local feeds and pastures, improved and evaluated feed rations and feed practices to suit local conditions, extension leaflets on feeding and grazing management and local staff trained in improved principles and animal nutrition.

4. Collaborative links were established with CIAT in pasture research and development and with NRI to provide technical advice (Dr M Gill) and laboratory analyses.

5. Shortly before the project was due to terminate, ADEPLE, in May 1996 became a federation (FEDEPLE) with a far wider geographical remit. In consequence of this it was decided to extend the project for a further year (until September 29 1997) to assist with the integration of improved nutritional practices into the expanded area.

REVIEW PROCESS

6. The review team comprised G A Gilman, NR Programme Coordinator, La Paz, Diane Brooks, LACAD Administrator, and Dr M Gill, NRI Animal Nutrition Consultant. The Mission was asked to review progress against project objectives, to consider the impact of the project and its beneficiaries, to review the training and consultancies provided, and to agree future activities with targets for the remaining year of the project. Detailed terms of reference are given at Annex 1.

7. The Review Team, in company with the TCO, held discussion with the FEDEPLE President and Vice President, members of the Board of Directors, and the General Manager. CIAT was visited to discuss the collaborative links with the livestock section and to review usage of the CD-ROM BEAST installed in the Technology Transfer and Training Department by the project. Visits were made to examine improved feeding practices and to farmers participating in forage trials in Nueva Esperanza, Nuevo Horizonte and Yapacani to the south, northeast and northwest of Santa Cruz respectively. In Yapacani a proposal for installing electric pumps to increase water availability for domestic and livestock production purposes was discussed together with how the technical bulletins produced by the project have been used and how they have benefitted local farmers. The association of cattle and milk producers in Portachuelo was visited, discussions held with members, and their feed mill examined.

8. An itinerary with details of persons met is included at Annex 2. Before completion of the mission an aide memoire was prepared and agreed with FEDEPLE (See Annex 3). A revised budget for the remainder of the project and a revised project framework in the new format were also prepared (see Annexes 4 and 5 respectively).

ASSESSMENT OF TECHNICAL QUALITY OF THE WAY IN WHICH THE PROJECT OBJECTIVES HAVE BEEN ACHIEVED

Objective 1

Obtain data on chemical composition of local feeds.

Objectively Verifiable Indicator

Tables of feed composition available to farmers within 9 months of start of project.

Progress

Comprehensive proximate analysis has been carried out on 250 samples of local feeds. The data took longer than predicted in the project framework to produce, but are now much in demand. They have been entered into a computer programme and are being used as the basis for ration formulation.

The composition of 24 by-products and 4 compound feeds was measured and showed relatively little variability between samples, but, the composition was different from that of similar feeds reported on FAO's Tropical Feeds disk. It is recommended that Ms Alderson sends the data collected to FAO (Rene Sansoucy) for inclusion in any update of their disk.

Action: Liz Alderson

Pasture samples taken during both the wet and the dry season, from each of the three regions: zona integrada, zona sur, zona norte, were analysed separately, to give some indication of the variability. For example, the crude protein content of the samples of *Brachiaria decumbens* collected in the dry season varied from 5% to 13% between zona sur and zona norte, respectively. Considerable variability will also exist both between and within fields in each area and thus the analyses of the pasture data should be used with caution.

Constraints

Number of analyses originally envisaged completed.

Recommendations

The range of values should be brought to the attention of both Fernando Cadario and Maria Cruz Limpas and they should be advised on how to adjust the composition based on age of pasture and stage of growth, when preparing ration formulation.

Action: Liz Alderson

Objective 2

Formulate improved feed rations for the dairy industry.

Objectively Verifiable Indicator

Ration formulations provided to ADEPLE (now FEDEPLE) by end of year 1. Requests from farmers.

Progress

Ms Alderson currently provides a service to farmers in the preparation of ration formulations specific to the feeds which they have available. The rations have proved successful in increasing milk yield and in decreasing the incidence of milk acidity. They have demonstrated very successfully to farmers the benefits of seeking advice on ration formulation, but now this point has been achieved, this activity is probably not a cost-effective use of Ms Alderson's time.

Constraints

The supply of ration ingredients is very unstable both in price and availability.

Recommendations

The team recommend that this activity is handed over to Fernando Cadario and that FEDEPLE consider charging for the service.

Objective 3

Develop recommendations on improved feeding practices appropriate to local conditions.

Objectively Verifiable Indicator

Recommendations on improved pasture management and forage utilisation outlined within 9 months of start of project.

Progress

The main feeds available are supplements year round, pastures in the rainy season, and cultivated and conserved forages in the dry season. Recommendations on the supplements have been discussed above under feed formulation; recommendations on pasture management arose from a consultancy on pasture management and through collaboration with both CIATs (Santa Cruz and Colombia); while recommendations on dry season feeding have been developed by Ms Alderson herself.

Pasture management: the combined consultancy (Dr Paterson) and visit by Dr Lascano from CIAT, Colombia were very successful and led to an increased awareness of the need to be proactive in managing pastures and subsequently to the participation of the FEDEPLE counterpart in a training course at CIAT, Colombia. Shallow ploughing of old pastures has been tried on a limited number of farms and shown to increase significantly the biomass availability, but requires investment. Further dissemination of the recommended approaches may be best supported through the research projects being conducted by CIAT.

Dry season feeding: last year was a particularly dry year, which greatly increased the interest in silage. However, efficient silage making on a sufficiently large scale requires the importation of equipment, which requires investment. Recommendations have been developed and disseminated in the form of information leaflets and pamphlets. Selection of the best solution for each producer will depend on economics.

Constraints

Weather very unpredictable and feed supplies variable.

Recommendations

Now that a number of improved feeding approaches have been described, there is a need to provide farmers with advice on how to select the best strategy for their situation. Activities 1 and 5 for the final year were designed to meet this need.

Objective 4

Work with small-scale farmers to evaluate these recommendations.

Objectively Verifiable Indicator

Specific recommendations outlined for 10 farms and recording started by end of year 1.

Progress

The team visited farmers participating in the on-farm evaluation of recommendations, at Nuevo Horizonte and Yapacani.

At Nuevo Horizonte, the success of the project is evident, through the responses to the feeding of sugar-cane bagasse with yeast and molasses. Use of these feeds has maintained some milk yield during the dry season at a time when many cows have usually to be dried off. This has led to a very high demand for the feed components, which has out-stripped supply. However, at present the components are being supplied free to farmers participating in the trial and the economics of the system need to be quantified, taking into account both transport costs and the potential benefits throughout the year from the recently introduced constancy bonus.

At Yapacani, this bilateral-funded project has been collaborating closely with a research project funded through the RNRRS Livestock Production programme, led by Peter Thorne of NRI. The research project is developing a simple feed rationing system, which will be tested with data generated by the farmers participating in the nutrition project. The farmers are enthusiastic in taking the measurements required for the research project and proudly showed us the data (milk curves) being generated. It is hoped that the data generated will facilitate dissemination of the results.

Constraints

Continuity of participation can be a problem. Ms Alderson mentioned that there can be a hold-up in the inputting of the farm data to the computer.

Recommendations

The team suggested that a local student might be found to input the data and thus, through association with the project also increase the capacity of Bolivians to maintain the impetus on nutrition after the departure of the TCO.

Objective 5

Prepare extension leaflets on feeding and grazing management for small-scale farmers.

Objectively Verifiable Indicator

Adoption by ADEPLE's (FEDEPLE's) extension services within 18 months of start of project.

Progress

The extension pamphlets have been very well received by FEDEPLE and the producers and are much in demand. The pamphlets published so far consider: Nutrition principles, Diet formulation, Pasture management, Calf rearing, Silage making, Minerals, Nutritive Value of pastures and Nutritive Value of protein and energy supplements.

Constraints

Post-project cash flow may impede leaflet reprinting.

Recommendations

Ms Alderson was planning a pamphlet on legumes and this was supported. The team recommended a further pamphlet on the selection of feeding strategies according to the feed resources available locally. The pamphlets published so far had been oriented primarily to the milk catchment area around Santa Cruz, but are expected to be distributed more widely as FEDEPLE expands. Thus, it would be useful to produce a pamphlet to advise farmers on how to apply the recommendations in the earlier pamphlets to their own situation. It is recommended that a first draft of the 'strategy' pamphlet is available prior to the visit of the consultant on agri-business, and that he/she should be asked to consider whether recommendations on economic considerations should be included in that pamphlet or whether it would be appropriate to design a further pamphlet setting out the principles of business management.

Consideration was given to the potential for charging for the pamphlets in the future, to help recover costs. However, it became apparent through discussions with farmers that photocopies would be produced to avoid payment. Charging for the pamphlets does not therefore seem worthwhile.

Objective 6

Train local staff in improved principles of animal nutrition.

Objectively Verifiable Indicator

Staff can assume full responsibility for programme.

Progress

Formal training of one counterpart (Dr Cadario) has been completed and of another is in progress. Whether this training is sufficient for these staff to maintain the momentum on the nutrition programme after the withdrawal of ODA support remains to be seen. On return from Bolivia, MG visited the second counterpart (Maria-Cruz Limpias) who had recently arrived in Reading for training and introduced her to the tutors on her course (due to start in October). It had been suggested that Maria Cruz should conduct studies on acidity as her dissertation topic, but this could prove difficult to do in Reading. However, a study on some aspect of nutrition and milk processing could prove useful. The two counterparts appear to have complementary interests: Fernando Cadario on nutrition and the animal, Maria-Cruz Limpias nutrition and milk quality.

Considerable efforts have also been made by the TCO to ensure a wider appreciation of nutrition principles in Santa Cruz. BEAST-CD was presented to the CIAT library and it has been well used by students undertaking their masters course at the University. The TCO has also had a technical input into the course and given encouragement to the course director.

While this is not a formal training input, it should contribute to the sustainability of the nutrition programme through increasing general awareness of the importance of the nutrition of dairy cows. Ms Alderson has also given 21 talks to farmers, extension workers and students on Basic Principles of Nutrition on Silage making, with an average audience of 50.

Constraints

FEDEPLE able to retain the services of the counterparts. This problem is well appreciated by the Directors who are committed to supporting the counterparts as much as possible. If possible, it is recommended that there is some degree of overlap between the return of Maria-Cruz from her training in UK and the final departure of Ms Alderson. It is felt that this would facilitate the future working relationships and hence the sustainability of the impact of the project.

GENERAL PUBLICITY FOR THE PROJECT

The project has already achieved wide dissemination of its existence and outputs, with Ms Alderson travelling widely to give talks and appear on television. A publicity video has been prepared, funded through the project, and a first viewing was seen by the team. It is recommended that an information sheet is prepared, which sets out the services offered by the project (video, ration formulation, leaflets etc.) and also to take the opportunity of announcing the return of Fernando Cadario and his role in the project.

RECOMMENDED ACTIVITIES FOR THE FINAL YEAR

Having reviewed the project, the team presented a number of proposed activities for the final year to Ms Alderson and the Directors of FEDEPLE. These were discussed and the details elaborated as described below.

1. *Consultancy on agribusiness management - 3 weeks in November 1996.*

All those consulted were in agreement that the nutrition project had been very successful. The main problem confronting the Review Mission was how to ensure sustainability after the withdrawal of ODA inputs. This question was also of considerable concern to the directors of FEDEPLE. Dairy production in Santa Cruz has developed over the last 4 years from a situation in which many dairy cows owners were earning their income from other jobs, to a situation where many can now live on the income generated from the milk produced. In other words, milk production has become more commercial. However, to advance further in terms of increasing feed availability in the dry season requires forage harvesting equipment and/or feed milling equipment, which requires investment. Capital is in short supply and thus credit is the most likely way forward, but carries a risk. After discussions with FEDEPLE directors, the team recommended a consultancy by an expert in agribusiness management, to work with the General Manager of FEDEPLE and Fernando Cadario to consider ways in which FEDEPLE could generate income to repay credit for purchase of feed equipment, to work at the farm level to provide some 'rules of thumb' by which farmers might assess when supplementation would be worthwhile and to make recommendations on how FEDEPLE could generate income to pay for the nutrition programme. LACAD will identify a suitable consultant to visit Bolivia for 3 weeks during November, spending 2 days in La Paz en route

to Santa Cruz. Draft ToRs are given in Annex 1.

Action: Diane Brooks

2. *Putting FEDEPLE in contact with the Commercial Attaché at the British Embassy to explore the possibility of obtaining credit to buy equipment to prepare livestock feeds, including forage conservation.* The British Embassy in La Paz used to support a credit system for small businesses in Santa Cruz, but this is thought to have ceased. Mr Gilman volunteered to discuss possibilities for helping with the importation of British equipment with the commercial attaché in La Paz.

Action: Geoff Gilman

3. *Development of a strategy to expand the nutrition programme to the new milk catchment areas of FEDEPLE.* The project extension was awarded on the basis of FEDEPLE's expansion into new areas and thus a significant proportion of the time of the TCO should be devoted to extending the service provided to these areas. The 2 main areas for next year are: San Javier and Samaipata. It is recommended that a strategy is developed as soon as possible on how to promote the nutrition programme in these regions, to complement FEDEPLE's other plans. Progress towards the development of a strategy should be reported in the next quarterly report.

Action: Liz Alderson and Fernando Cadario

4. *Continuation of the provision of nutritional advice to producers in the central catchment area and organising the distribution of pamphlets.* It is recommended that this activity is largely taken over by Fernando Cadario, with inputs from Liz Alderson when required.

Action: Fernando Cadario with support from
Liz Alderson

5. *Preparing 2 pamphlets: one of the use of legumes, the other on the selection of feeding strategies according to the availability of feed resources locally.* Discussed in detail above.

Action: Liz Alderson with the help of
Fernando Cadario

6. *Revision of quarterly reports.* Mr Gilman currently receives the quarterly reports of the Dairy Cattle Nutrition project as co-ordinator of Natural Resources projects in Bolivia. In future, he will make contact with both Ms Alderson and Dr Cadario on his first visit subsequent to receiving the reports, to discuss the work programme.

Action: Geoff Gilman

7. *Increasing the contact with other ODA projects.* There are other projects funded by ODA in the region, both bilateral and research projects. The most relevant are: the Amboro Park project and 2 research projects funded through ODA's Livestock Production Research

Programme. Potential links with the Amboro project could be through evaluation of the possibility of conserving excess forage available within the park, to sell to cattle farmers outside the park, the aim being to decrease the entry of cattle into the park in search of fodder during the dry season.

Action: Liz Alderson and Geoff Gilman

8. *Visit from Maggie Gill in August 1997 to review the impact of the project.* The aim of the final visit will be to review progress in the final year, the impact of the project as a whole and advise on any additional measures necessary to ensure sustainability of the nutrition programme of FEDEPLE. Draft Terms of Reference are given in Annex 2.

Action: Maggie Gill

9. *Compilation of data on the impact of the project.* The impact of this particular project is likely to be quantifiable through the increase in milk production. An attempt was made to collect data during this visit, but the most accurate data-set for milk production (intake by the Milk Plant - PIL) is confounded by the problems experienced by PIL during last year and the drought, which would have significantly affected the production by large-scale farmers. The combination of these two effects would have been expected to have had a greater negative effect on the results than the increased milk production by the small-scale farmers which was widely reported and consistently attributed to the Dairy Cattle Nutrition project. Future data collection to estimate the impact of the project should concentrate on identifying the milk production of the small-scale farmers.

Action: Liz Alderson and FEDEPLE

10. *Inclusion in the budget of a small sum of money for the chemical analysis of more feed samples, including aflatoxins.* A number of by-products are available which have not yet been analysed, some of which may be susceptible to mycotoxin contamination. Samples of one of these (Brazil nut paste) have been sent to NRI for aflatoxin analysis and there may be a need for further analyses. It is recommended that a figure of £5,000 is included in the budget for the last year to cover incidental analyses.

Action: Diane Brooks

11. *PhD project on acid milk.* The problem of acid milk appeared to be much less of a problem now, than had been reported after previous visits. It is thought that the more balanced rations now being used by farmers could have contributed to this improvement. The team were NOT convinced that the proposed PhD project on acid milk should continue, since the causes are likely to be complex and improved overall nutrition management may be the best solution. (This recommendation was not discussed with the FEDEPLE directors).

IMPACT AND BENEFICIARIES

While it is usually hard to attribute the impact (on productivity) of natural resources programmes to any specific project, a wide cross-section of people met during this review did attribute the apparent increase in milk production during the dry season to this project. The data on milk intake by PIL do not at present support these views but these data are

confounded by rainfall effects on milk production (1995 was exceptionally dry) and the fact that many producers opted out of PIL during 1995 due to problems at the plant. However, the team were convinced that milk yield in the dry season had increased, particularly that from small-scale producers.

Direct beneficiaries of the project are the producers whose milk yield has already increased (all of those visited) and FEDEPLE who have had the confidence to expand their area of control, partly as a result of the increased milk yields, which results in increased income for FEDEPLE. Indirect beneficiaries are the milk consumers of Santa Cruz, who will have a more constant supply of milk, with better quality control.

Acknowledgements

The team are very grateful to the Directors, members of FEDEPLE and local farmers for taking the time to discuss the progress of the project with the team and to Liz Alderson for organising the programme, local arrangements and providing hospitality.

DIARY CATTLE NUTRITION PROJECT (DCNP) - MID-TERM REVIEW

19-23 AUGUST 96

Santa Cruz

The ODA Review Mission will consist of the NR Field Manager for Bolivia G Gilman, LACAD Administrator (D Brooks) and a Consultant Animal Nutritionist (M Gill). The mission will include 2 days of field trips, 2 days of discussions and one day for report preparation.

The terms of reference of the Mission will be to review the progress achieved to date against the objectives and outputs anticipated in the project document as revised by the Senior Animal Health Adviser in October 95. In particular, the mission will;

- (i) evaluate extent project objectives have been met as defined in project framework; identify any constraints to achieving project objectives and make recommendations as appropriate;
- (ii) consider impact and main beneficiaries of the project;
- (iii) review the DCNP training programme in terms of UK based, third country and on the job training;
- (iv) review the impact of past consultancies and proposed programme of consultancy visits identifying subjects, candidates and timing;
- (v) advise on any other specific changes to the existing programme and modify the project framework accordingly, detailing and timing activities remaining under the project;
- (vi) review the project's expenditure to date, against budget, and the budget and work programme for the remainder of the project;
- (vii) agree quantified and monitorable targets for outputs and immediate objectives with the project authorities for the remainder of the project period.

The Mission will hold discussions in Santa Cruz with the Directors of FEDEPLE and will undertake field visits to cattle farms and meet participating farmers.

The Mission will produce an aide-memoire outlining the major findings and recommendations for the visit. The aide-memoire will be discussed at a round-up meeting with FEDEPLE Directors. A report will be drafted following this meeting before the mission leaves Santa Cruz.

MID TERM REVIEWITINERARY AND PERSONS MET

<u>DATE</u>	<u>TIME</u>	
Sun 18 August	06.15	Arrival Dr. M Gill - Viru Viru
	14.45	Arrival Diane Brooks TO HOTEL ASTURIAS
Mon 19 August	AM 10:30	FEDEPLE Courtesy meeting with President, Mr. Ruben Costas
	PM	CIAT - livestock section Dr Francisco Rojas (Head) Dr Carlos Ruiz DTT - Sr Guillermo Beltman - (BEAST CD ROM) Dr Mario Herrero (visitor from Edinburgh)
Tues 20 August	AM	NUEVA ESPERANZA - Mark and Maria Pelaez Diary farmers.
	PM	N. HORIZONTE - 6 producers Carlos Lopez (veterinary student) Jose Luis Parada (Centro de Acopio)
Wed 21 August	AM	YAPACANI - Sr Domingo Correa Sr Pedro Huarachi
	PM	PORTACHUELO - Dairy Producers Association President, Sr Carlos Hugo Dorado Ex President, Sr Humberto Parada and members of the Association Centro de Acopio - Molino Produccion de alimentos
Thurs 22 August	AM 10:30	Meeting with FEDEPLE President
	PM 05:00	Prep. aide memoire Round up meeting with FEDEPLE directors President, Sr Ruben Costas Vice President, Sr Javier Suarez Treasurer, Sr Luis Alberto Parada Technical Director, Sr Julio Roda General Manager, Sr Javier Velarde
	EVE 08:30	Dinner - at E. Alderson's residence
Friday 23 August	16:00	Report writing Round up meeting with Elizabeth Alderson
Sat 24 August	09:25	Departure Dr M Gill / D Brooks
	12:15	Departure G Gilman

AIDE MEMOIRE

**REVIEW MISSION OF THE DAIRY CATTLE NUTRITION PROJECT
Santa Cruz, Bolivia**

18-23 August 1996

(Translation from the Spanish version left with FEDEPLE)

The project started in 1994, with the main inputs being a TCO animal nutritionist. It was originally a 2 year project. The Review Team arrived in Santa Cruz on 18 August and reviewed the programme for the visit. On the second day, they visited the offices of FEDEPLE and talked with the Head of the Animal Production Department at CIAT about other projects funded by ODA. The following two days were spent visiting milk producers and associations, who are participating in the project. The fourth day was spent in discussions with some of the Directors and Executives of FEDEPLE.

The Review Team assessed the project as having achieved its objectives of increasing milk production during the dry season in the catchment area of Santa Cruz. The Team were impressed by the impact of the project and by the interest and commitment of FEDEPLE to the importance of animal nutrition. During the 4 years since the original idea of the project had been proposed, the milk industry of Santa Cruz has developed significantly and is now more professional than previously, which demonstrates the potential for further improvement. FEDEPLE has demonstrated its interest in business growth through its acquisition of the Milk Plant (PIL) in December 1995 and through the proposed expansion of its geographical remit. To help FEDEPLE at this critical time in its development, the project was extended until September 1997. One of the objectives of this mission was to develop recommendations for the activities to be undertaken in the final 12 months.

Recommended activities:

1. Consultancy on agribusiness management - 3 weeks in November 1996 (**Action:** Diane Brooks).
2. Initiation of contact between the Commercial Attaché at the British Embassy and FEDEPLE, regarding ways of obtaining credit for the purchase of forage-harvesting and/or feed milling equipment (**Action:** Geoff Gilman).
3. The development of a strategy to expand the nutrition programme into the additional milk catchment areas (**Action:** Liz Alderson and Fernando Cadario).
4. Continuation of the provision of nutritional advice to the producers in the central catchment area and organising the distribution of leaflets (**Action:** Fernando Cadario with the help of Liz Alderson).
5. Preparation of at least 2 more leaflets: one on the use of legumes and the other on the selection of feeding strategies according to the local availability of resources (**Action:** Liz

Alderson with the help of Fernando Cadario).

6. Review of quarterly reports (**Action:** Geoff Gilman).

7. Increase in contact between this project and others in the region funded by ODA (**Action:** Liz Alderson and Geoff Gilman).

8. Visit by Maggie Gill in August 1997 to review the impact of the whole project (**Action:** Maggie Gill).

9. Compilation of data on the impact of the project (**Action:** Liz Alderson and FEDEPLE).

10. Including an allowance in the budget for additional chemical analysis of feeds (**Action:** Diane Brooks).

FEDEPLE BUDGET: YEAR 3

	UK £ 000	1996/97
1. CAPITAL COSTS		
TCO Office		0
Equipment		7.1
Project Vehicle Maintenance		2.6
2. PROJECT COSTS		
TCO		60
TCT Award		12
Consultancy (Farm Management) November 96?		15
Review: M Gill August 1997?		11.5
NRI Analysis Brazil Nut Paste		5
Other items (Detail-Annex)		4.2
Contingencies (5%)		5.6
TOTAL		123,000.

COUNTERPART CONTRIBUTION: FEDEPLE

1. Office facilities
2. Administrative Support
3. Utilities
4. Local Project costs
5. Counterpart extension

LAT1093.DB

PROJECT FRAMEWORK

Project Title: Animal Nutritionist - FEDEPLE, Bolivia
Description: Support to the Dairy Farmer's Association of Santa Cruz (FEDEPLE) for the provision of advice and training in the field of animal nutrition

PROJECT STRUCTURE	INDICATORS OF ACHIEVEMENT	HOW CAN INDICATORS BE QUANTIFIED OR ASSESSED	ASSUMPTIONS, RISKS AND CONDITIONS
GOAL Incomes of small dairy farmers in the Department of Santa Cruz raised through improved milk production.	Increased cost-effective milk production. Improved prosperity and welfare of local farmers	Departmental reports and statistics. FEDEPLE's reports.	Profitability of liquid milk sales continues.
PURPOSE Animal feeding systems diversified and improved through the better utilisation of local natural resources and better practices.	New ingredients identified and incorporated. Pasture management improved Reduced feed wastage.	FEDEPLE and TCO reports. Monitoring visits by ODA. Individual farm records.	Incentives exist for adoption of improved animal husbandry practices.

OUTPUT (additions for year 3)			
<p>1. Data on chemical composition and quality of local feeds and formulation rations</p>	<p>Booklet on local formulation rations. Tables of feed composition available to farmers within 9 months of start of project. Suitability of Brazilnut cake assessed.</p>	<p>TCO and FEDEPLE's reports. Individual farm records. Municipality records.</p>	<p>Availability of laboratory facilities in S America/UK. Prices of Ingredients remain relatively stable.</p>
<p>2. Cost-effective feed rations for the dairy industry incorporated into the FEDEPLE expansion programme.</p>	<p>Economic ration formulations provided to ADEPLE by end of PY 1. Request from farmers for special formulations. Methodologies for expansion into new areas agreed and operating.</p>	<p>FEDEPLE's and TCO's reports. Individual farm records. Municipality records.</p>	<p>Uptake by farmers. Continuing availability of ration ingredients. FEDEPLE expansion programme continues.</p>

OUTPUTS (<u>additions for year 3</u>)			
<p>3. Validated recommendations on improved feeding practices appropriate to local conditions.</p>	<p>Recommendations on improved pasture management and forage utilisation outlined within 9 months of start of project.</p> <p>Specific recommendations outlined for 10 farms and recording started by end of year 1.</p>	<p>TCO's reports.</p> <p>Monitoring visits.</p> <p>Individual farm records.</p>	<p>No major climatic variations.</p> <p>Interest by dairy farmers in improving milk productivity.</p> <p>Farmers with time and facilities for record-keeping who are willing to participate in validation trials.</p>
<p>4. Extension leaflets and other <u>publicity/training & materials</u> on feeding & grazing management for small-scale farmers.</p>	<p>Adoption by ADEPLE's extension services within 18 months of start of project.</p> <p>Sustainable distribution system for bulletins in place by end of project.</p> <p>Area specific feed recommendations available for major dairy producing regions by end of project.</p> <p>Feedback on impact of training/information video.</p>	<p>FEDEPLE's and TCO's reports.</p>	<p>Farmers interested in improving nutritional practices.</p>

<p>5. Trained local staff in improved principles of animal nutrition and dairy business management.</p>	<p>Staff assume full responsibility for programme 6 months before end of project.</p> <p>Improvements in dairy industry management.</p> <p>FEDEPLE leading in implementation of recommendations of agribusiness consultancy.</p>	<p>Number and level of staff trained.</p> <p>FEDEPLE and TCO reports.</p>	<p>Staff available for training and remain in post on return.</p> <p>FEDEPLE management remains committed to improved business management.</p>
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<p><u>OUTPUTS (additions for year 3)</u></p>			
<p>6. <u>Effectiveness of technology transfer of improved animal feeding practices to farmers assessed, and project impact measured.</u></p>	<p>Recommendations arising from data analysed from consultants visits. Quantitative data on farmer responses to extension programme. Benefits to farmers assessed.</p>	<p>FEDEPLE and TCO reports. Farm and Dairy Industry records.</p>	<p>Farmers willing to collaborate. FEDEPLE and other resources available to support in depth studies.</p>
<p>7. <u>Links with other ODA funded projects in the area established.</u></p>	<p>Nutritional information incorporated into the research and extension programmes of other organisations.</p>	<p>NRI/CIAT/CARE reports. TCO reports.</p>	<p>Target organisations interested in collaboration.</p>

ACTIVITIES	INPUTS		
<p>1.1 Screen Brazilnut samples from Riberalta for aflatoxins.</p> <p>1.2 Continue with the chemical screening of new feed materials as appropriate.</p> <p>2.1 Develop and extend appropriate animal feed regimes into the San Javier (NE) and Samaipata (SW) dairy producing areas.</p>	<p>1. <u>ODA</u> TCO/Animal Nutritionist Consultancies (5) Housing Equipment - Vehicle & Running Costs - Computer Training (2 scholarships) Recurrent expenditure * Contingencies 5% TOTAL</p>		
<p>2.2 Guide the successful integration of trained staff returning from the UK into the nutrition programme.</p>	<p>2. <u>FEDEPLE</u> Local staff and salaries Building and infrastructure Vehicle and running costs Recurrent expenditure</p>		

* including laboratory analysis and advisory support.

2.3 Develop and agree a strategy for the continued expansion of the nutrition programme into new areas post project.

2.4 Initiate a further visit by M Gill in August 1997 to assess impact and post project sustainability.

4.1 Review the bulletin distribution system and consider a cost recovery charge.

4.2 Prepare two bulletins on forage legumes and the selection of feed strategies appropriate to particular areas.

4.3 Edit and refine the information/training video.

5.1 Guide the consultancy on improved agribusiness management in FEDEPLE and the dairy industry.

6.1 Complete the analysis of information arising from previous consultancies if necessary hiring a graduate

ACTIVITIES	INPUTS		
<p>6.2 Develop and introduce a system for obtaining feedback from farmers receiving leaflets as to how they have used them. Identify indicators of achievement.</p> <p>6.3 Assess impact on farmers of the training provided to at least one of the producers' associations.</p> <p>6.4 Analyse over time the production achieved by small milk producers to see if lactation has improved.</p> <p>7.1 Provide nutritional advice especially in the Samaipata area to the NRI/CIAT livestock in forest margins research project.</p> <p>7.2 Provide nutritional advice to the CARE project operating in the buffer zone of the Amboró National Park</p>			

ANNEX 6

DRAFT TERMS OF REFERENCE FOR AGRIBUSINESS CONSULTANCY (Proposed date November 1996)

The milk industry in the region around Santa Cruz has become considerably more commercial in approach, partly due to the nutrition programme improving the efficiency of milk production. However, milk producers have limited capital, no tradition of access to or management of credit and FEDEPLE management has only limited experience of how to recover costs for services. The aim of this consultancy is to inject sound commercial practice into the industry at 3 levels: farmers, FEDEPLE associations and FEDEPLE central management, the latter with respect to the sustainability of the nutrition programme. It is proposed that the consultancy should last for 3 weeks in country.

1. Visit the Ministry of Agriculture and the British Embassy in La Paz to obtain an understanding of Bolivian government policy and the credit situation in the country.
2. Using a number of farms as Case Studies, to identify some 'rules of thumb' by which farmers can select economically appropriate feeding strategies (taking into account the consultancy bonus etc.)
3. Explore with local associations ways to obtain and pay for credit to purchase equipment for forage conservation and feed milling.
4. Consider with FEDEPLE management and Fernando Cadario, ways in which the nutrition programme could generate income to cover its costs.
5. Present a seminar in Santa Cruz on principles of running small livestock businesses.
6. Contribute to a leaflet on economics of feeding strategies and/or farm business management.
7. Present an Aide Memoire giving recommendations for improving commercial practice in the milk industry in Santa Cruz department.
8. Prepare a report on the visit within one month of return to UK.

ANNEX 7

DRAFT TERMS OF REFERENCE FOR FINAL VISIT BY M GILL

(Proposed date: August 1997)

The aims of this final visit will be to compile more information on the impact of the project and to make further recommendations relating to the sustainability of the nutrition programme. A visit of 2 weeks in country is suggested. ToRs should include the following.

1. Visit the Ministry of Agriculture in La Paz, to assess the wider impact of the project beyond the Department of Santa Cruz.
2. Visit farms in the original ADEPLE catchment areas to assess the sustainability of the present impact which was evident to the mid-term review.
3. Review the implementation of the recommendations of the agri-business consultancy and their impact.
4. Visit farms in the San Javier and Samaipata areas, review the activities of the project in these areas and make recommendations on future activities.
5. Discuss with the counterparts ways in which further support to the project could be obtained, after ODA support is withdrawn.