

DAIRY CATTLE NUTRITION PROJECT (DCNP) SANTA CRUZ, BOLIVIA

Report of the Final Impact Review 31 August to 6 September 1997

M Gill (NR International)

G Gilman (DFID NR Field Manager, Bolivia)

EXECUTIVE SUMMARY

1. The review team concluded that the project had been successful, had met all its objectives and had been enthusiastically viewed by FEDEPLE and local farmers.
2. The only negative aspect was the slow responsiveness of the local market to increased milk production. However, other opportunities for broadening the impact of the project in line with DFID's new focus were identified.
3. The following recommendations were made.

Recommendation 1: Consideration be given to the purchase of an incubator large enough to enable efficient gas production analysis of samples (*para 7 refers*).

Recommendation 2: FEDEPLE be given any help possible in identifying a source of credit to ensure that the potential impact of the project can be realised (*para 43 refers*).

Recommendation 3: If sufficient funds remain in the project budget, a licence and 'sentinels' to enable 250 farms to be monitored be purchased by DFID from the National University of Costa Rica to enable FEDEPLE to participate in the on-farm monitoring project which should lead to the development of a decision-support management system (cost US\$10,000 plus portable computers) (*para 44 refers*).

Recommendation 4: The possibility of extending the impact of the project towards addressing problems of human malnutrition be explored during the forthcoming NR advisers' visit (*para 47 refers*).

Background

1. This project started in July 1994 with funding for an initial 2 years and was extended in August 1996 for a further year, to address additional objectives resulting from FEDEPLE's expansion into new milk catchment areas. One TCO (Liz Alderson) has been working with FEDEPLE on the project since the start. Her contract ends on 31 October 1997.
2. Dr Gill and Mr Gilman, together with Ms Brooks (LACAD) participated in the mid-term review, which recommended a final impact review in August 1997.
3. This review was undertaken between 31 August and 6 September 1997 and included visits within Santa Cruz, to Samaipata and half a day in La Paz. The terms of reference are attached as Appendix 1 and the Itinerary as Appendix 2.
4. The main output required by the TORs (TOR 6) was the Project Completion Report which is attached as Appendix 3. Further information on impact was required to meet the other TORs and is discussed in the following paragraphs.

TOR 1 - Evaluation of achievement of framework objectives (*since mid-term review*)

5. The general impression gained from CIAT, FEDEPLE and individual farmers confirmed the conclusions of the mid-term review mission, that the project had been successful in increasing milk production during the dry season and improving the standard of management of dairy farms around Santa Cruz. However, the data available to the mid-term review team were not sufficient to enable a quantitative assessment to be made. Some data had been included in the subsequent TCO's quarterly reports, but an early action of the Team was to request data from FEDEPLE against which the Team could evaluate achievement of each output, using the indicators in the logical framework as revised by the mid-term review team. These data together with those from the TCO reports enabled the following assessment of each output:

Output 1. Data on chemical composition and quality of local feeds and formulation of rations

- Indicators:*
- i) *Leaflet on ration formulation;*
 - ii) *tables of feed composition;*
 - iii) *suitability of Brazil nut cake assessed.*

6. Two leaflets, one giving the chemical composition of local pastures and forages and the other the chemical composition of local supplements were printed and distributed early in the life of the project. In the last year, an MSc student has undertaken a project to assess the contamination of Brazil nut paste with aflatoxin. Samples have been taken and sent to NRI for analysis, with results requested by the end of September.
7. An *in vitro* laboratory has also been set up at CIAT (with money from this project), to enable digestibility of feeds to be analysed locally, by fermenting samples of feed with rumen innocula and measuring the volume of gas produced. Unfortunately,

insufficient money was allowed to purchase an incubator and the one currently in use is only on loan from LIDIVET for a few months. For the current investment to be realised, an incubator will have to be purchased. An estimate of the expenditure required will be given in the report of Dr Chris Wood's consultancy.

Recommendation: Consideration be given to the purchase of an incubator large enough to enable efficient analysis of samples.

Output 2. Cost-effective feed rations for the dairy industry incorporated into the FEDEPLE expansion programme

Indicators. i) *Requests for ration formulations;*
 ii) *methodologies for expansion agreed and operating.*

8. Ration formulations are popular with local farmers and 231 have been completed during the project. These are now being produced by Fernando Cadario of FEDEPLE and the end of this project should not therefore adversely affect their production.

9. The nutrition programme has followed the FEDEPLE expansion into the San Javier and Samaipata areas. The mission visited Samaipata (a very dry area) and observed at first hand the interest of farmers in the demonstration of the use of urea to increase the digestibility of maize stover. Interest is such that a local television channel had already made one programme of the treatment process and returned during our visit to record the opening of the treated feed.

Output 3. Validated recommendations on improved feeding practices appropriate to local conditions

Indicators. i) *Recommendations on improved pasture management and forage utilisation;*
 ii) *recommendations made and recording undertaken on 10 farms.*

10. A consultancy on pasture management took place in 1995 and confirmed that many of the pastures had been established 10-15 years ago and had not been fertilised or improved since. However, it appears that the project has stimulated awareness of the need for pasture improvement, as evidenced by a brief increase in the incidence of anthrax, which was attributed to the disturbance of soil for pasture improvement. Farmers are aware of the risks and have returned to vaccinating their stock against anthrax to enable pasture improvement to continue.

11. Another indication of increased forage utilisation, is the 78% increase in the importation of sorghum seeds between 1995 and 1996. The project has been promoting the use of forage sorghum. The import figure does not give the whole picture, however, since some of the increase may have been for the cultivation of sorghum grain, but the figures are substantiated by the practical experience of the TCO. On the other hand the figures may be an underestimate of area planted, since there is also a significant element of local seed production and since not all importations are registered.

12. On-farm recording was started in year 1 and became closely integrated with a research project funded through the Livestock Production Programme of DFID's Renewable Natural Resources Research Strategy (RNRRS). The recording has been going for 18 months on some farms, less time on others and a workshop is planned for 1998, to present the findings to the farmers. Initial graphs of production on their farms have been given to participating farmers who have expressed enthusiasm. Some intend to use the results as a basis for culling their cows. Dr Peter Thorne (organiser of the workshop) will be asked to keep Mr Gilman informed of the date, programme and outcome.

13. Attempts to collect on-farm records during the feeding of sugar-cane bagasse last year were less successful, due to the lack of commitment on the part of the recorders.

14. As noted later, one of the recommendations of this mission is that, if possible, licences for use of the VAMPP system of on-farm monitoring should be purchased for FEDEPLE to enable their technical staff to monitor farms and thus participate in another RNRRS-funded project, being undertaken by CIAT and the University of Edinburgh.

Output 4. Extension leaflets and other publicity/training materials on feeding and grazing management for small-scale farmers

- Indicators:*
- i) Adoption of recommendations by FEDEPLE;*
 - ii) sustainable distribution system for leaflets;*
 - iii) area-specific feed recommendations;*
 - iv) feedback on video.*

15. 10 Extension leaflets have been produced and many have been reprinted, such is the demand. The 2 produced since the Mid-term review are: 'Economic Strategies for Feeding Dairy Cattle' and 'Tropical Legumes', plus 45 information sheets, a video and numerous television broadcasts. All have been very well received and much appreciated.

16. The sustainability of the production of these bulletins has been discussed on a number of occasions during the project. Charging for individual bulletins is not seen as feasible, since farmers would resort instead to photocopying. FEDEPLE already pay for the printing costs, so reproduction of bulletins already written is not seen as a problem.

17. Recommendations have been made on feeding strategies for a number of areas, including San Javier and Samaipata.

Output 5. Trained local staff in improved principles of animal nutrition and dairy business management

- Indicators:*
- i) Staff assume full responsibility for programme;*
 - ii) improvements in management;*
 - iii) FEDEPLE implementing recommendations of agribusiness consultancy.*

18. 2 FEDEPLE staff (Fernando Cadario and Marie-Cruz Limpas) have been trained to MSc level during the course of the project and Fernando Cadario has received on the

job training in ration formulation and will be working with the BESO Agri-business consultant (Tim Machen) during September. Other FEDEPLE staff will also be working with Mr Machen and thus appreciation of the principles of managing dairy farms will be increased.

Output 6. Effectiveness of technology transfer of improved animal feeding practices to farmers assessed and project impact measured

Indicators:

- i) Recommendations from consultancy visits;*
- ii) farmer responses;*
- iii) benefits to farmers.*

19. There is no doubt that dissemination of information on improved feeding practices has been effective. FEDEPLE senior management estimated that 1450 out of the 1500 members had benefited from the project.

Output 7. Links with other DFID-funded projects in the area established

Indicators. Nutritional information adopted by other projects.

20. Links have been established with RNRRS-funded projects as mentioned above and with the desk-funded Amoro Park project being implemented by CARE. A representative from the latter project had attended a recent field day on urea treatment of maize stover.

TOR 2 - Contribution of outputs to wider objectives:

21 The original wider objectives of the project and indicators of achievement were:

Wider Objective	Indicators of Achievement
1. Improved livestock productivity in the Department of Santa Cruz through improved animal feeding practices and hence increased income of local dairy framers	1.1 Increased cost-effective milk production
	1.2 Improved prosperity and welfare of local farmers
2. Improved utilisation of natural resources in the production of milk.	2.1 Reduced feed wastage
	2.2 More efficient milk production

Evidence:

Indicator 1.1

22. The data from PIL on milk intake by the plant indicates that milk production during the dry season (April to July) in 1997, averaged 88,000l/day compared to 75,000l/day for the same period in 1996. However, this is only part of the story since if

individual collection plants can't cope with the volume of milk then cheese is produced. Attempts to estimate how much of the increase came from small producers was similarly thwarted since problems with some collection points have meant that milk is transferred to others. Thus, reliable comparative figures between years do not exist, although evidence for Yapacani and Portachuelo do show a significant upwards trend particularly during the dry months for the same number of producers between 1995 and 1997.

	Yapacani			Portachuelo		
	1995	1996	1997	1995	1996	1997
April	169,400	178,473	201,471	156,575	153,636	176,447
May	164,098	169,975	198,682	158,072	145,650	168,684
June	164,340	158,414	164,588	158,328	128,675	147,595
July	175,745	178,254	192,207	150,535	129,975	163,775

23. Unfortunately this trend was not in evidence in Nuevo Horizonte or Batavia, but the data are also inadequate since the number of cows from which the milk was produced is unknown.

24. The conclusion is that these data are collected at too gross a level for use in evaluating the impact of the project. On the other hand, the fact that PIL have plans for expanding the capacity of their plant to 200,000l/day by the end of the year confirms that they are convinced by the scale of the increase. (FEDEPLE estimate that 146 million l of fresh milk and 5.5 million kg of cheese are produced in the Department of Santa Cruz on an annual basis.)

25. At a micro level, examination of the data from individual farms (Figs 1a & b) show significant improvements in dry season production this year compared to earlier years. Lactation curves for individual cows also show a marked improvement (Fig 2a-e) compared to the much flatter curves available in 1992 (example in Fig 3).

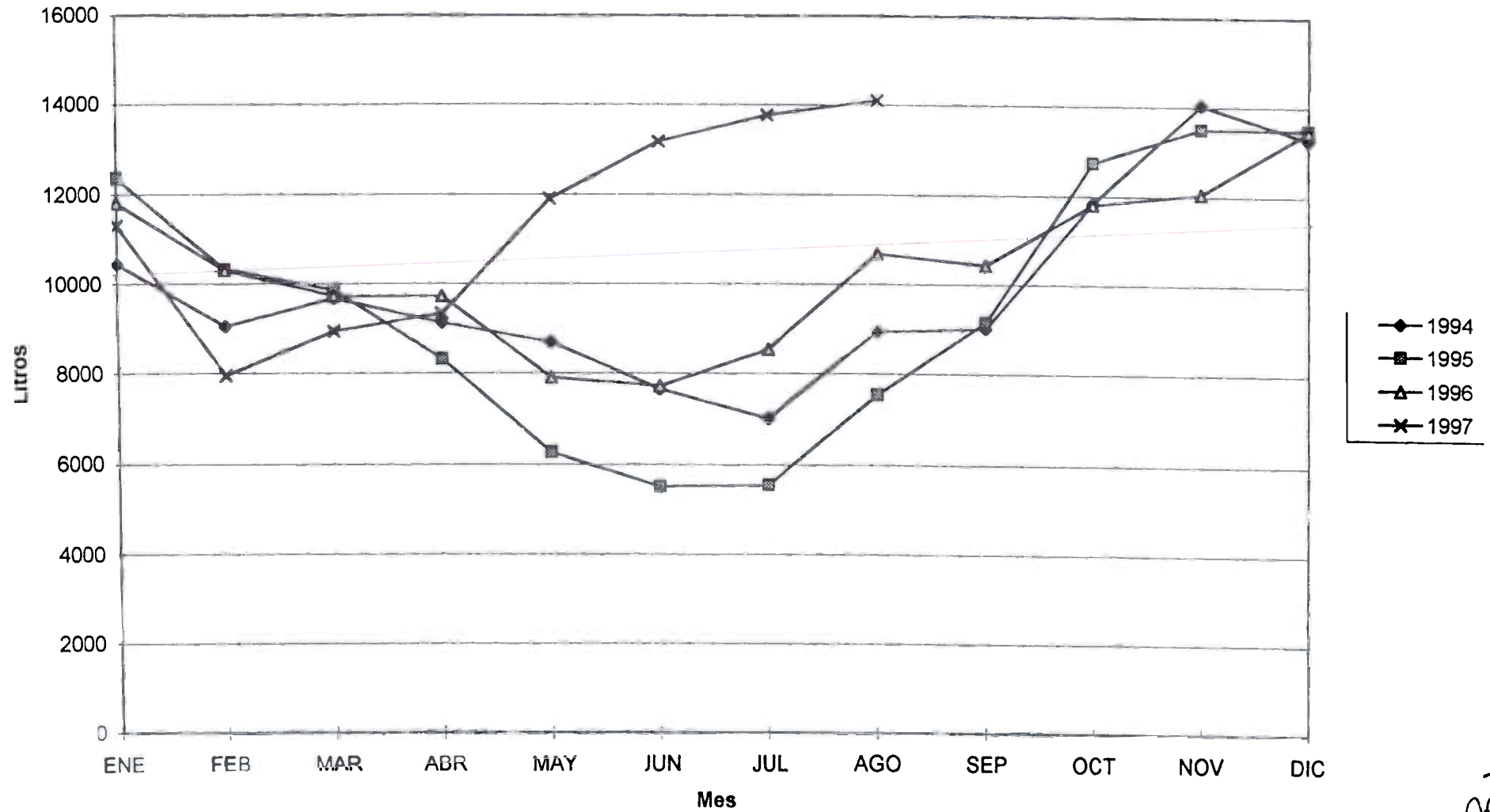
26. Another benefit of the project has been the decrease in the rejection of milk by the plant as being too acid. This problem was frequently mentioned in 1992 when the project was first identified, but the scale of the problem has gradually decreased as producers' understanding of nutritional principles has increased. Acid milk is still produced from time to time, but producers now know how to feed their cows to limit its effect.

Indicator 1.2

27. Data were not available to confirm the increased prosperity and welfare of the local dairy farmers, although throughout the life of the project we have been assured that this is the case. However, it is worth recording that 5 new feed companies have been established during the lifetime of the project which suggests that the prosperity of associated industries has been improved.

28. We were also given the following list of organisations which have benefited from the project: FEGASACRUZ, CIAT, Fomento Lechero (PIL), ASOCRALE, Universidad

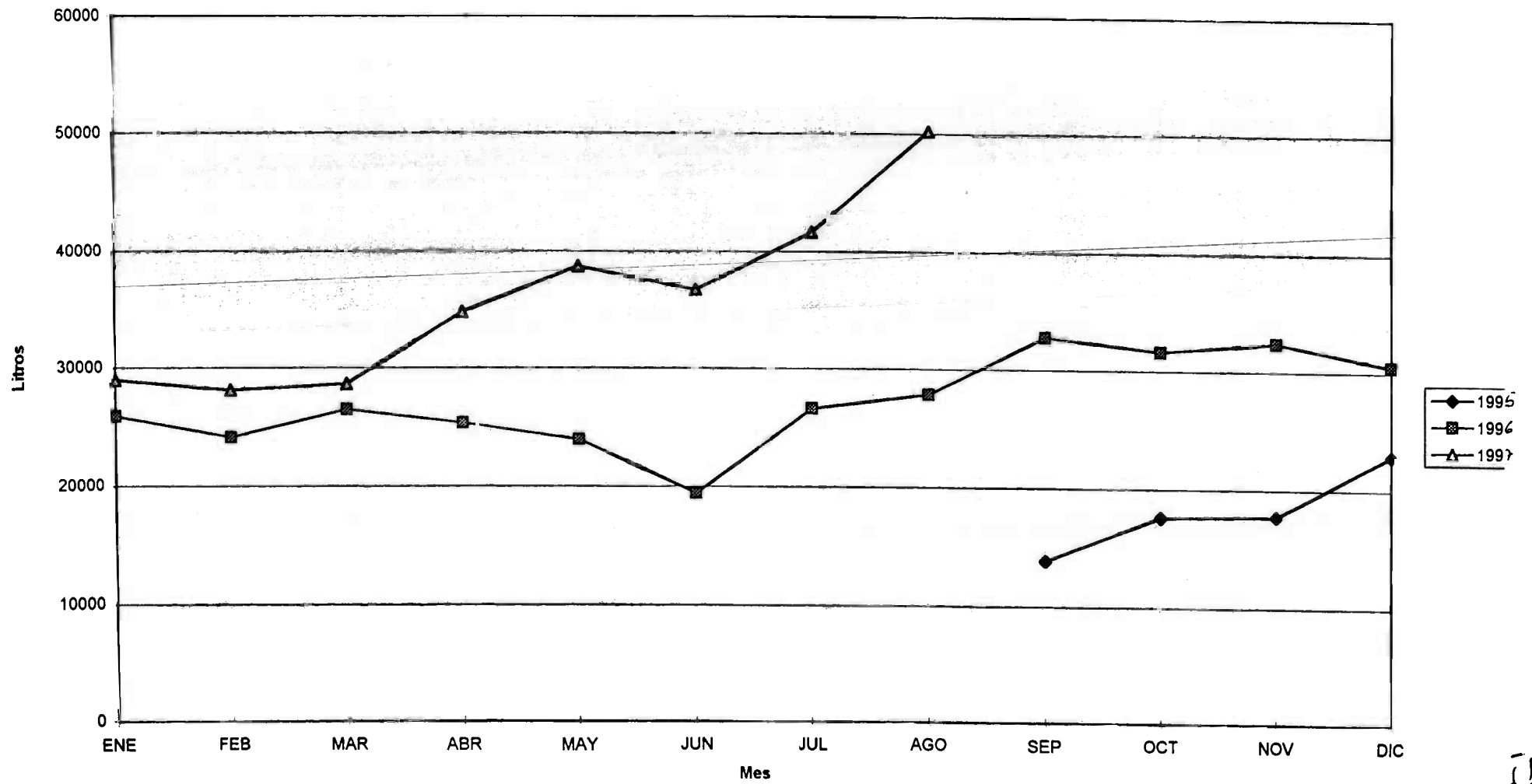
PRODUCCION ANUAL DE LECHE EN LA GRANJA GUAYABA CHICA



1995 n = 45
 1996 n = 48
 1997 n = 48

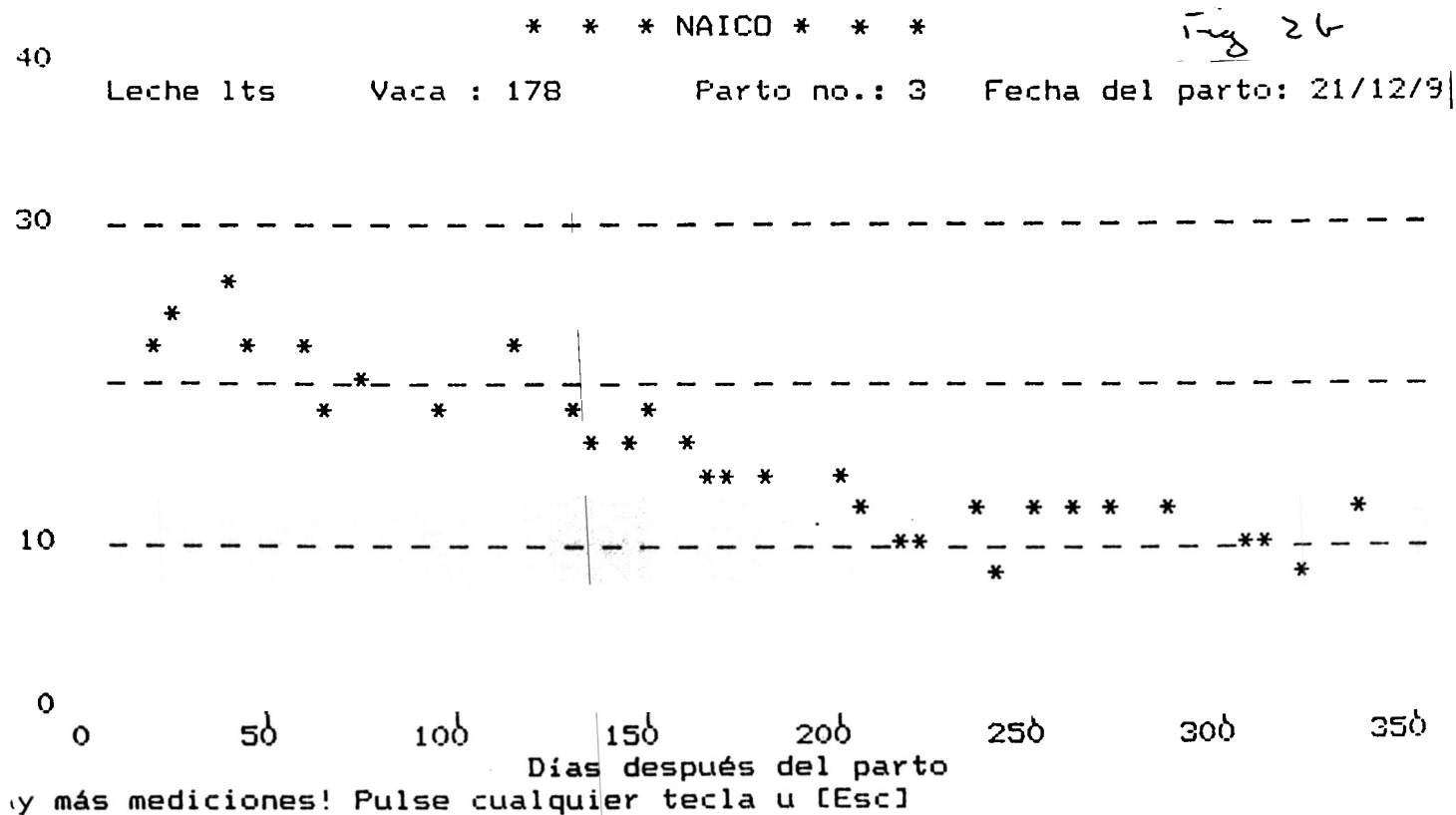
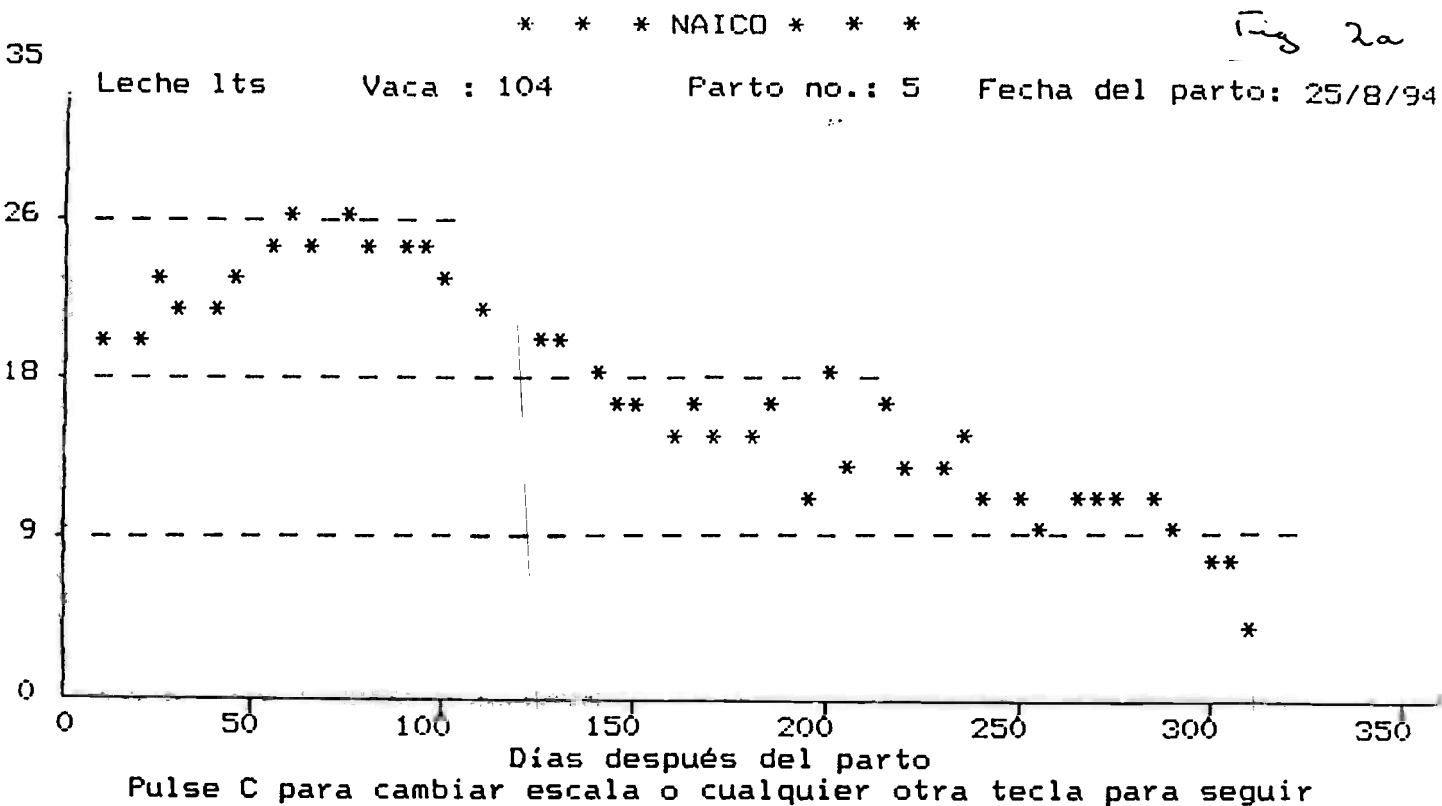
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PRODUCCION DE LECHE GRANJA SAN ANTONIO



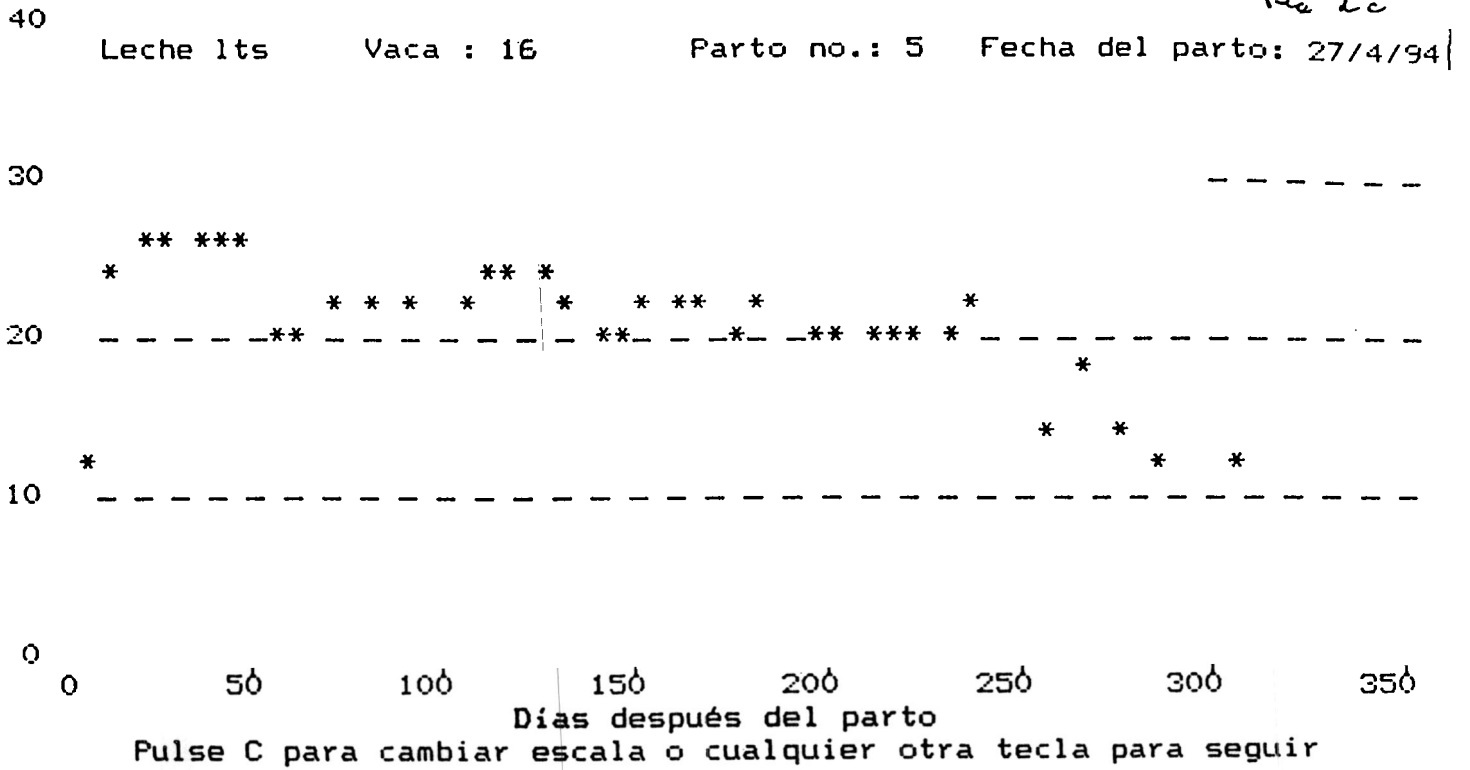
1995 n = 74
1996 n = 88
1997 n = 94

Fig 16



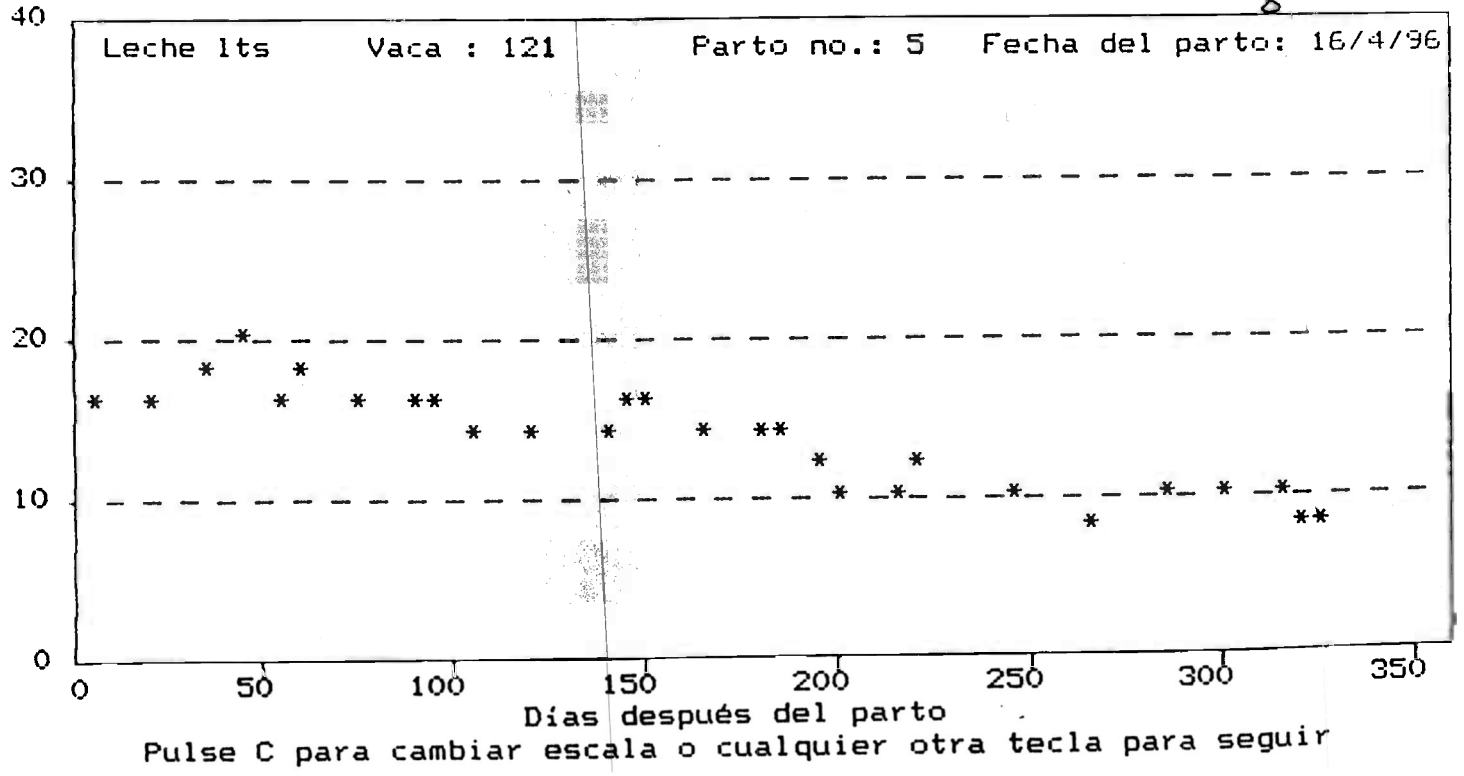
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Fig 2c



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Fig 2d

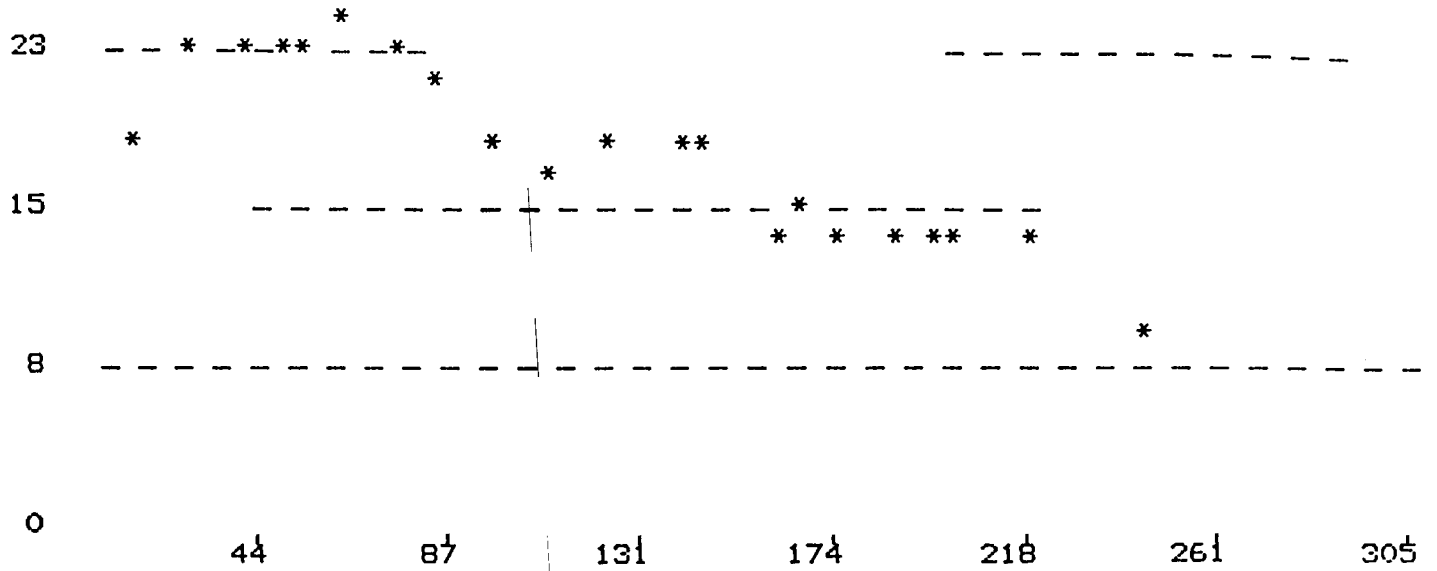


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Fig 2e

30

Leche lts Vaca : 252 Parto no.: 2 Fecha del parto: 1/1/97



Días después del parto

Pulse C para cambiar escala o cualquier otra tecla para seguir

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Fig 2e

30

Leche lts

Vaca : 252

Parto no.: 2

Fecha del parto: 1/1/97

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Días después del parto

Pulse C para cambiar escala o cualquier otra tecla para seguir

Gabriel Rene Moreno, Universidad tecnica del Beni, Universidad Evangelica, ADEPLE - Beni, ACHROBOL and LIDIVET.

Indicator 2.1

29. The following 6 by-products were previously burnt or otherwise wasted, but are now sold for incorporation in animal feeds: soya-hulls, cottonseed hulls, leaves and stem of soya, brewers' grains, brewers' yeast and hydrolised bagasse.
30. The use of poultry litter, molasses and urea in animals feeds has also increased.

Indicator 2.2

31. The measure of efficiency was not specified and as referred to above, the lack of data tends to preclude quantitative evaluation. However, the decreased problem of acid milk is one parameter of increased efficiency which illustrates the impact.

TOR 3 - Lessons learnt for future DFID interventions:

32. The project is judged as being very successful both by FEDEPLE members and by visiting DFID personnel and consultants. The review team identified 4 positive aspects of this particular project:

- (i) the advantages of working directly with beneficiaries (farmers) as well as with intermediary users: the former gives instant feedback and rapid impact, while the latter should facilitate sustainability;
- (ii) the problem (lack of knowledge of nutritional principles) was readily identifiable and solutions to the problem of dry season feeding were already known elsewhere - they 'simply' needed to be adapted to the local situation;
- (iii) one key aspect was the ability of the project manager to deliver the desired solutions without compromising her technical standards;
- (iv) another positive aspect was the opportunity to work with a commercially focused non-government organisation (FEDEPLE) which remained enthusiastic about the project from start to end.

33. The lessons learnt from examining the positive aspects are nothing new for DFID, but emphasise the benefits of logical frameworks with defined indicators, the need to match the TCO to the project and to locate the project in an organisation which is enthusiastic about the project.

34. Only one major constraint to the impact of the project was identified: not all of the increased milk production could be sold as liquid milk. Current *per capita* consumption of milk in the Santa Cruz area is <40l/day and although higher than the national average this is considerably below average levels in other countries in South America. However,

despite this low average, PIL cannot at present sell all the milk produced as fresh milk and has a considerable tonnage stockpiled as powder.

35. Given that the milk plant was privatised during the life of the project, and ownership transferred to FEDEPLE (end of 1995), it would have been impossible to predict the market trends at the start of the project. It is still early days post-privatisation and steps have been taken to increase investment in the plant. The low *per capita* consumption of milk suggests that there is considerable potential for the market to expand, but considerable effort will have to be put into marketing. One suggestion, which is gaining momentum, is for local municipalities to provide free milk to school-children, which should contribute to a decrease in child mortality, which is very high in Bolivia.

36. It is difficult to extract a lesson to be learnt from this aspect of the project, except that impact could be increased by encouraging TCOs to monitor and report on unexpected constraints, including making recommendations on how such constraints might be alleviated outwith the original immediate objectives of the project.

TOR 4 - Sustainability of the nutrition unit:

37. The mid-term review in August 1996, recommended a consultancy on agribusiness management to take place during the final year of the project, with a prime objective of identifying ways of ensuring that the nutrition unit would be sustainable. Unfortunately, this consultancy did not deliver the required outputs and a further BESO consultancy on agribusiness management was requested by FEDEPLE. This consultancy started one week before the Review Team arrived in Santa Cruz: consultant Tim Machen.

38. One morning was spent in reviewing the Terms of Reference of this second agribusiness consultancy, to ensure that this consultancy did deliver the outputs desired by FEDEPLE. Points to note were that FEDEPLE has been successful in diversifying its income, decreasing its reliance on levies from farmers from 92% 4 years ago, to 64% currently. The 36% coming from other commercial initiatives.

39. FEDEPLE management see 2 opportunities for similar feed-related ventures to support the nutrition unit. The first is to buy feed in bulk when it is in good supply and therefore the price is low, and sell on to farmers at a higher rate. They would like the consultant to prepare models to estimate the mark-up required, based on a variety of scenarios.

40. A second possibility is for FEDEPLE to borrow money at one rate and lend on to farmers to enable them to undertake nutrition improvements at a higher rate. FEDEPLE has experience of borrowing money at one rate (18%) and lending on to farmers at a higher rate (24%). (It is difficult for people living in rural areas to borrow money and normal interest rates for such loans vary from 2-3%/month). FEDEPLE (through Fomento Lechero) has an established track-record in managing credit programmes, with money from the World Food programme. However, this loan will not last indefinitely. FEDEPLE would therefore like the consultant to provide the basis for calculating an incremental interest rate, which FEDEPLE would need farmers to generate income to pay for the nutrition unit. The risks to FEDEPLE should be minimal, since they can recover

the loan via the milk cheques and the risks to the farmers ought to be low, since investments to improve pasture management etc should also improve the profitability of beef production, should the market for milk not be sustained.

41. Following the discussion, the Terms of Reference for Tim Machen were modified as follows:

- (i) Make financial analysis of dairy enterprises representative of family run units, small, medium and large farms, giving a total of 11 examples.
- (ii) Develop a system whereby FEDEPLE extension workers can assess the constraints to efficient milk production on individual farms, thence make recommendations as to appropriate improvements and if credit is necessary, assess the risk associated with that credit.
- (iii) Visit money lending agencies in Santa Cruz to assess their requirements for lending money and draw up a draft proposal for FEDEPLE to present to one of these agencies.

42. Since the end of this mission, MG has followed up one possibility of finance from Europe, through the Economic Development Co-operation based in the Netherlands, but with a Regional Office in Montevideo and has suggested that FEDEPLE make contact with that office and explore the potential for borrowing money.

TOR 5 Recommendations to enhance sustainability of the nutrition unit

43. In other countries, providing small producers with access to cows or credit to enable them to move into the Dairy sector has proved a successful way of helping them to improve their income and move away from the poverty trap. However, it may be difficult to identify sources of credit prepared to lend to FEDEPLE in Bolivia.

Recommendation: It is recommended that FEDEPLE be given any help possible in identifying a source of credit to ensure that the potential impact of the project can be realised.

44. One of the keys to improving management at the farm level is to encourage the recording of production data on-farm. An RNRRS-funded project being undertaken by CIAT and the University of Edinburgh has established an on-farm monitoring system in the Santa Cruz area and for a relatively low investment, FEDEPLE technical staff could be provided with the software and portable computers to enable them to participate in the study. This should enhance the implementation of the project findings and thus generate more income for FEDEPLE to support the nutrition unit.

Recommendation: if sufficient funds remain in the project budget, a licence and 'sentinels' to enable 250 farms to be monitored, be purchased by DFID (cost US\$10,000 plus portable computers) from the National University of Costa Rica to enable FEDEPLE

to participate in the on-farm monitoring project. This should lead to the development of a decision-support management system

TOR 6 - Draft a project Completion Report

45. A draft PCR is attached as Appendix 3.

Conclusions

46. Working with the Dairy sector in Bolivia has proved very successful. The potential to increase milk production now exists, if it can be realised. The President of FEDEPLE (who is also the President of the national association) has requested assistance from DFID in disseminating the achievements of the DCNP to other parts of Bolivia. Requests for nutritional assistance have been sent to FEDEPLE by Associations in Beni, Santa Cruz valleys, Cochabamba Tropica, Chiparre and Tarija. However, the question of the market for increased milk production in each area would need to be explored.

47. Impact of increased milk production does not have to be measured in economic terms. Given the emphasis which the new governments of Bolivia and the UK are placing on poverty eradication, another option is to use the increased milk production to try to decrease child mortality in the poorer sectors of Bolivian society. There is a genuine interest both at the level of FEDEPLE and the government in providing milk to school-children, to improve their nutritional status and thus their health. It is suggested that attention is given to the potential impact of a project which works with the Dairy industry to improve the health of children through the provision of milk in other regions.

Recommendation: it is recommended that the possibility of extending the impact of the project towards addressing problems of child malnutrition be explored.

Acknowledgements

48. We are grateful once again to FEDEPLE for hospitality, to Liz Alderson for making the arrangements and accompanying us throughout the visit.

49. It has been a pleasure to work on this project, largely due to the enthusiasm of FEDEPLE and the TCO. Grateful thanks are due to all concerned for making the consultancy visits so enjoyable.

TERMS OF REFERENCE

DAIRY CATTLE NUTRITION PROJECT - FINAL IMPACT REVIEW 1- 5 SEPTEMBER 1997

The consultant is to supply services to the Government of Bolivia.

The DFID Final Impact Review Mission will consist of the NR Field manager for Bolivia (G Gilman) and a consultant Animal Nutritionist (Dr M Gill). The mission will be five working days in Bolivia including up to two days of field trips and one day of discussion in La Paz. One further day will be allowed for report preparation.

The terms of reference of the Mission will be to review progress against the objectives and outputs detailed in the project framework of October 1996 and recommendations made by the Mid-Term Review Mission of August 1996. The mission will also consider the wider impact and sustainability of the project.

In particular the mission will :

- 1) Briefly evaluate the extent to which project framework objectives have been met, with particular reference to progress made since the Mid-Term review mission.
- 2) Consider the contribution of project outputs to the wider objectives defined in the project framework. This will require evaluation of project impact on primary stakeholders such as small and large producers, FEDEPLE, PILSAM, CIAT and the national Secretariat for Agriculture in La Paz.
- 3) On the basis of (2) above, briefly discuss any lessons learnt for future DFID interventions.
- 4) Assess the current sustainability of the nutrition unit, including consideration of the ability of local staff to take responsibility for the programme, and the placement and support of the unit within the larger FEDEPLE organisation and related institutions.
- 5) On the basis of (4) above, make recommendations to enhance sustainability.
- 6) Draft a project completion report

APPENDIX 2

ITINERARY AND PERSONS MET

DATE

Sun 31 August	am	Arrival of Dr Gill
	am	Meeting of Mr Gilman, Ms Alderson & Dr Gill
	pm	Reading reports etc
Mon 1 September	am	Meeting with Carlos Nagishiro on Brazil nut project
	am	Meeting with Sres Javier Suarez, Javier Velarde, Johan Frerking & Dr Julio Roda of FEDEPLE
	pm	Discussions with Chris Wood (laboratory consultant), Fernando Cadario and the CIAT technicians on the mechanics of measuring gas production in vitro and the use to which the method will be put.
	pm	Discussions with outgoing Director of CIAT (Gustavo Perera) and Franz Rojas (Head of Animal Production) on the pasture programme and collaboration between the DCNP and CIAT projects.
	pm	Inauguration of the gas production laboratory.
	pm	Dinner with Tim Machen (BESO consultant)
Tues 2 September	am	Meeting with Tim Machen, Javier Velarde, Johan Frerking, Fernando Cadario and Liz Alderson to discuss the Terms of reference and expected outputs of the BESO Agribusiness consultancy.
	pm	Drive to Samaipata
	pm	Dinner with Willy Fernandez (CIAT)
Wed 3 September	am	Field visit to Mairana to witness opening of maize treated with urea, together with farmers and local television reporter
	pm	Return to Santa Cruz
	pm	Preparation of Commentary for FEDEPLE
Thurs 4 September	am	Preparation of Commentary for FEDEPLE
	am	Visit to PIL, meeting with Mario Suarez Suarez (President), Lic Jose Luis Parada (Head of Administration and Finance), Lic Guillermo Ribera (General Manager)
	pm	Lunch with Tim Machen
	pm	Meeting with Sres Javier Suarez, Johan Frerking & Dr Julio Roda of FEDEPLE
	pm	Dinner hosted by FEDEPLE

APPENDIX 3

PROJECT COMPLETION REPORT

(If Logical Framework is attached to the PCR, questions marked '(*)' need not be completed)

A: BASIC DATA

COUNTRY: BOLIVIA	SECTOR: Agriculture and livestock	MIS CODE
PROJECT/PROGRAM TITLE: Dairy Cattle Nutrition Project		
BRIEF DESCRIPTION: Support to the Dairy Farmers' Association of Santa Cruz (FEDEPLE) for the provision of advice and training in the field of animal nutrition		
LEVEL APPROVED BY:	DATE APPROVED:	

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B: OUTPUTS OF IMPLEMENTATION PHASE

1: INITIAL (*): *(if there is a Logical Framework if there is a Logical Framework (LF), extract from outputs line; for Programme Aid or ATP, extract from appropriate approval document; for Process Projects, insert whatever outputs existed at start of project - if this is not possible insert earliest available outputs.)*

- 1 Obtain data on chemical composition of local feeds
2. Formulate improved feed rations for Dairy industry
3. Develop recommendations on improved feeding practices appropriate to local conditions
4. Work with small-scale farmers to evaluate these recommendations
5. Prepare extension leaflets on feeding and grazing management for small-scale farmers
6. Train local staff in improved principles of animal nutrition

2: AMENDMENTS: *(where outputs have been revised over the lifetime of the project insert the most recently revised set of outputs).*

1. Data on chemical composition and quality of local feeds and formulation of rations
2. Cost-effective feed rations for the dairy industry incorporated into the FEDEPLE expansion programme
3. Extension leaflets and other publicity/training materials on feeding and grazing management for small-scale farmers
4. Trained local staff in improved principles of animal nutrition and dairy business management
5. Effectiveness of technology transfer of improved animal feeding practices to farmers assessed and project impact measured

6. Links with other DFID-funded projects in the area established

3: IF OUTPUTS HAVE BEEN AMENDED GIVE REASONS WHY:

1. Project extended to support expansion of FEDEPLE into new areas

2. To match new opportunities to enhance project impact

4: ACHIEVEMENT: (mark with an 'x'. If outputs have been amended give two ratings: one against the initial output (I) and one against the latest revised outputs (R))

	I	R
Outputs completely realised	X	X
Outputs largely realised		
Outputs partially realised		
Very limited realisation of outputs		
Outputs completely unrealised - project abandoned		

EXPLAIN AND COMMENT:

Project has matched FEDEPLE expansion programme by providing support in 2 new areas: San Javier and Samaipata. It is assumed that improvements in agribusiness management will follow after the completion of the current (September) agribusiness consultancy.

C: FINANCIAL PROFILE

1 INITIALLY APPROVED ODA TOTAL COMMITMENT (*in £'000s*):

2: TOTAL ODA COMMITMENT AFTER ANY SUBSEQUENT AMENDMENTS (*in £'000s*):

3: EXPENDITURE PROFILE (*by financial year in £'000s*):

FY:	FY 1	FY 2	FY 3	FY 4	FY 5	FY 6	FY 7	FY 8	Total
Initial Commitment, Forecast:									
Actual Expenditure:									

4: WHEN COMMITMENT CHANGES WERE SOUGHT, WERE THEY PROPERLY JUSTIFIED AND EXPLAINED? (*enter Yes or No*):

EXPLAIN AND COMMENT:

5: ACTUAL EXPENDITURE AS % OF INITIALLY APPROVED COMMITMENT:

6. ACTUAL EXPENDITURE AS % OF COMMITMENT AFTER AMENDMENTS:

D: MONITORING AND PHYSICAL PROGRESS REPORT

<p>1: PROPOSED MONITORING</p> <p>Monitoring Date Annual supervisory visits, the first to be within 2-3 months of TCO arrival</p> <p>By Whom Dr M Gill</p> <p>Annual</p> <p>Senior Animal Health & Production adviser</p>	<p>ACTUAL MONITORING</p> <p>Monitoring Date October 1994 August 1996 September 1997 October 1995 (1 day)</p> <p>By Whom Dr M Gill Dr M Gill, Mr G Gilman, Ms D Brooks Dr M Gill Mr G Gilman Dr L M Bell</p>
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WAS MONITORING ADEQUATE? (enter Yes or No): **Yes**

EXPLAIN AND COMMENT: **Monitoring greatly facilitated by advisers speaking Spanish. 1995 supervisory visit was not deemed necessary.**

2: IN ORDER TO ACHIEVE THE OUTPUTS OF THE IMPLEMENTATION PHASE WERE ACTIVITIES/INPUTS:
(enter a rating between 1 and 5; 1 = very good, 5 = very poor)

		To achieve initially intended outputs (up to the time of any change)		To achieve revised outputs (if applicable, subsequent to any change)	
		ODA Activities/Inputs	Recipient Government Activities/Inputs	ODA Activities/Inputs	Recipient Government Activities/Inputs
(a)	Appropriate?	1	1	2+	1
(b)	Sufficient?	1	1	1	3++
(c)	Timely?	1	1	1	1
(d)	Well-coordinated?	1	1	1	3++
(e)	Efficiently procured and delivered?	1	1	2+	1

EXPLAIN AND COMMENT:

Initial Outputs:

+ First agribusiness consultancy was disappointing, perhaps partly due to the fact that consultant could not be briefed directly in London/Chatham.

Revised Outputs:

++ FEDEPLE support to first agribusiness consultancy was disappointing

3: INITIALLY PLANNED PHYSICAL COMPLETION DATE: 15 August 1996, subsequently extended to October 1997

4: ACTUAL PHYSICAL COMPLETION DATE: Phase 1: August 1996, Extension: 31 October 1997

Project Completion Report

5: ACTUAL IMPLEMENTATION TIME AS % OF INITIALLY PLANNED IMPLEMENTATION TIME:
100% for phase 1 & 100% for extension

EXPLAIN AND COMMENT:

All original outputs were achieved within original deadline, new outputs were added for project extension and these were achieved within the planned time limit.

E: CONDITIONS

(Set out each individual project condition - initial and subsequent amendments - in the table below and for each rate whether the condition was:

- 1 = Wholly met
- 2 = Largely met
- 3 = Partially met
- 4 = Largely unmet
- 5 = Not met at all

For ratings 1 and 2 only assess to what extent compliance had on the achievement of objectives, and for 3-5 only assess to what extent the lack of compliance had on the achievement of objectives:

- A = Major Positive Effect
- B = Significant Positive Effect
- C = Minor/Negligible Effect
- D = Significant Negative Effect
- E = Major Negative Effect

Conditions can be extracted from intergovernmental agreement, Logical Framework, or approval document.

Additional space will be created within the table if insufficient space exists).

CONDITIONS	COMPLIANCE (1-5)	For Rating:	
		1,2	3,4,5
		Effect (A-E)	Effect (A-E)
Initial:			
(a) ADEPLE (later FEDEPLE) identifies suitable counterparts	1	B	
(b)			
(c)			
(d)			
(..)			
Subsequent Amendments:			
(a) No amendments			
(b)			
(c)			
(d)			
(..)			

EXPLAIN AND COMMENT:

The support given by FEDEPLE to the project as a whole and the TCO in particular was excellent. That support made a major contribution to the success of the project.

F: ACHIEVEMENT OF PURPOSE, GOAL AND PIMS MARKERS

1 LIKELY ACHIEVEMENT OF OBJECTIVES (Set out in the table below: each individual objective against purpose and goal, both initial and subsequent amendment; each individual ODA priority objective assigned together with its PIMS marker {1-4}; and for each rate whether it is:

- 1 = likely to be completely achieved 4 = only likely to be achieved to a very limited extent
 2 = likely to be largely achieved 5 = unlikely to be realised
 3 = likely to be partially achieved X = too early to judge the extent of achievement

Additional space will be created within the table if insufficient space exists).

Immediate Objectives: Purpose		Rating [1-X]
<u>Initial:</u>		
1. Obtain data on chemical composition of local feeds		1
2. Formulate improved feed rations for Dairy industry		1
3. Develop recommendations on improved feeding practices appropriate to local conditions		1
4. Work with small-scale farmers to evaluate these recommendations		1
5. Prepare extension leaflets on feeding and grazing management for small-scale farmers		1
6. Train local staff in improved principles of animal nutrition		1
<u>Subsequent Amendment:</u> Purpose		1
Animal feeding systems diversified and improved through the better utilisation of local natural resources and better practices.		
Wider Objectives: Goal		
<u>Initial:</u>		
Initial		
1. Improved livestock productivity in the Department of Santa Cruz through improved animal feeding practices and hence increased income of dairy farmers.		1
2. Improved utilisation of natural resources in the production of milk.		1
<u>Subsequent Amendment:</u>		
Incomes of small dairy farmers in the Department of Santa Cruz raised through improved milk production		
PIMS Markers assigned to ODA Priority Objectives		
<u>Priority Objectives:</u>	Marker 1-4	

EXPLAIN AND COMMENT (even if X-rated):

It is assumed that improvements in dairy business management will follow from the current (September 1997) consultancy on agribusiness management. Other objectives have already been realised.

2. **OVERALL ACHIEVEMENT OF IMMEDIATE OBJECTIVES/PURPOSE**

(given the ratings in question 1 give an overall rating of immediate objectives/purpose):

The overall rating is 1, all immediate objectives, revised as a single Purpose have already been achieved or are expected to be so shortly.

3. **LIST THE CONDITIONS NECESSARY FOR SUSTAINABILITY TO BE ACHIEVED:**

1. **Counterparts remain in post**
2. **FEDEPLE can obtain credit on behalf of small-scale producers.**
3. **Price of milk to consumers remains stable or increases.**
4. **Demand for milk and milk products increases in line with FEDEPLE projections.**

4. **DO YOU EXPECT THAT THE PROJECT WILL BE SUSTAINABLE?**

(enter Yes, No or Don't know):

There appears to be strong government recognition of the success of the project and support for the future expansion of milk production.

EXPLAIN AND COMMENT:

(for example, is project likely to achieve impact not originally envisaged; should the judgement on sustainability be qualified?)

The only doubts regarding sustainability relate to the responsiveness of the local market and the availability of credit. However, unforeseen benefits in decreasing malnutrition may ensue if present interest in giving free milk to schoolchildren becomes a fact.

G: PARTICULAR LESSONS FROM IMPLEMENTATION PHASE

1: **WHAT ARE THE MAIN LESSONS ODA CAN LEARN FROM THE IMPLEMENTATION PHASE OF THIS PROJECT?**

- (a) Positive aspects which may be replicable:
- i. **Working directly with beneficiaries rather than intermediate users contributed significantly to the success of the project.**
 - ii. **The benefits from delivering exactly what the producers required.**
 - iii. **The importance of adaptability of the Project manager without compromising his/her technical standards.**
 - iv. **The benefits of working with a commercially focused non-government organisation.**
- (b) Negative aspects which may be avoided in future:
- i. **More attention should have been paid to local sustainability at the start of the project, e.g. milk marketing infrastructure**
- (c) Other/General lessons:
- i. **It is not always easy to predict how a market will develop at the start of a project, particularly if macro-economic effects may be significant. However, perhaps the monitoring of such effects should have been included in the TCO's TORs.**

H: EX-POST EVALUATION

IS THIS PROJECT/ PROGRAMME CONSIDERED PARTICULARLY USEFUL FOR FURTHER EVALUATION? (enter Yes or No): yes

(If yes, place an "x" in box(es) which apply)

(a)	Innovative	
(b)	Particular relevance to achieving ODA's priority objectives	X
(c)	Rapidly increasing involvement in sector	
(d)	Replicable project	X
(e)	Continuing project	
(f)	Other (please specify):	

EXPLAIN AND COMMENT:

The project was very successful and the progress of the dairy industry in the Santa Cruz area could be relatively easily monitored in the future.

PCR FINALISED BY:

PCR APPROVED BY:

DATE: