

IICA



Consultant Final Report
IICA/EMBRAPA-PROCENSUL II

MICROBIOLOGY
ANIMAL PRODUCTION

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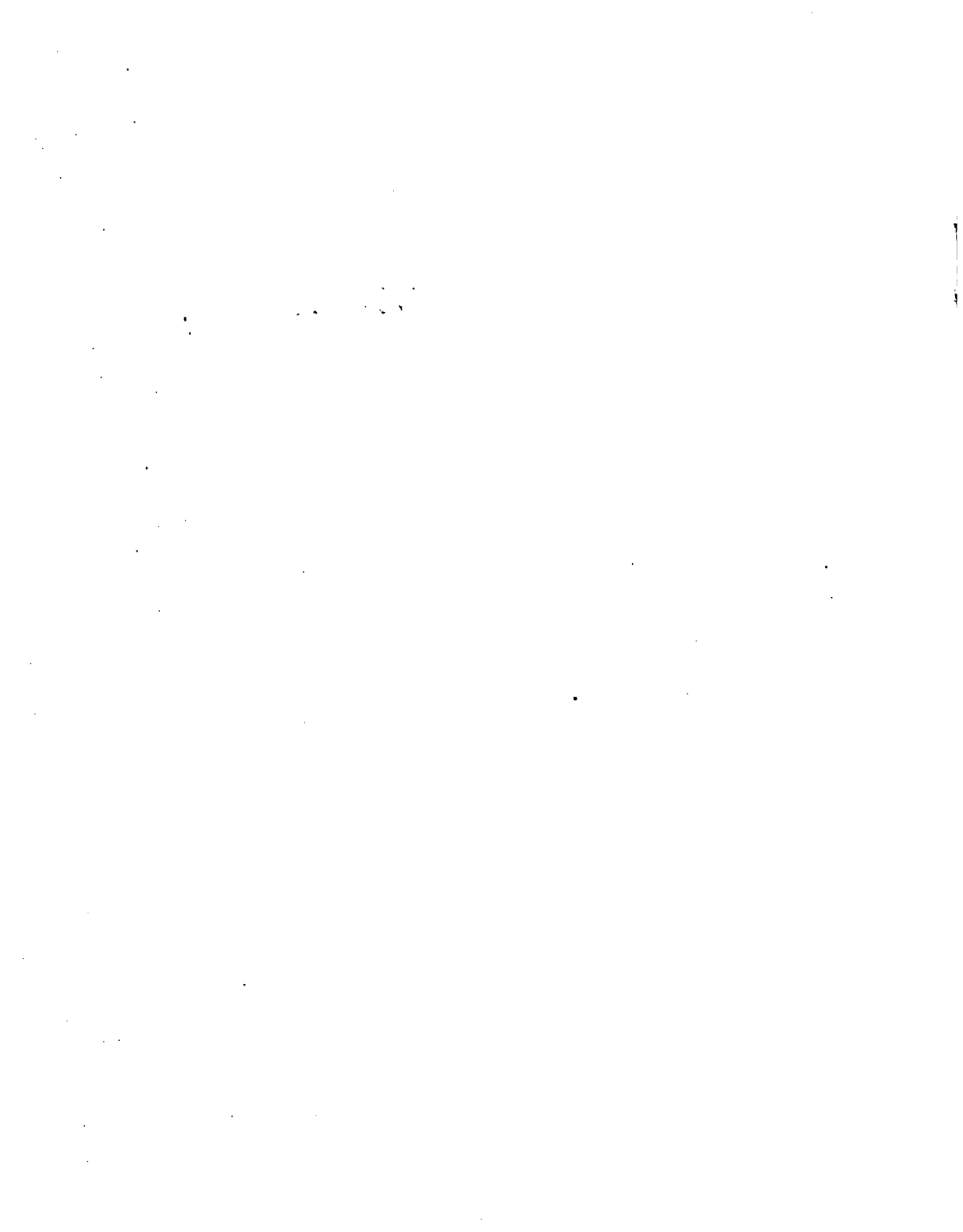
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Burk A. Dehority

Brasilia, maio de 1989

INSTITUTO INTERAMERICANO DE COOPERAÇÃO PARA A AGRICULTURA
EMPRESA BRASILEIRA DE PESQUISA AGROPECUARIA

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APRESENTAÇÃO

A reprodução e difusão dos Relatórios de Consultores, no âmbito restrito das Diretorias das Unidades do Sistema Nacional de Pesquisa Agropecuária, vinculado à EMBRAPA, tem como objetivo principal o de divulgar as atividades desenvolvidas pelos consultores e as opiniões e recomendações geradas sobre os problemas de interesse para a pesquisa agropecuária.

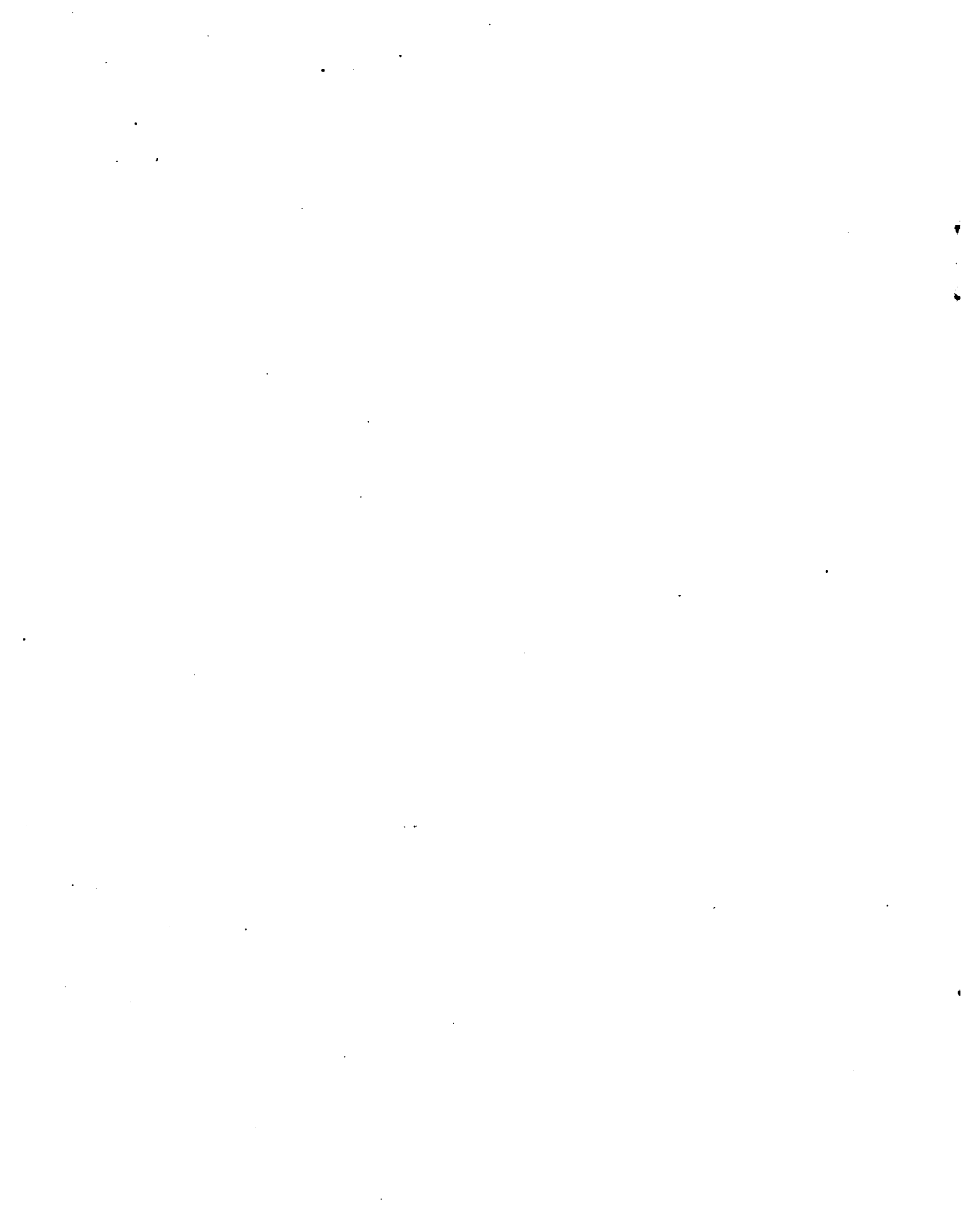
As atividades de consultoria são realizadas no âmbito do Projeto de Desenvolvimento da Pesquisa Agropecuária e Difusão de Tecnologia na Região Centro-Sul do Brasil - PROCENSUL II, financiado parcialmente pelo Banco Interamericano de Desenvolvimento - BID e a EMBRAPA conforme os contratos de Empréstimo 139/IC-BR e 760/SF-BR, assinados em 14 de março de 1985 entre o Governo Brasileiro e o BID.

As opiniões dos consultores são inteiramente pessoais e não refletem, necessariamente, o ponto de vista do IICA ou da EMBRAPA.

A coordenação dos Contratos IICA/EMBRAPA agradeceria receber comentários sobre estes relatórios.



Horacio A. Stagno
Coordenador Contratos IICA/EMBRAPA



INTER-AMERICAN INSTITUTE FOR COOPERATION IN AGRICULTURE
IICA/EMBRAPA CONTRACT

CONSULTANT FINAL REPORT

1. Consultant's full name: BURK A. DEHORITY
2. Specialist in: MICROBIOLOGY, ANIMAL PRODUCTION
3. Title of IICA Project: 2.SB.3
4. EMBRAPA Program for which consultancy is provided:

PROGRAM : PROCENSUL II

SUB - PROGRAM : 02 - PESQUISA ANIMAL

IICA Project Activity Code: 2.SB.3.03	Administrative Code: R 4884 31B 03103
Title of Activity of IICA Project corresponding to this consultancy	Cooperation with EMBRAPA in the field of animal production research
CONSULTANT CONTRACT PERIOD	DUTY LOCATION (Center)
August 6th to September 2nd., 1988	CNPGL/EMBRAPA, Coronel Pacheco-MG
CONTRACT EXTENSION PERIOD (IF any)	DUTY LOCATION (Center)

5. Financial support: PROCENSUL II

5. ACTIVITIES UNDERTAKEN BY THE CONSULTANT AND RESULTS

6.1 RESEARCH DONE UNDER DIRECT RESPONSIBILITY OF THE CONSULTANT

Research activities developed	Results Achieved
Set up laboratory facilities to conduct research studies in rumen microbiology	Equipment and supplies brought by the consultant plus those already on hand at CNPGL allowed the set up of a functioning laboratory within the first week.
Determination of total rumen bacterial numbers by MPN and roll tube methods	Nine experiments estimating total bacterial concentration using MPN method Two experiments with MPN method to estimate number of cellulolytic bacteria Three experiments with roll tubes for measuring total numbers.
Isolation of pure cultures of bacteria and methods of identification	Although primarily for demonstration, five cultures were isolated from a steer fed sugarcane, and three from a steer fed fat grass.
Procedures for counting and estimating generic composition of rumen protozoa	Two experiments, primarily to train personnel, were conducted.

6.2 SUPPORT TO RESEARCH UNDERTAKEN BY OTHER EMBRAPA RESEARCHERS

Research activities developed	Results achieved
Development of potential research projects in the area of rumen microbiology	Three projects were identified and planned to contribute to ongoing research at CNPGL: <ol style="list-style-type: none">1. Maximizing microbial protoplasm production in cattle fed sugarcane-urea diets.2. Time after feeding at which peak bacterial numbers occur in animals fed sugarcane.3. Numbers of <i>Selenomonas ruminantium</i> (principal ureolytic ruminal bacterium) as influenced by level of urea in the diet.

6.3 TRAINING ACTIVITIES DEVELOPED BY THE CONSULTANT

Date	Training subject matter	Type of event*	Number of beneficiaries	
			From EMBRAPA	From other institutions
31.8.88	Rumen Microbiology Methods	Symposium		
01.9.88	Rumen Isotrichid Protozoa	Seminar		

* Short courses, seminars, conferences, etc.

6.4 IN-SERVICE TRAINING PROVIDED BY THE CONSULTANT

In-service training subject matter	Names of counterparts
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Laboratory techniques in the counting and culture of rumen bacteria

Pedro Braga Arcuri
Maria Coletta Vidigal

Counting and estimating generic distribution of rumen protozoa

Gilvânia Correa, Clímaco

6.5 ACTIVITIES IN SUPPORT OF RESEARCH STRATEGY AND PLANNING

Research subject matter	Research program to which subject matter is concerned
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Numbers of rumen bacteria in cattle fed sugarcane based diets and different levels of urea

CNPGL has an active research project trying to determine what happens to tropical forages in different parts of the G.I. tract.

6.6 ACTIVITIES IN SUPPORT OF OTHER CENTERS AND UNIVERSITIES IMPROVING THE RESEARCH CENTERS LINKS WITH ABROAD

Subject matter on which links were recommended	Persons, centers and universities recommended for contact
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Rumen microbial numbers as influenced by different types of tropical and temperate forage of forage-type diets

ESALQ, Piracicaba, SP, Brasil
 Ohio State Univ. Wooster, Ohio, U.S.A.
 Instituto Nacional de Tecnologia Agropecuária, Argentina
 USP, Pirassununga, SP, Brasil

6.7 PUBLICATIONS AND REPORTS UNDERTAKEN WITH THE CONSULTANT'S PARTICIPATION

Author(s)*	Title of publication or Report and other bibliographic identification
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BURK A. DEHORITY

Preparation of research data notebook to be left with EMBRAPA personnel.

* Personal, institutional, etc.

6.8 SUPPORT PROVIDED TO EMBRAPA RESEARCHERS IN THESIS AND DISSERTATION WORK

Name of the student	Thesis subject matter and synthesis of advice
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GILVÂNIA CORREA CLÍMACO

Possible biochemical studies on lignin concentration and its effect on cellulose digestion in tropical forages.

MARIA COLETTA VIDIGAL

Techniques to isolate and culture ureolytic rumen bacteria. Her M.S. research project would deal with properties of urease enzyme.

B. CONSULTANT'S SUGGESTIONS AND TECHNICAL OR INSTITUTIONAL RECOMMENDATIONS FOR THE
IMPROVEMENT OF THE RESEARCH SERVICE

The personnel and support staff available and committed to undertaking a research program in rumen microbiology seem very adequate. Equipment and possibly more important, supplies such as culture tubes and stoppers, appear to be the largest constraint at the present time. The nature of rumen bacterial studies requires considerable time in medium preparation and at least four to five days incubation before reading the results. Thus the need for supplies becomes obvious. Simple items like methane gas to regenerate the oxygen-removing column as well as the medium ingredients are needed. It is my understanding that most of these items have been ordered.

The time I have spent with the individuals who will be working in this area has been quite short. I would hope that the Administration of CNPGL will realize that although the individuals know the principles of the anaerobic techniques, at least some time for practice and proficiency will be needed.

9. AGREEMENTS OR COMMITMENTS ESTABLISHED WITH ENBRAPA RESEARCHERS IN-SERVICE OF
THE FUTURE DEVELOPMENT OF RESEARCH IN THE CONSULTANT'S FIELD OF SPECIALIZATION

Discussions have been held with several investigations at CNPGL regarding possible investigations on the use of different readily available carbohydrate type feeds fed at limited intake levels. A good example would be feeding sugarcane in Brasil and corn in the USA.

10. CONSULTANT'S COMMENTS ON CIRCUMSTANCES WHICH AFFECTED THE CONSULTANCY WORK

All of the personnel here at CNPGL were most helpful in almost all areas of my consultancy. I deeply appreciate their help and consider any success to be the result of their interest.

Date:

SEPTEMBER 1, 1988

September 1st, 1988

Signature

Burk A. Sekowitz

Esta publicação foi reproduzida, em abril de 1989, numa tiragem de 80 exemplares.



