

8. 今後の取組み

8-1 提言

プロジェクト開始に向けて、施設の設計へのアドバイス、供与機材の選定等を早急に行う必要がある。また、選抜、栽培の専門家が決定したら直ちに詳細な試験設計を立て、試験圃場が準備できる体制を整える必要がある。

8-2 調査員所感

リンゴについては、視察先の各地で萌芽不良の枝が見られた。カサドル及びラモスの日系移住者からもこの件に関して研究し、技術指導してほしいとの強い要請があった。休眠打破については、平年における処理薬剤（ドルメックス）濃度及び処理時間がおよそ明らかになっている。しかし、異常年の指標はない。

以上から、暖冬の程度に対応した休眠の程度を判断する指標を得る研究、また、その休眠の程度に対応した休眠打破のための薬剤の濃度及び時期を明らかにする研究が必須であると思われる。4年間で目標を達成するのは無理としても、研究体制を整え、研究を開始する必要があると思われる。

リオ・グランデ・ド・スール州のペロータス市及びバカリア市、サンタ・カタリーナ州のカサドル市、ラモス市、サンジョアキン市等の各地を訪問し、研究者に劣らず、リンゴ並びにニホンナシの生産者の本プロジェクトに対する期待が大きいことが感じられた。

特に、リンゴはこれまで長期間にわたって個別専門家が派遣されてきたが、ニホンナシについては、栽培が始まったばかりのブラジルではなじみの薄い果樹であり、生産農家の先行きに対する不安が痛切に感じられた。

これら地域では牧畜が盛んで、市街地と森林以外はすべて放牧地という感じである。しかし、牛1頭を飼育するのに2ヘクタールの土地が必要であると言われるように、牧草地の管理が悪く、質の良くない硬い植物や、牛が中毒を起こす可能性のあるワラビが密生した場所等が多い。草地管理を施せば生産性は向上すると考えられるが、広大な土地を持つ企業的な経営者は、新たな土地を切り開いて次々と牧草地にするため、典型的な自然破壊の悪循環に陥り、この地域特有のパラナ松の森林もあちこちに点々と残るだけという結果になった。小規模農家では、そのような無駄な土地利用は不可能であり、小面積を有効に使うことのできる技術開発を行うことが重要であると考えられる。このことは大規模な企業経営の場合も同様であろう。

訪問した地域は日本よりもかなり低緯度の地帯である。極短期間の滞在ではあったが、ペロータスやカサドルでは、周囲の山林や原野（放牧地を除く）には、熱帯性と思われる木性

のシダ（現地名：シャシン）が生え、樹木にはパイナップル科のスパニッシュモスやクリプタンサス属の植物等が付着している。また、湿地にはサトイモ科のクワズイモに似た植物が生えている等、さながら、熱帯の森に迷い込んだ感じを受ける。やや平均気温が低く、時には降雪があるというサンジョアキンにしても、この地域特有のバラナ松等の枝からはコケの一種やスパニッシュモスが長く下垂し、その他のパイナップル科やコショウ科の植物が付着している。これらの状況から考えると、冬期の気温が下がるとしても厳しくはなく、一方、空中から水分を取り込む付着性植物が多いことから、植物の生育期間中の大気の湿度も高いと考えられる。少ない経験から考えると、八丈島や鹿児島県南部の感がある。このような気象条件の下では、温帯果樹の休眠は十分ではなく、開花・結実に障害が発生しやすい。さらには病害虫の発生も多いものと考えられる。また、樹体の生育開始初期から中期にかけての降雪や降雹の害等、栽培上の大きな不安定要素となっており、いずれも将来的には解決が望まれる大きな問題である。

出発前に問題となっていたカサドールにおける長期専門家の滞在の可否については、気候的にも、生活条件としても、サンジョアキンよりむしろ快適で、問題ないであろうとの認識を持って帰国した。

付 属 資 料

1. 協議議事録 (Minutes of Discussions) (英語及びポルトガル語)
2. ブラジル農業・食糧供給・農地改革省組織図
3. ブラジル農牧研究公社 (EMBRAPA) 本部組織図及び傘下の研究機関概要
4. ブラジル農牧研究公社温帯農牧研究センター (EMBRAPA/CPACT) 組織図
5. サンタ・カタリーナ州農牧研究・普及公社 (EPAGRI) 組織図
6. サンタ・カタリーナ州農牧研究・普及公社 (EPAGRI)カサドール地方管理センター及びカサドール試験場組織図
7. サンタ・カタリーナ州農牧研究・普及公社 (EPAGRI)サンジョアキン試験場職員配置図
8. カウンターパート配置計画表
9. 主要カウンターパートの履歴概要
10. 各プロジェクトサイト別現有機材リスト

**MINUTES OF DISCUSSIONS
ON THE JAPANESE TECHNICAL COOPERATION PROGRAM
AMONG THE JAPANESE SPECIALISTS FOR SUPPLEMENTARY STUDY,
THE SANTA CATARINA AGRICULTURAL RESEARCH
AND RURAL EXTENSION ENTERPRISE
AND THE BRAZILIAN AGRICULTURAL RESEARCH ENTERPRISE
FOR THE RESEARCH PROJECT
ON SMALL SCALE HORTICULTURE IN SOUTHERN BRAZIL**

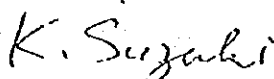
As described in the document attached to the minutes of discussions of the Preliminary Study Team on the Research Cooperation Project on Small Scale Horticulture in Southern Brazil signed in Florianópolis on October 4th, 1995, the Government of Japan sent Japanese Specialists for Supplementary Study (hereinafter referred to as "the Specialists") headed by Dr. Kunihiko Suzuki, from November 14 to December 4, 1995. The Specialists were sent through the Japan International Cooperation Agency (hereinafter referred to as "JICA") for the preparation of the Project Type Technical Cooperation Program. The project name has been modified to The Research Project on Small Scale Horticulture in Southern Brazil (hereinafter referred to as "the Project"), based on the concept of ownership of the Project.

During their stay in the Federative Republic of Brazil, the Specialists carried out a field survey, exchanged views and had a series of discussions with those who were concerned of the Santa Catarina Agricultural Research and Rural Extension Enterprise (hereinafter referred to as "EPAGRI") and the Temperate Climate Agricultural Research Center of EMBRAPA (hereinafter referred to as "EMBRAPA/CPACT". EMBRAPA is the Brazilian Agricultural Research Enterprise), so as to grasp the background and to formulate a clear picture of the Project.

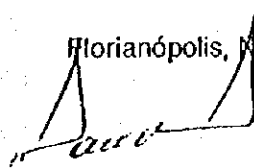
As a result of the discussions and the field survey, the Specialists, EPAGRI, and EMBRAPA/CPACT agreed to recommend to their respective Governments, the Tentative Framework of Technical Cooperation referred to in the document attached hereto.

The texts were done in quadruplicate in Portuguese and English, respectively, with both the Portuguese and English texts being equally authentic. In case of any divergence of interpretation, the English text shall prevail.

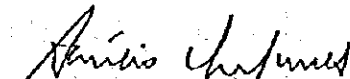
Florianópolis, November 29th, 1995



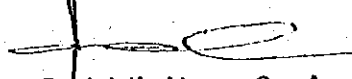
Dr. Kunihiko Suzuki
Leader
Japanese Specialists for Supplementary Study,
Japan International Cooperation Agency, Japan



Dep. Dejandir Dalpasquale
Secretary
Secretariat of Rural Development and Agriculture of the
State of Santa Catarina, Federative Republic of Brazil



Dr. Laercio Nunes e Nunes
Head
Temperate Climate Agricultural Research Center of
the Brazilian Agricultural Research Enterprise,
Federative Republic of Brazil



Dr. Adolfo Nunes Corrêa
President
Santa Catarina Agricultural Research and Rural
Extension Enterprise,
Federative Republic of Brazil

THE ATTACHED DOCUMENT

I. INTRODUCTION

The Federative Republic of Brazil made a request in January 1995 for Project Type Technical Cooperation of the Government of Japan for the Research and Development Project on Temperate Fruit Culture in southern Brazil. This request was made in order to improve, generate, and adapt technologies for the improvement of quality of products and competitiveness in marketing of apples and Japanese pears, taking into account preservation of the environment. In the original request, the overall goal was to contribute to the improvement of technological knowledge that would increase the supply of fruits and their derivatives, meeting the "quality" requirements at the market.

In response to the above-mentioned request, JICA dispatched the Preliminary Study Team from September 21st to October 8th, 1995 for the purpose of clarifying the background of the request, identifying problems for the implementation of the Project, and studying the feasibility of the proposed technical cooperation program.

As a result of the preliminary study, the Japanese Preliminary Study Team and the Brazilian side jointly formulated the Tentative Framework of Technical Cooperation for the Project, and recommended it to their respective Governments.

Based on the suggestions and comments presented by the Preliminary Study Team, the Specialists have been dispatched by JICA for the following purposes:

- (a) To design the detailed activity plan which will be implemented at the respective Project sites
- (b) To prepare the definite plan for provision of necessary machinery, equipment and other materials (hereinafter referred to as "the Equipment") for the Project
- (c) To obtain technical information necessary for formulating a draft of the Tentative Schedule of Implementation that is composed of an Annual Program and a Technical Cooperation Program
- (d) To confirm the Project implementation system on the Brazilian side

The Specialists and the Brazilian side reviewed and modified the Tentative Project Framework proposed in the Minutes of Discussions signed in Florianópolis on October 4th, 1995, aiming at more effective and efficient implementation of the Project.

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As a result of the field survey and discussions, this report has been prepared to summarize matters studied by the Specialists and the Brazilian side. The framework shown as follows may be subject to changes through the coming discussions and studies.

II. TENTATIVE PROJECT FRAMEWORK

1. NAME OF THE PROJECT

The Research Project on Small Scale Horticulture in Southern Brazil

Note: The Specialists and the Brazilian side agreed to modify the project name based on the concept of ownership of the Project, taking into consideration on the principle of technical cooperation.

2. BRAZILIAN ORGANIZATIONS OF THE PROJECT

(a) Responsible Public Administrative organization of the Project

Secretariat of Rural Development and Agriculture of the State of Santa Catarina (SEDRA)

(b) Executing organization of the Project

Agricultural Research and Rural Extension Enterprise of Santa Catarina (EPAGRI)

(c) Supporting organization of the Project

Temperate Climate Agricultural Research Center (CPACT) of EMBRAPA

3. SITES OF THE PROJECT

(a) The São Joaquim Experiment Station, EPAGRI, located in São Joaquim, the State of Santa Catarina, will be the main site of the Project.

(b) The Caçador Experiment Station, EPAGRI, located in Caçador, the State of Santa Catarina, will be the sub-site of the Project.

(c) EMBRAPA/CPACT, located in Pelotas, the State of Rio Grande do Sul, will act as

the supporting organization.

4. TERM OF COOPERATION

Five Years

5. MASTER PLAN

(1) Objectives of the Project

(a) Overall Goal

The appropriate and sustainable cultivation techniques for horticultural crop production in southern Brazil will be developed, thus contributing to the improvement of the farming of small scale horticulturists.

(b) Project Purpose

- 1) The research capabilities at EPAGRI will be enhanced for the improvement of productivity of horticultural crops in which a large number of small scale horticulturists in southern Brazil are engaged.
- 2) Appropriate cultivation techniques and other relevant techniques on horticultural crops will be developed.
- 3) The results obtained through the Project will be transferred to small scale horticulturists.

(2) Function of the Project Organizations

(a) Main site

EPAGRI/São Joaquim Experiment Station, São Joaquim, State of Santa Catarina

- 1) Development and improvement of the overall relevant techniques in the fields of selection and evaluation of cultivars and rootstocks, cultivation, plant protection, fruit nutrition, and pre- and post-harvest physiology of apples.
- 2) Development and improvement of practical cultivation techniques of apples focusing on small scale horticulturists in the region.
- 3) Strengthening the capacity for technical guidance in order to promote disseminating the techniques and knowledge developed in the Project to small

scale producers in the region.

(b) Sub-site

EPAGRI/Caçador Experiment Station, Caçador, State of Santa Catarina

- 1) Introduction and development of relevant techniques mainly in the fields of selection and evaluation of cultivars, and cultivation of Japanese pears.
- 2) Strengthening the capacity for technical guidance in order to promote disseminating the techniques and knowledge developed in the Project to small scale producers in the region.
- 3) The research activities on Japanese pears will be concentrated on young trees.

(c) Supporting Organization

EMBRAPA/CPACT, Pelotas, State of Rio Grande do Sul

- 1) Supporting the Project through the following basic research activities in order to contribute to solving the problems on practical cultivation in principal fruit trees in southern Brazil:
 - a) Chemical and physiological analysis of organs and tissues of temperate fruit trees
 - b) Virus diagnosis and clonal cleaning, through thermotherapy and meristem culture, and isozyme characterization to assure the genetic purity
- 2) Disseminating the techniques and knowledge developed in the Project in southern Brazil through technical seminars, field days, and production of audio-visual teaching materials and technical publications.

The allotment of the Project activities at the Project sites is shown in ANNEX 1. The Organizational Chart of the Project is shown in Annex 2.

(3) Outputs and Activities of the Project

- 1) The selection and evaluation techniques on cultivars and rootstocks for southern Brazil, are improved through the following activities:
 - a) To evaluate the adaptability for soil, climate, and social conditions of

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- southern Brazil of the cultivars and rootstocks
- b) To select disease-resistant cultivars and rootstocks
- 2) The cultivation techniques suitable for soil, climate, and social conditions of southern Brazil are elaborated through the following activities:
- a) To develop planting and training systems
 - b) To study the techniques concerning pre- and post-harvest physiology
- 3) The plant protection techniques are developed through the following activities:
- a) To diagnose main diseases, and to identify pathogens
 - b) To study control methods of main diseases and pests
 - c) To study virus free technology
- 4) The studies on fertilization techniques and physiological disorders are enhanced through the following activities:
- a) To develop soil management systems and methods of fertilizer application for southern Brazil
 - i) Evaluating recommended methods of fertilizer application for southern Brazil
 - ii) Evaluating the effects of soil management such as sod culture and clean tillage systems on the growth
 - b) To investigate the actual conditions and the factors on the occurrence of the physiological disorders
 - i) Researching the actual conditions of the occurrence of the disorders, and the diagnosis of the disorders
 - ii) Examining the effects of environmental factors and mineral nutrients on the occurrence of the disorders
- 5) Other
- a) To disseminate the techniques and knowledge developed in the Project to small scale horticulturists in the region

- i) Conducting technical seminars for horticultural researchers and technicians, extension officers, and leading farmers
- ii) Producing audio-visual teaching materials and technical publications

6. MEASURES TO BE TAKEN BY THE JAPANESE SIDE

(1) Dispatch of Japanese Experts

Japanese experts in the following fields will be dispatched:

(a) Long-Term Experts

- 1) Team Leader
- 2) Liaison Officer
- 3) Long-term experts in the following fields:
 - a) Cultivation of apples
 - b) Cultivation of Japanese pears
 - c) Plant Protection
 - d) Selection

Note: The Team Leader may serve concurrently as an expert in one of the above-mentioned technical fields.

(b) Short-Term Experts

Short-term experts may be dispatched, when necessity arises, for the smooth implementation of the Project.

(2) Acceptance of Counterpart Personnel in Japan for training

Acceptance of counterpart personnel to the Japanese experts for training in Japan shall be arranged during the cooperation period.

(3) Provision of Machinery and Equipment

The Equipment for the implementation of the Project will be provided within the budgetary limitations.

7. MEASURES TO BE TAKEN BY THE BRAZILIAN SIDE

(1) Provision of the buildings and facilities necessary for the implementation of the

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- (a) Land, buildings and facilities needed for the implementation of the Project
- (b) Rooms and space necessary for installation and storage of the Equipment
- (c) Office space and necessary facilities for the Japanese Team Leader, Liaison Officer and other Japanese Experts
- (d) Other facilities mutually agreed upon, if necessary

The construction work plan made by the Brazilian side is shown in ANNEX 3.

- (2) Assignment of the necessary number of full-time counterpart personnel to match with the Japanese long-term experts.

The tentative plan of assignment of counterparts and other administrative personnel is shown in ANNEX 4.

- (3) Sound budgetary allocation for the smooth commencement and successful implementation of the Project.

- (a) Expenses necessary for domestic transportation of the Equipment in the Federative Republic of Brazil, as well as for installation, operation and maintenance.

- (b) Customs, duties, internal taxes and other charges imposed on the Equipment in the Federative Republic of Brazil

- (c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment

- (d) All running expenses necessary for the implementation of the Project

The tentative plan of budgetary allocation for the Project is shown in ANNEX 5.

- (4) Coordination and harmonization of related institutions

8. ADMINISTRATION OF THE PROJECT

- (1) The Secretary of Rural Development and Agriculture of the State of Santa Catarina, as the Project Director, will bear overall responsibility for the

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administration and implementation of the Project.

(2) The President of EPAGRI will bear direct responsibility for the implementation of the Project.

(3) The Director of EPAGRI/São Joaquim Experiment Station, as the Project Manager, consulting with the Director of EPAGRI/Caçador on the matters related to the activities in the Caçador Experiment Station, will be responsible for the managerial and technical matters of the Project.

9. JOINT COORDINATING COMMITTEE

The joint coordinating committee composed of those members as listed in (2) below will meet at least once a year and whenever the need arises.

(1) Function

(a) To formulate the Annual Work Plan under the framework of the Record of Discussions.

(b) To review the overall progress of the technical cooperation program as well as achievement of the Annual Work Plan of the Project.

(c) To review those measures taken by the Government of Japan:

1) Dispatch of Japanese experts

2) Acceptance of Brazilian counterpart personnel in Japan for training

3) Provision of machinery and equipment

(d) To review those measures taken by the Government of Brazil:

1) Allocation of necessary budget (including local cost expenditures)

2) Allocation of necessary counterpart personnel

3) Utilization and administration of machinery and equipment provided by the Government of Japan

(e) To recommend to the respective Governments about:

1) Budgetary matters

2) Recruitment and appointment of the Brazilian counterpart personnel

3) Selection and effective utilization of machinery and equipment

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- 4) Appropriate dispatch of Japanese experts
- 5) Acceptance of Brazilian counterpart personnel in Japan for training
- 6) Others

(2) Committee Composition

(a) Chairperson:

Secretary of Rural Development and Agriculture of the State of Santa Catarina

(b) Members:

(i) Brazilian side

- 1) President of EPAGRI
- 2) Representative from the Brazilian Cooperation Agency (ABC)
- 3) Administrative Director of EPAGRI
- 4) Technical Director of EPAGRI
- 5) Head of EPAGRI/São Joaquim Experiment Station
- 6) Head of EPAGRI/Caçador Experiment Station
- 7) Head of EMBRAPA/CPACT
- 8) Representative from the Headquarters of EMBRAPA

(ii) Japanese side

- 1) Team Leader
- 2) Liaison Officer
- 3) Experts assigned to the Project
- 4) Other Japanese experts and personnel concerned, dispatched by JICA if necessary.
- 5) Coordinator in Brazil for Technical Cooperation, JICA

Notes:

1. Officials of the Embassy of Japan and the Consulate General of Japan in Porto Alegre may attend the Joint Coordinating Committee meeting as observers.
2. Persons who are nominated by the Chairperson may attend the Joint Coordinating Committee meeting.

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III. SUGGESTIONS AND COMMENTS MADE BY THE SPECIALISTS

- (1) Regarding the detailed activities and the Tentative Schedule of Implementation of the Project, further examination will be required among the Japanese institutions concerned, taking into consideration the findings of this study and technical needs of the Brazilian side for the purpose of setting up an adequate cooperation scope.
- (2) The allocation of necessary counterpart personnel is indispensable to implement the technical cooperation program smoothly and successfully, and to accomplish the purpose of the Project. The tentative plan of assignment of counterparts and other administrative personnel is as per attached in ANNEX 4, in which the names of the Brazilian counterparts, in accordance with the research activities and site of the Project is indicated. It is expected that the Brazilian side would complete the allocation of sufficient number of capable and enthusiastic counterpart personnel, particularly in the fields of plant nutrition and physiology in apples. To put it concretely, it is necessary to assign at least 2 counterparts to each Japanese expert for the purpose of ensuring the smooth implementation and the sustainability of the Project. This should be completed before the arrival of the Japanese Implementation Study Team that will be dispatched in March, 1996.
- (3) The construction work plan for the relevant facilities at the Project sites is as per attached in ANNEX 3. In particular, the construction of laboratory of soil management, the interior finish work of project office and the installation of telephone line at EPAGRI/São Joaquim Experiment Station should be completed before the start of the Project for the smooth commencement of the Project activities.
- (4) The Brazilian organizations concerned of the Project should allocate annually enough amount of budget for the smooth implementation of the Project.
- (5) In order to implement the Project effectively and efficiently, it is important to maintain and strengthen the collaborative relationship among EPAGRI/São

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Joaquim Experiment Station, EPAGRI/Caçador Experiment Station and EMBRAPA/CPACT.

(6) The outcome of the Project should contribute to strengthening the technical base of farming of small scale horticulturists in southern Brazil. The executing organizations should promote the transfer of technology and knowledge developed in the Project to them extensively and in a timely manner.

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ANNEX 1 . Allotment of the Project Activities at the Project Sites

Project Activities	Sites of the Project		Supporting Organization
	Main site	Sub-site	
1) Improvement of the selection and evaluation techniques on cultivars and rootstocks for southern Brazil a) To evaluate the adaptability for soil, climate, and social conditions of southern Brazil of the cultivars and rootstocks b) To select disease-resistant cultivars and rootstocks	X X	X	
2) Elaboration of the cultivation techniques suitable for soil, climate, and social conditions of southern Brazil a) To develop planting and training systems b) To study the techniques concerning pre- and post-harvest physiology	X X	X	
3) Development of the plant protection techniques a) To diagnose main diseases, and to identify pathogens b) To study control methods of main diseases and pests c) To study virus free technology	X X X	X X	X (For main site) X (For Main site) X (For Main site)

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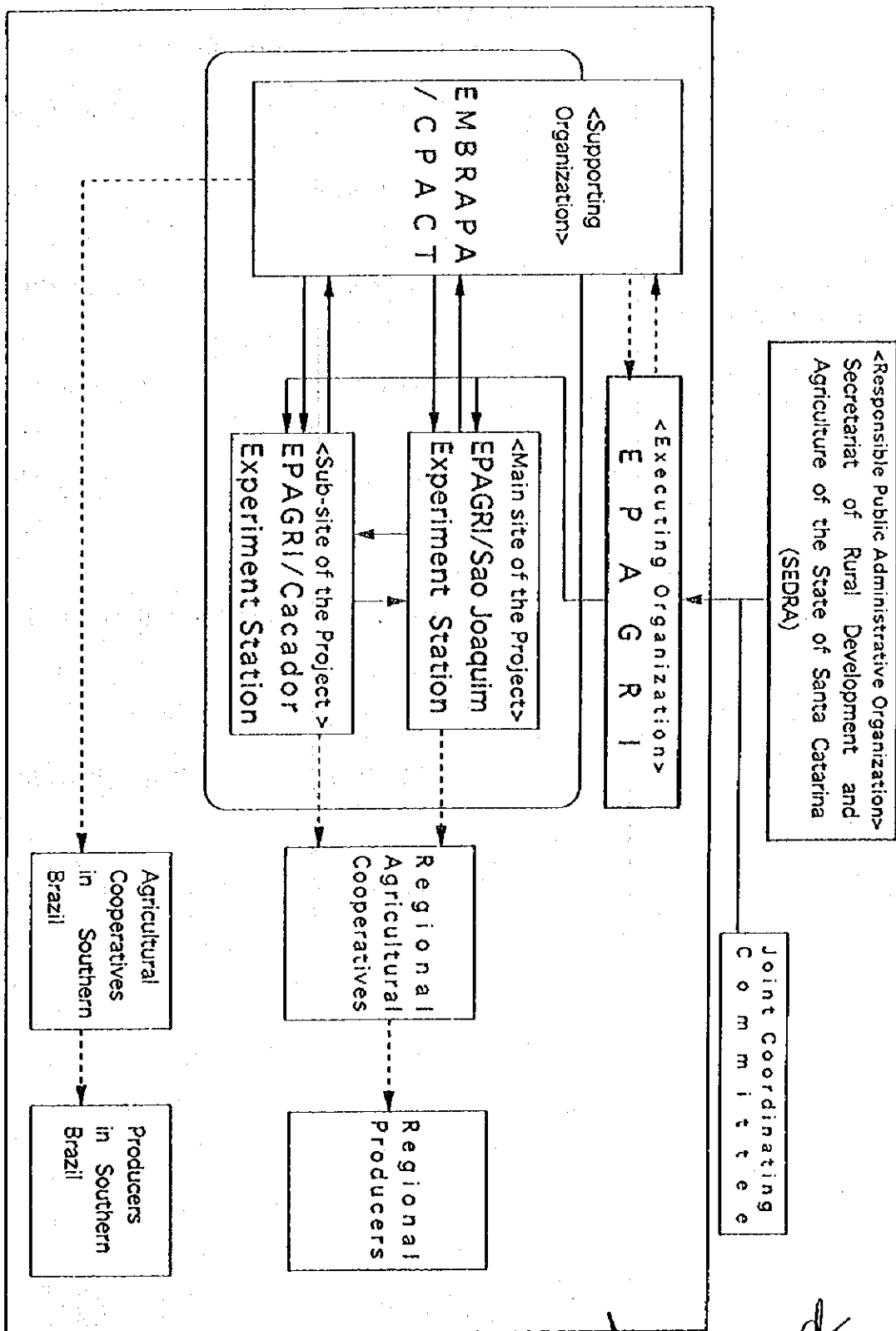
Allotment of the Project Activities at the Project Sites

Project Activities	Sites of the Project		
	Main site	Sub-site	Supporting Organization
<p>4) Enhancement of the studies on fertilization techniques and physiological disorders</p> <p>a) To develop soil management systems and methods of fertilizer application for southern Brazil</p> <p>b) To investigate the actual conditions and the factors on the occurrence of the physiological disorders</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p>	<p></p> <p>X</p>
<p>5) Other</p> <p>a) Dissemination of the techniques and knowledge developed in the Project to small scale horticulturists in the region</p> <p>i) Conducting technical seminars for horticultural researchers and technicians, extension officers, and leading farmers, and producing technical publications</p> <p>ii) Producing audio-visual teaching materials</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p> <p>X</p>

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ANNEX 2. Organizational Chart of the Project



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ANNEX 3. Construction Work Plan

a. EPAGRI/São Joaquim Experiment Station (São Joaquim)

Construction work	Beginning	Conclusion (Estimated)
1. Interior finish work of Project Office	March/1996	August/1996
2. Installation of telephone line	April/1996	April/1996
3. Laboratory of Soil Management (to be newly constructed)	March/1996	October/1996
4. Interior finish work of Laboratory of Physiology	August/1996	October/1996
5. Trial and demonstration field	April/1996	June/1996

b. EPAGRI/Çaçador Experiment Station (Çaçador)

Construction work	Beginning	Conclusion (Estimated)
1. Interior finish work of Project Office	April/1996	April/1996
2. Extension of Laboratory of soil management (to expand the existing facilities)	May/1996	September/1996
3. Trial and demonstration field	April/1996	June/1996

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ANNEX 4. Tentative Plan of Assignment of Brazilian Counterpart Personnel

1) Field of Selection and Evaluation

Activities	Fruit trees	Apples	Japanese pears
a) Evaluation of the adaptability for soil, climate, and social conditions of southern Brazil of the cultivars and rootstocks		EPAGRI/São Joaquim Mr. Emilio Brighenti Mr. Adilson J. Pereira Mr. Pedro A. Ribeiro	EPAGRI/Çaçador Mr. Ivan D. Faoro Mr. Frederico Denardi Mr. Anísio P. Camilo Mr. Gabriel B. Leite
b) Selection of disease-resistant cultivars and rootstocks		EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Emilio Brighenti Mr. Adilson J. Pereira Mr. Luia Gonzaga Ribeiro	-----

2) Field of Cultivation

Activities	Fruit trees	Apples	Japanese pears
a) Development of planting and training systems		EPAGRI/São Joaquim Mr. Adilson J. Pereira Mr. Názaro Vieira	EPAGRI/Çaçador Mr. José L. Petri Mr. Gabriel B. Leite
b) Study on the techniques concerning pre- and post-harvest physiology		EPAGRI/São Joaquim Ms. Vera L. Iuchi	-----

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3) Field of Plant Protection

Activities	Fruit trees	Apples	Japanese pears
a) Diagnosis of main diseases, and identification of pathogens	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Yoshinori Katsurayama Mr. Antonio Amorih Neto EMBRAPA/CPACT Mr. Joel F. Fortes Mr. Luiz A. S. Castro	EPAGRI/Çaçador Mr. Jorge Bleicher Mr. Luiz A. Palladini	
b) To study control methods of main diseases and pests	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Yoshinori Katsurayama Mr. Reinhard Krueger EMBRAPA/CPACT Mr. Joel F. Fortes Mr. Luiz A. S. Castro	EPAGRI/Çaçador Mr. Luiz A. Palladini Mr. Ildebrando Nora	
c) Virus free technology	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Yoshinori Katsurayama Mr. Valdir Bonin EMBRAPA/CPACT Mr. Gerson R. L. Fortes Mr. Luis A. S. Castro Mr. Eliane Augustin Mr. Julio Daviels Mr. Bonifacio H. Nakasu		

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4) Fields of Plant nutrition and Physiology

Activites	Fruit trees	Apples	Japanese pears
a) To develop soil management systems and methods of fertilizer application for southern Brazil		EPAGRI/São Joaquim Mr. José M. katsurayama	EPAGRI/Caçador Mr. Atsuo Suzuki Mr. Clori Basso
b) To investigate the actual conditions and the factors on the occurrence of the physiological disorders		EPAGRI/São Joaquim Mr. Vera L. tuchi EMBRAPA/CPACT Mr. Darcy Camelatto Mr. Claudio José S. Freire	EPAGRI/Caçador Mr. Jose L. Petri Mr. Gabriel B. Leite Mr. Clori Basso EMBRAPA/CPACT Mr. Flavio G. Herter Mr. Darcy Camelatto Mr. Nelson L. Finardi

5) Administration

a) Main site

Position		No.
1) Administrative Personnel		1
2) Laboratory assistant		4
3) Supporting Personnel	Secretary	1
	Driver	1
	Field Worker	10
Total		17

b) Sub-site

Position		No.
1) Administrative Personnel		2
2) Laboratory assistant		2
3) Supporting Personnel	Secretary	1
	Driver	1
	Field Worker	15
Total		21

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c) Supporting organization

Position		No.
1) Administrative Personnel		1
2) Laboratory assistant		5
3) Supporting Personnel	Secretary	1
	Driver	1
	Field Worker	-----
Total		8

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ANNEX 5.

Tentative Plan of Budgetary Allocation for the Project (for 5 years)

1) Main Site US \$

Items of Expenses	Budget
(1) Personnel Expenses	
a. Counterpart personnel	3,250,000.00
b. Administrative personnel	124,800.00
(2) Investment in Construction and Equipment	
a. Construction work	200,000.00
b. Equipment	100,000.00
(3) Operational Expenses	500,000.00
Total	4,174,800.00

2) Sub-Site US \$

Items of Expenses	Budget
(1) Personnel Expenses	
a. Counterpart personnel	1,800,000.00
b. Administrative personnel	540,000.00
(2) Investment in Construction and Equipment	
a. Construction work	60,000.00
b. Equipment	100,000.00
(3) Operational Expenses	500,000.00
Total	3,000,000.00

3) Supporting Organization US \$

Items of Expenses	Budget
(1) Personnel Expenses	
a. Counterpart personnel	1,500,000.00
b. Administrative personnel	300,000.00
(2) Investment in Construction and Equipment	
a. Construction work	200,000.00
b. Equipment	500,000.00
(3) Operational Expenses	500,000.00
Total	3,000,000.00
Grand total	10,174,000.00

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**MINUTA DAS DISCUSSÕES
DO PROGRAMA DE COOPERAÇÃO TÉCNICA JAPONESA
ENTRE ESPECIALISTAS JAPONESES DE ESTUDO SUPLEMENTAR,
A EMPRESA DE PESQUISA AGROPECUÁRIA E DE EXTENSÃO RURAL DE
SANTA CATARINA E A EMPRESA BRASILEIRA DE PESQUISA
AGROPECUÁRIA, SOBRE O PROJETO DE PESQUISA EM HORTICULTURA
PARA PEQUENOS PRODUTORES NO SUL DO BRASIL**

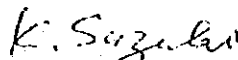
Como descrito no documento anexado à minuta das discussões da Missão de Estudo Preliminar sobre o Projeto de Pesquisa em Horticultura para Pequenos Produtores no Sul do Brasil, assinada em Florianópolis em 4 de outubro de 1995, o Governo do Japão enviou especialistas Japoneses para estudo suplementar (doravante denominados "os Especialistas") chefiados pelo Dr. Kunihiko Suzuki, no período de 14 de novembro a 4 de dezembro de 1995. Os Especialistas foram enviados através da Agência de Cooperação Internacional do Japão (doravante denominada "JICA") com o propósito de preparar o Programa de Cooperação Técnica "Tipo Projeto". O nome do Projeto foi modificado para Projeto de Pesquisa em Horticultura para Pequenos Produtores no Sul do Brasil (doravante denominado "o Projeto").

Durante sua estada na República Federativa do Brasil, os Especialistas realizaram observações de campo, trocando opiniões e mantendo uma série de discussões com as pessoas envolvidas da Empresa de Pesquisa Agropecuária e de Extensão Rural de Santa Catarina (doravante denominada "EPAGRI") e o Centro de Pesquisa Agropecuária de Clima Temperado da EMBRAPA (doravante denominado "EMBRAPA/CPACT"; EMBRAPA é Empresa Brasileira de Pesquisa Agropecuária.), para compreender os antecedentes e formular um quadro claro do Projeto.

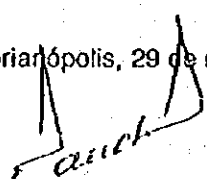
Como resultado das discussões e observações de campo, os Especialistas, EPAGRI e EMBRAPA/CPACT acordaram em recomendar para os seus respectivos Governos o Marco Tentativo da Cooperação Técnica, conforme documentação anexa.

Os textos foram elaborados em quatro vias, nas versões português e inglês, sendo todos iguais e autênticos. Em caso de alguma divergência de interpretação prevalecerá o texto em inglês.

Florianópolis, 29 de novembro de 1995

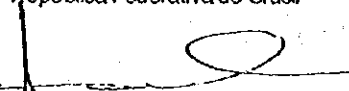


Dr. Kunihiko Suzuki
Chefe
Especialistas Japoneses para Estudo Suplementar,
Agência de Cooperação Internacional do Japão,
Japão


Dep. Dejandir Dalpasquale
Secretário
Secretaria de Estado de Desenvolvimento Rural e
da Agricultura de Santa Catarina,
República Federativa do Brasil



Dr. Laercio Nunes e Nunes
Chefe
Centro de Pesquisa Agropecuária de Clima Temperado
da Empresa Brasileira de Pesquisa Agropecuária,
República Federativa do Brasil


Dr. Adolfo Nunes Corrêa
Presidente
Empresa de Pesquisa Agropecuária e Extensão
Rural de Santa Catarina S. A.
República Federativa do Brasil

DOCUMENTO ADJUNTO

I. INTRODUÇÃO

A República Federativa do Brasil solicitou ao Governo do Japão, em janeiro de 1995, Cooperação Técnica de Projeto-tipo em Pesquisa e Desenvolvimento em Fruticultura de Clima Temperado no Sul do Brasil. Essa solicitação foi feita com o objetivo de aperfeiçoar, gerar e adaptar tecnologias para a melhoria da qualidade de produtos e competitividade na comercialização de maçãs e pêras japonesas, garantindo igualmente a preservação do meio ambiente. Baseado no objetivo imediato, o Projeto pretende contribuir para a melhoria do conhecimento tecnológico que possa aumentar a oferta de frutas e produtos derivados com qualidade para atender a demanda do mercado.

Em resposta à solicitação acima mencionada, a JICA enviou a Missão de Estudo Preliminar no período de 21 de setembro a 8 de outubro de 1995, com o propósito de esclarecer os antecedentes da solicitação, identificar problemas para a implementação do projeto e estudar a viabilidade do programa de cooperação técnica proposto.

Como resultado do estudo preliminar, a Missão Japonesa de Estudo Preliminar e o lado brasileiro formularam em conjunto o Marco Tentativo de Cooperação Técnica do Projeto e o recomendaram a seus respectivos Governos.

Baseado nas sugestões e comentários apresentados pela Missão de Estudo Preliminar, os Especialistas foram enviados pela JICA com os seguintes objetivos:

- (a) Planejar as atividades detalhadas que serão conduzidas nas respectivas sedes do Projeto;
- (b) Preparar o plano definitivo de doação de máquinas, equipamentos e outros materiais necessários (doravante denominados "os Equipamentos") do Projeto;
- (c) Obter informações técnicas necessárias para formular o plano do Programa Tentativo de Implementação que é composto do Programa Anual e Programa de Cooperação Técnica;
- (d) Confirmar o sistema de implementação do Projeto com o lado brasileiro.

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Os Especialistas e o lado brasileiro reexaminaram e modificaram o Marco Tentativo do Projeto proposto em 4 de outubro de 1995, objetivando a implementação efetiva e eficiente do Projeto.

Como resultado de observações de campo e discussões, este relatório foi elaborado, para sumarizar assuntos estudados entre Especialistas e o lado brasileiro.

O Marco mostrado abaixo está sujeito a modificações nas próximas discussões e estudos.

II. MARCO TENTATIVO DO PROJETO

1. NOME DO PROJETO

Projeto de Pesquisa em Horticultura para Pequenos Produtores no Sul do Brasil

Nota: Os especialistas e o lado brasileiro concordaram em modificar o nome do projeto baseado no conceito de domínio do Projeto, tomando em consideração o princípio de cooperação técnica.

2. ORGANIZAÇÕES BRASILEIRAS DO PROJETO

(a) Organização Administrativa Pública responsável pelo Projeto

Secretaria de Estado do Desenvolvimento Rural e da Agricultura de Santa Catarina (SEDRA);

(b) Organização executora do Projeto

Empresa de Pesquisa Agropecuária e de Extensão Rural de Santa Catarina S. A. (EPAGRI);

(c) Organização de Suporte do Projeto

Centro de Pesquisa Agropecuária de Clima Temperado (CPACT) da EMBRAPA.

3. SEDES DO PROJETO

(a) A Estação Experimental de São Joaquim da EPAGRI, localizada em São Joaquim, Estado de Santa Catarina, será sede principal do Projeto.

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(b) A Estação Experimental de Caçador da EPAGRI, localizada em Caçador, Estado de Santa Catarina, será sub-sede do Projeto.

(c) EMBRAPA/CPACT, localizado em Pelotas, Estado do Rio Grande do Sul, atuará como organização de suporte.

4. PERÍODO DE COOPERAÇÃO

Cinco anos

5. PLANO PRINCIPAL

(1) Objetivos do Projeto

(a) Objetivo Geral

Desenvolvimento de técnicas apropriadas e sustentáveis de cultivo de produtos hortícolas no Sul do Brasil, contribuindo assim para o fortalecimento da atividade agrícola dos pequenos produtores.

(b) Objetivos Específicos do Projeto

1) Aumento da capacidade de pesquisa da EPAGRI para a melhoria da produtividade de produtos hortícolas no Sul do Brasil, onde grande número de pequenos produtores estão envolvidos.

2) Desenvolvimento de técnicas apropriadas de cultivo e outras tecnologias relevantes em horticultura.

3) Transferência dos resultados obtidos no Projeto aos pequenos produtores.

(2) Funções das Organizações do Projeto

(a) Sede Principal

Estação Experimental de São Joaquim/EPAGRI, São Joaquim, Estado de Santa Catarina.

1) Desenvolvimento e melhoramento de técnicas globais relevantes nas áreas de seleção e avaliação de cultivares e porta-enxertos, cultivo, proteção e nutrição de plantas, e fisiologia de pré e pós-colheita de maçãs.

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- 2) Desenvolvimento e melhoramento das técnicas de práticas culturais em macieiras para pequenos produtores da região.
- 3) Fortalecimento da capacidade de assessoramento a fim de promover a disseminação das técnicas e do conhecimento desenvolvidos no Projeto para os pequenos produtores da região.

(b) Sub - sede

Estação Experimental de Caçador/EPAGRI, Caçador, Estado de Santa Catarina

- 1) Introdução e desenvolvimento de técnicas relevantes, principalmente nas áreas de seleção e avaliação de cultivares e práticas culturais de pêras japonesas.
- 2) Fortalecimento da capacidade de assessoramento a fim de promover a disseminação de técnicas e dos conhecimento desenvolvidos no Projeto para os pequenos produtores da região.
- 3) As atividades de pesquisa nas pereiras japonesas serão concentradas em plantas novas.

(c) Organização de suporte

EMBRAPA/CPACT, Pelotas, Estado do Rio Grande do Sul

- 1) Suporte ao Projeto através das seguintes atividades de pesquisa básica, a fim de contribuir para a solução de problemas de cultivo das principais fruteiras no Sul do Brasil:
 - a) Análises químicas e fisiológicas de órgãos e de tecidos de fruteiras de clima temperado;
 - b) Diagnose de viroses e limpeza clonal, através de termoterapia e cultura de meristemas, e caracterização isoenzimática para garantir a pureza genética.
- 2) Disseminação das tecnologias e conhecimentos resultantes do Projeto na região Sul do Brasil através de seminários técnicos, dias de campo, produção de vídeos e editoração e publicação de informes técnicos.

A distribuição das atividades nas sedes do Projeto é mostrada no Anexo 1. O Organograma do Projeto é mostrado no Anexo 2.

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(3) Resultados e Atividades do Projeto

1) Resultado: As tecnologias de seleção e avaliação de cultivares e porta-enxertos no Sul do Brasil, serão melhoradas através das seguintes atividades:

- Atividades:
- a) Avaliação da adaptação de cultivares e porta-enxertos, às condições edafoclimáticas e sociais no Sul do Brasil;
 - b) Seleção de cultivares e porta-enxertos com resistência a doenças.

2) Resultado: As tecnologias de cultivo, adequadas ao solo, clima e condições sociais do Brasil, serão desenvolvidas através das seguintes atividades:

- Atividades:
- a) Desenvolvimento de sistemas de plantio, condução e poda;
 - b) Estudos de técnicas em fisiologia pré e pós-colheita.

3) Resultado: As tecnologias de proteção às plantas, serão desenvolvidas através das seguintes atividades:

- Atividades:
- a) Diagnóstico das principais doenças e identificação dos patógenos;
 - b) Estudo de métodos de controle das principais doenças e pragas;
 - c) Estudo de tecnologias de limpeza clonal.

4) Resultado: Os Estudos em técnicas de fertilização e distúrbios fisiológicas, serão desenvolvidos através das seguintes atividades:

- Atividades:
- a) Desenvolvimento dos sistemas de manejo de solo e métodos de aplicação de nutrientes para o Sul do Brasil:
 - i) Avaliação de métodos recomendados de aplicação de nutrientes para o Sul do Brasil;
 - ii) Avaliação de sistemas de manejo do solo descoberto e com cobertura vegetal no crescimento.
 - b) Investigação das atuais condições e os fatores de ocorrência de distúrbios fisiológicos:
 - i) Pesquisa dos distúrbios fisiológicos que ocorrem atualmente e respectivo diagnóstico;

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- ii) Exame dos efeitos decorrentes do meio ambiente e da nutrição mineral na ocorrência de distúrbios fisiológicos.

5) Outras atividades

Resultado: Disseminação de técnicas e conhecimentos desenvolvidos no Projeto aos pequenos produtores da região.

- Atividades:
- i) Realização de seminários técnicos para pesquisadores, técnicos, extensionistas e líderes de agricultores;
 - ii) Produção de vídeos, editoração e publicação de informes técnicos.

6. MEDIDAS A SEREM TOMADAS PELO LADO JAPONÊS

(1) Envio dos Peritos Japoneses

Peritos japoneses serão enviados nas seguintes áreas:

(a) Peritos de Longo Prazo

- 1) Líder do grupo japonês
- 2) Oficial de ligação
- 3) Peritos de longo prazo nos seguintes campos:
 - a) Cultivo de maçãs
 - b) Cultivo de pêra japonesa
 - c) Proteção de plantas
 - d) Seleção

Nota: O líder do grupo japonês poderá servir concomitantemente como perito em uma das áreas técnicas acima mencionadas.

(b) Peritos de curto prazo

Peritos de curto prazo poderão ser enviados, sempre que necessário, para a implementação plena do Projeto.

(2) Aceite de contrapartes brasileiros para treinamento no Japão

O envio da contraparte brasileira para realização de treinamento no Japão, ocorrerá durante o período de vigência do Projeto.

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(3) Doação de Máquinas e Equipamentos

Os Equipamentos para implementação do Projeto serão doados dentro das limitações orçamentárias.

7. MEDIDAS A SEREM TOMADAS PELO LADO BRASILEIRO

(1) Providenciar edificações e instalações necessárias para a implementação do Projeto.

(a) Terreno, edificações e instalações requeridas para a implementação do Projeto.

(b) Salas e locais necessários para a instalação e armazenagem dos Equipamentos.

(c) Escritórios e instalações necessárias para o Líder do grupo japonês, Oficial de ligação e outros Peritos japoneses.

(d) Outras instalações segundo mutuamente acordado, caso necessário.

O Plano de construção feito pelo lado brasileiro é mostrado no Anexo 3.

(2) Designação do número necessário de contraparte brasileira, alocado em tempo integral, para acompanhar os Peritos japoneses de longo prazo.

O plano tentativo de designação de contrapartes do lado brasileiro e outro pessoal administrativo é mostrado no Anexo 4.

(3) Alocação de recursos garantidos para o início e a implementação com êxito do Projeto.

(a) Gastos necessários para o transporte doméstico dos Equipamentos dentro da República Federativa do Brasil, assim como para sua instalação, operação e manutenção.

(b) Impostos alfandegários, taxas internas e quaisquer outras despesas com os Equipamentos na República Federativa do Brasil.

(c) Fornecimento ou substituição de máquinas, equipamentos, instrumentos, veículos, ferramentas, peças e quaisquer outros materiais necessários para a implementação do Projeto, exceto os Equipamentos.

(d) Todos os gastos financeiros necessários para a implementação do Projeto.

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O Plano tentativo de alocação de orçamento para o Projeto é mostrado no Anexo 5.

(4) Coordenação e integração das instituições participantes.

8. ADMINISTRAÇÃO DO PROJETO

(1) O Secretário de Estado da Agricultura e de Desenvolvimento Rural do Estado de Santa Catarina, como Diretor do Projeto, terá responsabilidade global pela administração e implementação do Projeto.

(2) O Presidente da EPAGRI terá responsabilidade direta pela implementação do Projeto.

(3) O Chefe da Estação Experimental de São Joaquim/EPAGRI será o Administrador do Projeto e terá responsabilidade pelos assuntos administrativo e técnico do mesmo. O Chefe da Estação Experimental de Caçador/EPAGRI será consultado nos assuntos relacionados às atividades inerentes ao Projeto.

9. COMITÊ DE COORDENAÇÃO CONJUNTA

O comitê de coordenação conjunta composto pelos membros abaixo listados, no item (2), reunir-se -á pelo menos uma vez a cada ano e sempre que necessário.

(1) Função

(a) Formular o Plano Anual de Trabalho sob o marco de Registro de Discussões(R/D);

(b) Reexaminar o andamento global do programa de cooperação técnica assim como os resultados alcançados pelo Plano Anual de Trabalho do Projeto;

(c) Reexaminar as medidas tomadas pelo Governo do Japão:

1) Envio de peritos japoneses;

2) Aceite da contraparte brasileira para treinamento no Japão;

3) Doação de máquinas e equipamentos.

(d) Reexaminar as medidas tomadas pelo Governo do Brasil:

1) Alocação de orçamento necessário (incluindo despesas de custo local);

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- 2) Alocação de contrapartes necessários;
- 3) Utilização e administração de máquinas e equipamentos doados pelo Governo do Japão.

(e) tratar com os respectivos Governos sobre:

- 1) assuntos orçamentários;
- 2) recrutamento e indicação de contrapartes do lado Brasileiro;
- 3) seleção e efetiva utilização das máquinas e equipamentos;
- 4) envio apropriado de peritos japoneses;
- 5) aceite os contrapartes brasileiros para a realização de treinamento no Japão;
- 6) outros assuntos.

(2) Composição do Comitê

(a) Presidente:

Secretário de Estado do Desenvolvimento Rural e da Agricultura de Santa Catarina

(b) Membros:

(i) Lado Brasileiro

- 1) Presidente da EPAGRI
- 2) Representante da Agência Brasileira de Cooperação (ABC)
- 3) Diretor Administrativo da EPAGRI
- 4) Diretor Técnico da EPAGRI
- 5) Chefe da Estação Experimental de São Joaquim/EPAGRI
- 6) Chefe da Estação Experimental de Caçador/EPAGRI
- 7) Chefe da EMBRAPA/CPACT
- 8) Representante da sede da EMBRAPA

(ii) Lado Japonês

- 1) Líder do grupo japonês
- 2) Oficial de Ligação
- 3) Peritos destinados ao Projeto
- 4) Outros peritos japoneses e pessoal interessado, enviados pela JICA, caso necessário.

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5) Coordenador da JICA, no Brasil, para a Cooperação Técnica

Notas:

1. Oficiais da Embaixada do Japão e Consulado Geral do Japão em Porto Alegre poderão assistir às reuniões do Comitê de Coordenação Conjunta como observadores.
2. As pessoas nomeadas pelo presidente do Comitê de Coordenação Conjunta, poderão participar das reuniões.

III. SUGESTÕES E COMENTÁRIOS DOS ESPECIALISTAS

(1) Com relação às atividades detalhadas e o Plano Tentativo de Implementação do Projeto, será necessário um exame adicional entre as instituições Japonesas envolvidas, levando em consideração os pareceres deste estudo e as necessidades técnicas do lado Brasileiro, com o fim de estabelecer uma adequada oportunidade de cooperação.

(2) A alocação do pessoal contraparte necessário é indispensável para implementar o programa de cooperação técnica de forma harmoniosa e exitosa, bem como, atingir os objetivos do Projeto. O plano tentativa de designação de técnicos contraparte e do pessoal administrativo deve ser tal como indicado no ANEXO 4, onde os nomes de contrapartes brasileiros, de acordo com as atividades de pesquisa e local do Projeto, são mencionados. Espera-se que o lado Brasileiro, complete a alocação de um número suficiente de pessoal contraparte capaz e entusiasta, particularmente nas áreas de nutrição e fisiologia de macieiras. Concretamente é necessário designar pelo menos 2 (dois) contrapartes para cada área, com o propósito de garantir a implementação harmoniosa e a sustentabilidade do Projeto. Isto deverá ser completado antes da vinda da Missão Japonesa de Estudo de Implementação, que será enviada em março de 1996.

(3) O plano de construção para relevantes instalações na sede principal do Projeto, é indicado no ANEXO 3. Em particular, a construção de laboratório de manejo de solo, o acabamento interior do escritório do Projeto e a instalação de linha

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telefônica na EPAGRI/Estação Experimental de São Joaquim, deverão ser completadas, preferencialmente, antes do início do Projeto, para um profícuo começo das atividades do mesmo.

(4) As organizações brasileiras envolvidas deverão alocar anualmente orçamento suficiente para a implementação suave do Projeto.

(5) Para a implementação efetiva e eficiente é importante manter e reforçar o relacionamento de colaboração entre EPAGRI/Estação Experimental de São Joaquim, EPAGRI/Estação Experimental de Caçador e EMBRAPA/CPACT.

(6) Os resultados do Projeto deverão contribuir para fortalecer a base técnica dos pequenos produtores do Sul do Brasil. As organizações executoras deverão promover a transferência de tecnologia e conhecimento desenvolvidos no Projeto de forma extensiva e rápida.

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ANEXO 1 . Distribuição das Atividades do Projeto nas Sedes

Atividades	Sedes do Projeto		
	Sede Principal	Sub-sede	Organização de Suporte
<p>1) Melhoria das técnicas de seleção e avaliação de cultivares e porta-enxertos para o Sul do Brasil.</p> <p>a) Avaliação da adaptação de cultivares e porta-enxertos às condições edafoclimáticas e sociais no Sul do Brasil</p> <p>b) Seleção de cultivares e porta-enxertos com resistência a doenças</p>	X	X	
<p>2) Desenvolvimento de técnicas de cultivo adequadas às condições edafoclimáticas e sociais no Sul do Brasil.</p> <p>a) Desenvolvimento de sistemas de plantio, condução e poda</p> <p>b) Estudos de técnicas em fisiologia pré e pós-colheita</p>	X	X	
<p>3) Desenvolvimento de técnicas de proteção de plantas.</p> <p>a) Diagnóstico das principais doenças e identificação dos patógenos</p> <p>b) Estudo de métodos de controle das principais doenças e pragas</p> <p>c) Estudo de tecnologias de limpeza clonal</p>	X	X	X (Para Sede principal) X (Para Sede principal) X (Para Sede principal)

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A.C. [Handwritten signature]

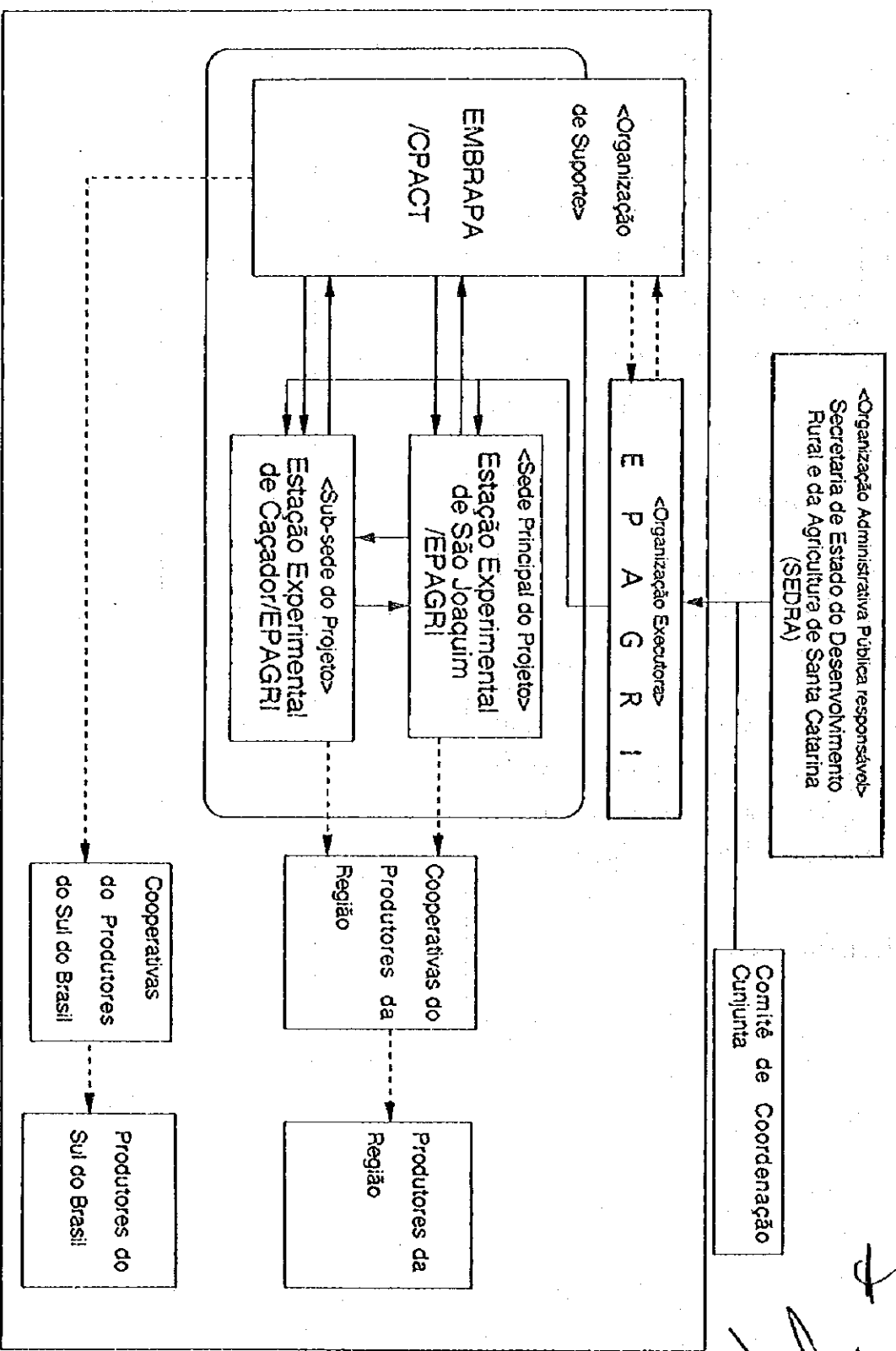
Distribuição das Atividades do Projeto nas Sedes

Atividades	Sedes do Projeto		
	Sede Principal	Sub-sede	Organização de Suporte
<p>4) Intensificação dos estudos nas técnicas de fertilização e distúrbios fisiológicos.</p> <p>a) Desenvolvimento das sistemas de manejo de solo e métodos de aplicação de nutrientes no Sul do Brasil.</p> <p>b) Investagação das condições atuais e dos fatores na ocorrência de distúrbios fisiológicos.</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p>	<p></p> <p>X</p>
<p>5) Outras Atividades</p> <p>a) Disseminação das tecnologias e conhecimentos desenvolvidos no Projeto aos pequenos produtores da região.</p> <p>i) Realização de seminários técnicos para pesquisadores, técnicos, extensionistas e líderes de agricultores, e editoração e publicação de informes técnicos.</p> <p>ii) Produção de vídeos</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p> <p>X</p>

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ANEXO 2. Organograma do Projeto



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ANEXO 3. Plano de Trabalho de Construção

a. EPAGRI/Estação Experimental de São Joaquim (São Joaquim)

Trabalho de Construção	Início	Conclusão (Estimada)
1. Acabamento interior do Escritório do Projeto	Março/1996	Agosto/1996
2. Instalação de Linha Telefone	Abril/1996	Abril/1996
3. Laboratório de Manejo de Solo (a ser construído)	Março/1996	Outubro/1996
4. Acabamento interior do Laboratório de Fisiologia	Agosto/1996	Outubro/1996

1. Preparo de Área para Experimentação e Pomar Demonstrativo	Abril/1996	Junho/1996
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b. EPAGRI/Estação Experimental de Caçador (Caçador)

Trabalho de Construção	Início	Conclusão (Estimada)
1. Acabamento interior do Escritório do Projeto	Março/1996	Abril/1996
2. Ampliação do Laboratório de Manejo de Solo	Maior/1996	Setembro/1996

1. Preparo de Área para Experimentação e Pomar Demonstrativo	Abril/1996	Junho/1996
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ANEXO 4. Plano Tentativo de Designação do Pessoal Contraparte Brasileiro

1) Área de Seleção e Avaliação

Atividades	Fruteira	
	Maças	Peras Japoneses
a) Avaliação da Adaptação de Cultivares e Porta-enxertos às Condições Edafoclimáticas e Sociais no Sul do Brasil	EPAGRI/São Joaquim Mr. Emilio Brighenti Mr. Adilson J. Pereira Mr. Pedro A. Ribeiro	EPAGRI/Çaçador Mr. Ivan D. Faoro Mr. Frederico Denardi Mr. Anísio P. Camilo Mr. Gabriel B. Leite
b) Seleção de Cultivares e Porta-enxertos com Resistência a Doenças	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Emilio Brighenti Mr. Adilson J. Pereira Mr. Luia Gonzaga Ribeiro	

2) Área de Tecnologias de Cultivo

Atividades	Fruteiras	
	Maças	Peras Japonesas
a) Desenvolvimento de Sistemas de Plantio, Condução e Poda	EPAGRI/São Joaquim Mr. Adilson J. Pereira Mr. Názaro Vieira	EPAGRI/Çaçador Mr. José L. Petri Mr. Gabriel B. Leite
b) Estudos de Técnicas em Fisiologia Pré e Pós-colheita	EPAGRI/São Joaquim Ms. Vera L. Luchi	

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3) Área de Proteção de Plantas

Atividades	Fruteiras	
	Maças	Peras Japonesas
a) Diagnóstico das Principais Doenças e Identificação dos Patógenos	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Yoshinori Katsurayama Mr. Antonio Amorim Neto EMBRAPA/CPACT Mr. Joel F. Fortes Mr. Luiz A. S. Castro	EPAGRI/Çaçador Mr. Jorge Bleicher Mr. Luiz A. Palladini
b) Estudos de Métodos de Controle das Principais Doenças e Pragas	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Yoshinori Katsurayama Mr. Reihard Krueger EMBRAPA/CPACT Mr. Joel F. Fortes Mr. Luiz A. S. Castro	EPAGRI/Çaçador Mr. Luiz A. Palladini Mr. Ildebrando Nora
c) Estudo de Tecnologia de Limpeza Clonal	EPAGRI/São Joaquim Mr. José Itamar Boneti Mr. Yoshinori Katsurayama Mr. Valdir Bonin EMBRAPA/CPACT Mr. Gerson R. L. Fortes Mr. Luis A. S. Castro Mr. Eliane Augustin Mr. Julio Daviels Mr. Bonifacio H. Nakasu	-----

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4) Áreas de Nutrição de Plantas e Fisiologia

Atividades	Fruteiras	
	Maças	Peras Japonesas
a) Desenvolvimento de Sistemas de Manejo de Solo e Métodos de Aplicação de Nutrientes no Sul do Brasil	EPAGRI/São Joaquim Mr. José M. katsurayama	EPAGRI/Caçador Mr. Atsuo Suzuki Mr. Clori Basso
b) Investagação das Condições atuais e dos Fatores na Ocorrência de Distúrbios Fisiológicos	EPAGRI/São Joaquim Mr. Vera L. Luchi EMBRAPA/CPACT Mr. Darcy Camelatto Mr. Claudio José S. Freire	EPAGRI/Caçador Mr. Jose L. Petri Mr. Gabriel B. Leite Mr. Clori Basso EMBRAPA/CPACT Mr. Flavio G. Herter Mr. Darcy Camelatto Mr. Nelson L. Finardi

5) Administração

a) Sede Principal

Cargo		No.
1) Pessoal Administrativo		1
2) Assistente de Laboratório		4
3) Pessoal de Apoio	Secretária	1
	Motorista	1
	Trabalhadores de Campo	10
Total		17

b) Sub-sede

Cargo		No.
1) Pessoal Administrativo		2
2) Assistente de Laboratório		2
3) Pessoal de Apoio	Secretária	1
	Motorista	1
	Trabalhadores de Campo	15
Total		21

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c) Organização de Suporte

Cargo		No.
1) Pessoal Administrativo		1
2) Assistente de Laboratório		5
3) Pessoal de Apoio	Secretária	1
	Motorista	1
	Trabalhadores de Campo	-----
Total		8

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ANEXO 5.

Plano Tentativo de Alocação de Orçamento para o Projeto (Por 5 anos)

1) Sede Principal

US \$

Itens de Despesas	Orçamento
(1) Gastos com Pessoal	
a. Pessoal Contraparte	3,250,000.00
b. Pessoal Administrativo	124,800.00
(2) Investimento em Construção e Equipamentos	
a. Trabalho de Construção	200,000.00
b. Equipamentos	100,000.00
(3) Gastos Operacionais	500,000.00
Total	4,174,800.00

2) Sub-sede

US \$

Itens de Despesas	Orçamento
(1) Gastos com Pessoal	
a. Pessoal Contraparte	1,800,000.00
b. Pessoal Administrativo	540,000.00
(2) Investimento em Construção e Equipamentos	
a. Trabalho de Construção	60,000.00
b. Equipamentos	100,000.00
(3) Gastos Operacionais	500,000.00
Total	3,000,000.00

3) Organização de Suporte

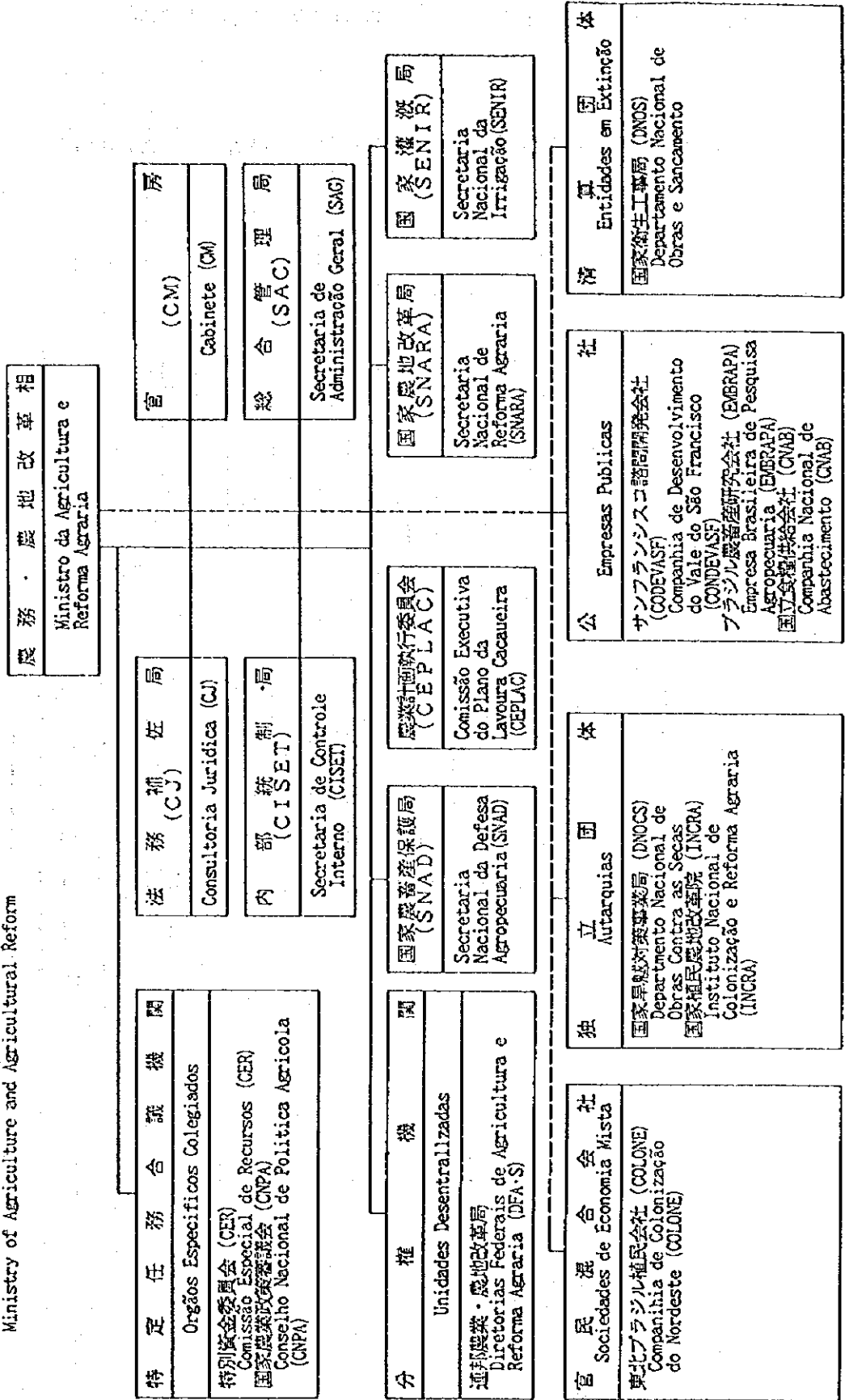
US \$

Itens de Despesas	Orçamento
(1) Gastos com Pessoal	
a. Pessoal Contraparte	1,500,000.00
b. Pessoal Administrativo b. Administrative personnel	300,000.00
(2) Investimento em Construção e Equipamentos	
a. Trabalho de Construção	200,000.00
b. Equipamentos	500,000.00
(3) Gastos Operacionais	500,000.00
Total	3,000,000.00
Total Geral	10,174,800.00

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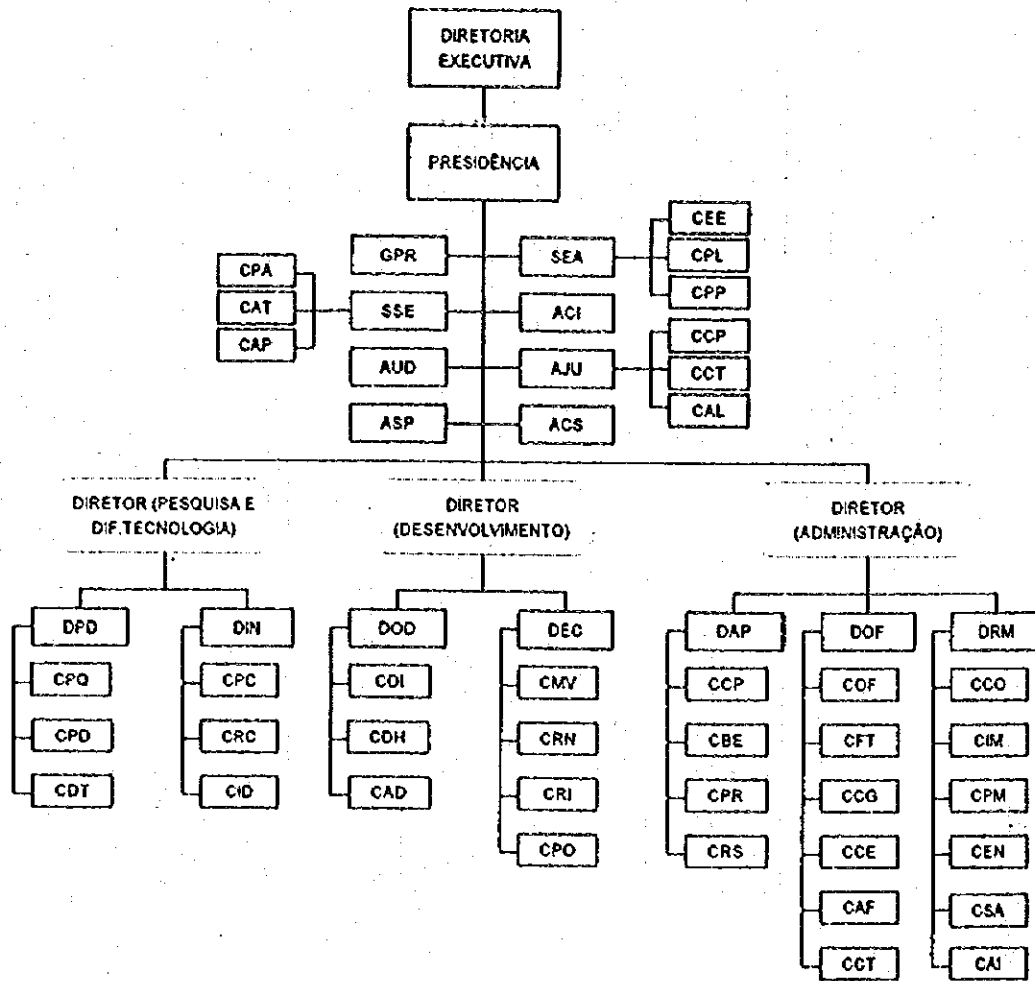
付属資料 2. ブラジル農業・食糧供給・農地改革省組織図

Ministry of Agriculture and Agricultural Reform



付属资料 3. ブラジル農牧研究公社本部組織図及び傘下の研究機関概要

ESTRUTURA ORGANIZACIONAL DA SEDE - EMBRAPA / 1994



SEDE1 VSO/RACIARA

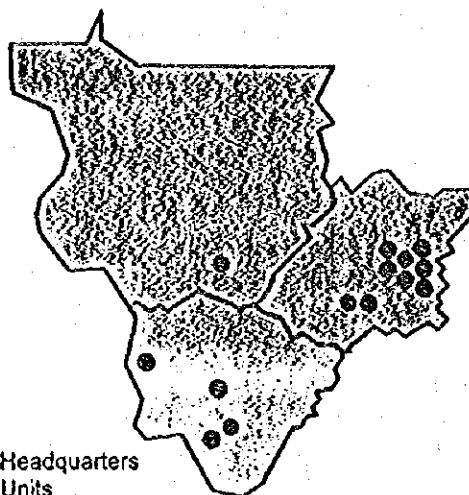
LEGENDA

GPR = GABINETE DO PRESIDENTE
SEA = SECRETARIA DE ADMINISTRAÇÃO ESTRATÉGICA
CEE = COORDENADORIA DE ESTUDOS ESTRATÉGICOS
CPL = COORDENADORIA DE PLANEJAMENTO
CPP = COORDENADORIA DE POLÍTICAS PÚBLICAS
SSE = SECRETARIA DE APOIO AOS SISTEMAS ESTADUAIS
CPA = COORDENADORIA DE PROGRAMAÇÃO E AVALIAÇÃO
CAT = COORDENADORIA DE ARTICULAÇÃO TÉCNICA
CAP = COORDENADORIA DE APOIO A PROJETOS
ACI = ASSESSORIA DE COOPERAÇÃO INTERNACIONAL
AUD = ASSESSORIA DE AUDITORIA INTERNA
AJU = ASSESSORIA JURÍDICA
CCP = COORDENADORIA DE CONSULTAS E PARECERES
CCT = COORDENADORIA DE CONTENCIOSO
CAL = COORDENADORIA DE ATUALIZAÇÃO LEGISLATIVA E DE CONTROLE DE CONTRATOS
ASP = ASSESSORIA PARLAMENTAR
ACS = ASSESSORIA DE COMUNICAÇÃO SOCIAL
DPD = DEPARTAMENTO DE PESQUISA E DIFUSÃO DE TECNOLOGIA
CPQ = COORDENADORIA DA QUALIDADE DE PESQUISA E DESENVOLVIMENTO
CPO = COORDENADORIA DE PESQUISA E DESENVOLVIMENTO
COT = COORDENADORIA DE DIFUSÃO DE TECNOLOGIA
DIN = DEPARTAMENTO DE INFORMAÇÃO E INFORMÁTICA
CPC = COORDENADORIA DE PROCESSOS COMPUTACIONAIS
CRC = COORDENADORIA DE RECURSOS COMPUTACIONAIS
CIO = COORDENADORIA DE INFORMAÇÃO E DOCUMENTAÇÃO
DOD = DEPARTAMENTO DE ORGANIZAÇÃO E DESENVOLVIMENTO
COI = COORDENADORIA DE DESENVOLVIMENTO INSTITUCIONAL
CDH = COORDENADORIA DE DESENVOLVIMENTO HUMANO
CAD = COORDENADORIA DE APOIO AO DESENVOLVIMENTO
DEC = DEPARTAMENTO DE PROGRAMAÇÃO ECONÔMICA E DESENVOLVIMENTO COMERCIAL
CMV = COORDENADORIA DE MARKETING E VENDAS
CRN = COORDENADORIA DE CAPTAÇÃO DE RECURSOS NACIONAIS
CRI = COORDENADORIA DE CAPTAÇÃO DE RECURSOS INTERNACIONAIS
CPO = COORDENADORIA DE PROGRAMAÇÃO ORÇAMENTÁRIA
DAP = DEPARTAMENTO DE ADMINISTRAÇÃO DE PESSOAL
CCP = COORDENADORIA DE CADASTRO DE PESSOAL
CBE = COORDENADORIA DE BEM-ESTAR DE PESSOAL
CPR = COORDENADORIA DE PAGAMENTO E RECOLHIMENTO
CRS = COORDENADORIA DE RELAÇÕES TRABALHISTAS E SELEÇÃO
DOP = DEPARTAMENTO DE ADMINISTRAÇÃO ORÇAMENTÁRIA E FINANCEIRA
COF = COORDENADORIA DE EXECUÇÃO ORÇAMENTÁRIA E FINANCEIRA
CFT = COORDENADORIA FISCAL E TRIBUTÁRIA
CCO = COORDENADORIA DE CONTABILIDADE GERAL
CCE = COORDENADORIA DE EXECUÇÃO DE CONVÊNIOS E EMPRÉSTIMOS
CAF = COORDENADORIA DE ADMINISTRAÇÃO FINANCEIRA DA SEDE
CCT = COORDENADORIA DE CUSTOS
DRM = DEPARTAMENTO DE ADMINISTRAÇÃO DE MATERIAIS E SERVIÇOS
COO = COORDENADORIA DE COMPRAS
CAM = COORDENADORIA DE IMPORTAÇÃO E DESPACHO ADUANEIRO
CPM = COORDENADORIA DE PATRIMÔNIO E MATERIAL
CEN = COORDENADORIA DE ENGENHARIA E ARQUITETURA
CSA = COORDENADORIA DE SERVIÇOS AUXILIARES
CAI = COORDENADORIA DE ADMINISTRAÇÃO IMOBILIÁRIA

UDS = UNIDADES DESCENTRALIZADAS

CENARGEN - Centro Nacional de Pesquisa de Recursos Genéticos e Biotecnologia
CNPA - Centro Nacional de Pesquisa de Algodão
CNPAB - Centro Nacional de Pesquisa de Agrobiologia
CNPAF - Centro Nacional de Pesquisa de Arroz e Feijão
CNPAT - Centro Nacional de Pesquisa de Agroindústria Tropical
CNPCC - Centro Nacional de Pesquisa de Caprinos
CNPDL - Centro Nacional de Pesquisa e Desenvolvimento de Instrumentação Agropecuária
CNPFF - Centro Nacional de Pesquisa de Florestas
CNPGC - Centro Nacional de Pesquisa de Gado de Corte
CNPGL - Centro Nacional de Pesquisa de Gado de Leite
CNPHT - Centro Nacional de Pesquisa de Hortaliças
CNPMA - Centro Nacional de Pesquisa de Monitoramento e Avaliação de Impacto Ambiental
CNPMF - Centro Nacional de Pesquisa de Mandioca e Fruticultura Tropical
CNPMS - Centro Nacional de Pesquisa de Milho e Sorgo
CNPS - Centro Nacional de Pesquisa de Solos
CNPSPA - Centro Nacional de Pesquisa de Suínos e Aves
CNPSo - Centro Nacional de Pesquisa de Soja
CNPST - Centro Nacional de Pesquisa de Trigo
CNPSTIA - Centro Nacional de Pesquisa Tecnológica em Informática para a Agricultura
CNPV - Centro Nacional de Pesquisa de Uva e Vinho
CPAA - Centro de Pesquisa Agroflorestal da Amazônia Ocidental
CPAC - Centro de Pesquisa Agropecuária dos Cerrados
CPACT - Centro de Pesquisa Agropecuária de Clima Temperado
CPAF-ACRE - Centro de Pesquisa Agroflorestal do Acre
CPAF-AMAPÁ - Centro de Pesquisa Agroflorestal do Amapá
CPAF-RONDÔNIA - Centro de Pesquisa Agroflorestal de Rondônia
CPAF-RORAIMA - Centro de Pesquisa Agroflorestal de Roraima
CPAMN - Centro de Pesquisa Agropecuária do Meio Norte
CPAO - Centro de Pesquisa Agropecuária do Oeste
CPAP - Centro de Pesquisa Agropecuária do Pantanal
CPATC - Centro de Pesquisa Agropecuária dos Tabuleiros Costeiros
CPATSA - Centro de Pesquisa Agropecuária do Trópico Semi-Árido
CPATU - Centro de Pesquisa Agroflorestal da Amazônia Oriental
CPPSE - Centro de Pesquisa de Pecuária do Sudeste
CPPSUL - Centro de Pesquisa de Pecuária dos Campos Sul Brasileiros
CTAA - Centro Nacional de Pesquisa de Tecnologias Agroindústria de Alimentos
NMA - Núcleo de Monitoramento Ambiental de Recursos Naturais por Satélite
SPI - Serviço de Produção de Informação
SPSB - Serviço de Produção de Sementes Básicas

MIDDLE - WEST



- Headquarters
- Units
- Local and regional SPSB management

National Center for Research on Genetic Resources and Biotechnology - GENARGEN
 SAIN, Parque Rural, W/3 Norte (final)
 Phone (061) 273-0100
 Telex (061) 1622
 Fax (061) 274-3212
 Caixa Postal 02372
 CEP 70770 - 900 Brasília-DF

Objectives

- Guarantee the diversity of genetic resources and develop biotechnological methodologies and processes for their utilization for the benefit of society.

Some Technologies Produced

- Protocols for detection of viruses, viroides, bacteria, fungi, nematoides and insects in post - entry quarantine
- Methodology for the biochemical and molecular characterization of plants, animals and microorganisms of agricultural interest
- Techniques for the long-term conservation of vegetal germplasm "in vitro"
- Management techniques for vegetal and animal genetic resources
- Active germplasm bank network for the principal native and cultivated species of the country
- Bioinsecticide production process for control of the urban mosquito
- Long-term conservation of genetic resources in a base collection (COLBASE).

National Center for Research on Rice and Beans - CNPAF

Rodovia Goiânia/Santo Antônio de Goiás - km 12
 Phone (062) 212-1999
 Telex (062) 2241
 Fax (062) 212-2960
 Caixa Postal 179
 CEP 74001-970 Goiânia-GO

Objectives

- Generate, promote, divulge and transfer knowledge and technologies of wide application, in a direct and/or integrated manner, to other institutions, for the sustainable development of rice and bean cultures in the country, for the benefit of society

Some Technologies Produced

- Making viable a third planting date for beans in the Center-West region with use of technologies for a greater stability of grain offer
- Recommendation, jointly with the SNPA, of various dryland rice cultures - which presently occupy about 80% of the planted area in Central Brazil - and of irrigated rice
- Recommendation of various bean cultivars, in response to consumer requirements concerning grain characteristics
- Development and diffusion of the inverted soil preparation technique
- Making viable the technique for pasture renovation with rice and corn, called the "Sistema Barreirão"
- Development of an integrated control technique of brusone
- Incorporation of arcelins, protein responsible for genetic resistance to worms of the bean plant, into bean grains of the commercial type.

National Center for Research on Beef Cattle - CNPGC

Rodovia BR 262, km 4
 Phone (067) 763-1030
 Telex (67) 2153
 Fax (067) 763-2245
 Caixa Postal 154
 CEP 79106-970 - Campo Grande-MS

Objectives

Generate, adapt, promote and transfer knowledge and technology for the sustainable development of the national beef production complex, for the benefit of society.

Some Technologies Produced

- Mineral formulas for the control of "cara inchada" of cattle and for supplementation of stable-bred cattle in the cerrado
- Introduction jointly with IAPAR, CPAC, CPATU, CPAF -AC, CEPALC and EPAMIG of Panicum maximum cultivar "Mombaça" and joint introduction with CPAC of the cultivar "Mineirão" (*Stylosanthes guianensis*)
- Introduction of Marandu and Tanzania-1 grasses
- Determination of the genetic value of zebu bulls controlled by the Brazilian Association of Zebu Raisers (ABCZ) throughout the whole national territory, in order to elaborate bull summaries

- Vaccine against cattle tick fever provoked by parasites in cattle
- Integrated control of the horn fly
- Automatic salt dispensers and Curral model 500.

National Center for Horticultural Research - CNPH

BR 060 Brasília- Anápolis km 09, Fazenda Tamandua

Phone (061) 556-5011

Telex (061) 2445

Fax (061) 556-5744

Caixa Postal 218

CEP 70359-970 - Brasília-DF

Objectives

Execute, promote and articulate scientific and technological activities for the development of the Horticultural Production System (SPH) in Brazil.

Some Technologies Produced

- Introduction of cultivars and hybrids of carrot, cucumber, sweet corn, cabbage, potato, sweet potato, melon, tomato, onion, eggplant, pea, mustard and lentil, totaling 34 new materials
- Introduction of new horticulture options for the national producer, such as lentil, chick pea, mustard and cucumber for preserves and establishment of the technical-economic viability of the culture of potato, seed potato, pea, sweet corn and tomato for processing in the cerrado region of Central Brazil
- Production of virus free seed potato and basic seed of carrot, pea, sweet corn, onion and other horticultural crops formerly totally imported
- Introduction of noble garlic cultivars suitable to the climate and soil of Central Brazil, with respective production systems
- Production of an anti-serum for detection of plant viruses, especially for diagnosis in potato and Cucurbitaceae
- Development of new tomato varieties resistant to the virus "vira-cabeça" of tomato
- Development of precocious varieties of Peruvian carrot (six to eight months), of high productivity (25 t/ha.).

Center for Agriculture Research on the Cerrados - CPAC

BR 020, km 18, Rodovia Brasília/Fortaleza

Phone (061) 389-1171

Fax (061) 389-2953

Telex (61) 1621

Caixa Postal 08223

CEP 73301-970 - Planaltina-DF

Objectives

- Conduct research to become acquainted with the natural and socioeconomic resources of the cerrados and their potential for utilization, in order to create technologies appropriate to the region.

Some Technologies Developed

- Utilization of native species (pequi, jatoba, baru, cagaita) of the cerrados for human and animal feeding
- Development of fertilization techniques for the cerrados
- Studies on biological nitrogen fixation in soybean, pea, bean, green manures and forages
- Recommendation of cultivars of wheat, soybean, fruit trees, cassava, eucalyptus, coffee and pinus for the region of the cerrados
- Recommendation of fruit trees, eucalyptus, coffee, and pinus for the cerrado region
- Technology on soil management, integrated pest control, under cerrado conditions
- Technologies on irrigation mechanization and animal management under cerrado conditions.

Center for Agriculture and Livestock of the West - CPAO

Rodovia BR 163 km 253

Phone (067) 421-0411

Telex (67) 4026

Fax (067) 421-0811

Caixa Postal 661

CEP 79804-970 - Dourados-MS

Objectives

- Generate, adopt and diffuse scientific and technological knowledge for the sustainable development of agriculture in the western region of the country for the benefit of society.

Some Technologies Produced

- Utilization and aerial application of Baculovirus anticarsia for control of the soybean pest *Elasmopalpus lignosellus*
- Recommendations of technologies generated and/or adapted for soybean, wheat, rice, bean and corn for Mato Grosso do Sul (recommendations are made annually, based on research results obtained in the state)
- Introduction of cultivars of soybean, wheat, irrigated rice and bean for Mato Grosso do Sul
- Recommendation of species of black oat, forage turnip, rape, flat pea, forage pea and rye for cover and winter green manuring
- Introduction of the termite borer for destruction of the mound termite
- Systems of soil management, quantification of hydric erosion losses, water and nutrients
- Recommendation of wheat cultivars of high industrial quality with superior characteristics, and improvement of common wheats.

Center for Agricultural Research on the Pantanal - CPAP

Rua 21 de Setembro, 1880

Phone (067) 231-1430

Telex (67) 7044

Fax (067) 231-1011

Caixa Postal 109

CEP 79320-900 - Corumbá-MS

Objectives

- Generate, adapt and transfer knowledge and technologies, aiming at the development of the Pantanal following conservationist principles.

Some Technologies Produced

- Definition of calf management technology (early weaning) in native pastures in order to increase the birth rate
- Definition of the mounting season which increases the birth rate by 70%
- Development of technologies for improvement of cattle raising by means of mineral supplementation with calcium and phosphorus, vermifugal application and rational management of native and cultivated pastures
- Definition of the best period for protection of spawning as a subsidy to fishing legislation of Mato Grosso do Sul
- Techniques of monitoring of natural populations of alligators
- Techniques for the evaluation of the reproductive potential of the alligator
- Techniques of monitoring of natural populations of the capybara.

Information Production Service - SPI

SAJN Parque Rural (Final W3 Norte)

Phone (061) 348-4162/348-4155

Telex (61) 2074

Fax (061) 272-4168

Caixa Postal 40765

CEP 70770-901 - Brasília- DF

Objectives

- Promote the strategic value of information
- Identify, anticipate and satisfy the demands of clients for information
- Produce, in real time, qualified information which meets the needs of the market
- Promote and cause the insertion of qualified information into the segments of printed and electronic media
- Guarantee the rights of protection of intellectual property for the information products developed by the SPI
- Adjust the production of information to the best levels of quality and productivity known in the market
- Promote the organization and integration of knowledge bases, allowing access of the various social segments to the information produced
- Market information products produced through the SPI
- Increase the use of information engineering for the elaboration of information products determined by the market.

Some Results Obtained

- The SPI, founded in 1991, produced and is marketing vehicles with qualified information, including, within the printed media, the following titles: Coleção Plantar (nine titles edited); Coleção Tecnologia da Produção (three titles edited); and Coleção Paradidática (one title at press-Atlas do Meio Ambiente do Brasil). Edits, prints and markets monthly the journal PESQUISA AGROPECUÁRIA BRASILEIRA (PAB) and elaborates technical

and institutional videos.

Basic Seed Production Service - SPSB

SAIN Parque Rural (Final W3 Norte)

Phone (061) 348-4433

Telex (061) 1738

Fax (061) 347-9668

Caixa Postal 04.0315

CEP 70770-901 - Brasília-DF

Objectives

- Supply seeds and transplants
- Transfer technologies and offer technical assistance in the areas of seeds and transplants
- Support the Brazilian Seed and Transplant System
- Interact with research in the search for technologies for the agroindustrial complex of seeds and transplants.

Some Results Obtained

- The SPSB does not introduce technologies, but divulges and disseminates seeds of the cultivars created and introduced by EMBRAPA and by the SNPA. It is the largest producer and distributor of basic seeds in the country, working with the following products: cotton, rice, oats, potato, onion, rye, barley African oil palm, pea, bean, forages, chickpea, melon, corn, fruit tree transplants, soybean, sorghum, wheat, triticale and vigna. It is estimated that 40% of the Brazilian production of grains originates in EMBRAPA cultivars distributed through the SPSB.

NORTHEAST



- Units
- Local and regional SPSB management

National Center for Research on Cotton - CNPA

Rua Oswaldo Cruz, 1.143 - Bairro Centenário

Phone (083) 341-3608

Telex (083) 3213

Fax (083) 322-7751

Caixa Postal 174

CEP 58107-720 - Campina Grande - PB

Objectives

- Generate, adapt and transfer knowledge and technologies to meet the needs for sustainable development of the productive systems of fiber and oil species in accordance with regional peculiarities.

Some Technologies Produced

- Cotton cultivars: BR-1, CNPA 2H, CNPA ACALA-1, CNPA Precocious 1, CNPA 6H, 7H, and CNPA 2M, 3M, 4M, 5M
- Sesame cultivars CNPA G-2, Seridó and CNPA G-3
- Integrated management of cotton pests
- Technologies for tolerating the cotton boll weevil
- Production systems for cultures of peanut, sesame and castor
- Production systems for cultures of irrigated cotton and sisal
- Production system for herbaceous and arboreal cotton and intercropping with food crops.

National Center for Research on Tropical Agroindustry - CNPAT

Rua dos Tabajáras, 11 - Praia de Iracema

Phone (085) 231-7655

Telex (85) 1797

Fax (085) 231-7762

Caixa Postal 3761

CEP 60060-510 - Fortaleza-CE

Objectives

- Adapt the characteristics of the products studied to the necessities of agroindustry and of consumers
- Produce fundamental knowledge, incorporating new research and development techniques to amplify the base for the generation of new technologies
- Disseminate basic material on the products generated by research
- Disseminate new alternatives for the utilization of the agroindustrial products studied, in response to foreign demand

- Generate, adapt and transfer technologies and processes which contribute to the improvement of tropical agroindustry
- Promote a qualitative leap forward in research.

Some Technologies Produced

- New clones of precocious dwarf cashew trees
- Vegetative propagation of the cashew tree through shoot grafting
- Identification of types of unproductive cashew trees and orchards
- Recuperation of the cashew tree, unproductive or of low productivity, by means of crown substitution
- Identification and control of pests and diseases of the cashew tree
- Establishment of procedures for the extraction of cashew gum
- Identification and elimination of microorganisms in cashew kernels.

National Center for Research on Goats - CNPC

Estrada Sobral - Groáras, km 04

Phone (085) 612-1077

Telex (89) 2543

Fax (085) 612-1132

Caixa Postal D - 10

CEP 62011-970 - Sobral - CE

Objectives

- Contribute to an increase in production, productivity and profitability of goat and sheep culture, with stability and sustainability of the production systems and an equitable distribution of the results
- Increase the quality and characteristics of tropical goat and sheep products to meet consumer demand
- Generate, adapt and diffuse technologies which make efficient, production systems with tropical goats and/or sheep as their principal components.

Some Technologies Produced

- Supplementation for dairy goats in the semi-arid Northeast
- Buffelgrass, (*Cenchrus ciliaris* L. Cultivar Aridus)
- Utilization of arboreal-shrubby forages as a protein bank for supplementation of herds of goats and sheep during the dry period
- Performance improvement by means of race selection,

crossings, and parent selection, establishment of the period and duration of the mounting season and production systems for meat and skins in the semi-arid Northeast

- Rationalization of goat and sheep management involving early weaning, artificial nursing, vermifugal application, ration balancing and pasture management
- Freezing of caprine semen and use in artificial insemination
- Ovine races for finishing in confinement

National Center for Research on Cassava and Tropical Fruit Culture - CNPMF

Rua EMBRAPA, S/N

Phone (075) 721-2120

Telex (75) 2074

Fax (075) 721-1118

Caixa Postal 007

CEP 44380-000 - Cruz das Almas-BA

Objectives

- Develop and promote technologies and knowledge which make more efficient cassava and tropical fruit cultures on the national level, and of citrus in the north and northeast regions of Brazil, with emphasis on the sustainable use of natural resources, for the benefit of society.

Some Technologies Produced

- Increase in the efficiency of floral induction of pineapple
- Introduction of the "Perolera" and "Primavera" pineapple cultivars, resistant to fusarium
- Recommendations, of cultivars of banana "Prata Anã", "Mysore" and "Pacovan" and creation of hybrids of the banana PV 03-76 and banana "Prata" JV 03-15, resistant to black sigatoka disease
- Introduction of superior hybrids of the banana PA 12-03 ("Prata Anã" x "Lidi") PA 03-22 (Banana "Prata" "Anã" x "Calcutá") and PV-03-44 ("Pacovan" x "Calcuta")
- Production of the acid lime "Tahiti" in the off season
- Use of a weak virus strain of tristeza in programs of prevision in citrus
- Monitoring and control of the fruit fly in mango

Center for Agricultural Research of the Mid-North - CPAMN

Av. Duque de Caxias, 5.650, Bairro Buenos Aires

Phone (086) 225-1141

Telex (86) 2337

Fax (086) 225-1142

Caixa Postal 1

CEP 64006-220 - Teresina-PI

Objectives

- Generate, adapt and transfer technologies and technical-scientific knowledge, which contribute to the sustainable development of agrosilvipastoral activities in the region of the Mid-north of Brazil, in benefit of society.

Some Technologies Produced

- Introduction of nine soybean cultivars and spacing and density practices
- Introduction of a dryland rice cultivar and recommendation of six cultivars, among which "Araguaia" and "Rio Parnaíba"
- Recommendation and introduction of corn cultivars and determination of seeding density
- Introduction of seven "macasar" bean cultivars and respective production systems consisting of relative seeding date in intercropped corn x bean, determination of seeding density

and spacial arrangement

- Recommendation of tomato and lettuce cultivars
- Genetic preservation of the "pé-duro" breed of cattle
- Improvement in systems of production and productivity of goats and woolless sheep.

Center for Agricultural Research on Coastal Tablelands - CPACT

Av. Beira Mar, 3.250

Phone (079) 217-1300

Telex (79) 2318

Fax (079) 231-9145

Caixa Postal 44

CEP 49025-040 - Aracaju-SE

Objectives

- Make an inventory of natural and socioeconomic resources; develop sustainable agrosilvipastoral systems which are adequate to the region and to the necessities of producers and consumers and develop knowledge and technologies for the coconut.

Some Technologies Produced

- Biological control of the coconut leaf miner
- Integrated control of the coconut beetle
- Introduction of the "São Francisco", "Sertanejo" and "Asa Branca" varieties of corn for the Brazilian Northeast
- System of exploitation for small properties in the semi-arid Northeast
- Cultivation techniques for the coconut, including production of precocious seedlings, fertilization, intercropping and control of diseases
- Development of rational exploitation systems for intercropping of corn and beans
- Development of the product "Curadermite" for control of scalp rot of sheep and goats

Center for Agricultural Research of the Semi-Arid Tropics - CPATSA

BR 428, km 152, Zona Rural

Phone (081) 862-1711

Telex (81) 0016

Fax (081) 862-1744

Caixa Postal 23

CEP 56300-000 - Petrolina-PE

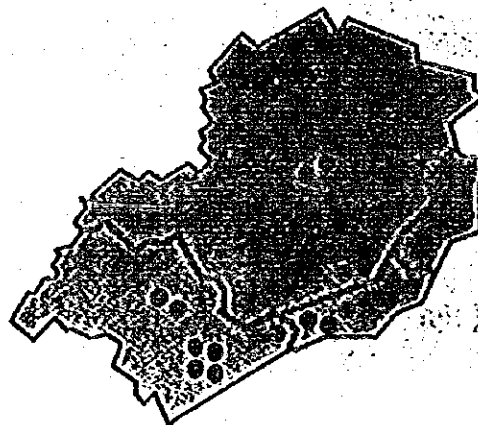
Objectives

- Conduct research for the purpose of generating and adopting technologies for production in the diverse agroecological areas of the tropical semi-arid region.

Some Technologies Developed

- Development of production systems for horticultural species such as asparagus, tomato, onion, melon and watermelon and fruits such as guava, mango, banana, dates and avocado
- Development of storage systems for water
- Utilization of technologies generated for rain-dependent areas (dryland agriculture): technologies of living with drought in the rural areas of northeastern states
- System of production of bovines and goats in the semi-arid regions
- Recommendation of forest species of rapid growth for reforestation in the semi-arid region
- Agroecological zoning of the Northeast
- Biological control of the tomato moth (*Scrobipalpula absoluta*), of the banana "moleque", (*Cosmopolites sordidus*) and of the green mite (*Tetranychus* spp.) of cassava

SOUTHEAST



- Units
- Local and regional SPSB management

National Center for Research on Agrobiology - CNPAB

Antiga rodovia Rio/São Paulo, km 47 Seropédica

Phone (021) 682-1500/682-1086

Telex (21) 32723 - E8PA-BR

Fax (021) 682-1230

Caixa Postal 74505

CEP 23851-970 Seropédica - Itaguaí - RJ

Objectives

- Generate, promote and diffuse scientific and technical knowledge on agricultural systems which principally use biological inputs and organic management.

Some Technologies Produced

- Inoculation of bean seeds
- Pelleting of bean seeds with micronutrients
- Rhizobium inoculant for cowpea
- Nitrogen fixation in sugarcane
- Green manuring of the corn culture
- Revegetation of degraded areas
- Management of organic fertilizer.

National Center for Research on Agricultural Instrumentation - CNPDIA

Rua XV de Novembro, 1452

Phone (0162) 72-9628

Telex (16) 2406

Fax (0162) 72-5958

Caixa Postal 741

CEP 13560-970 - São Carlos-SP

Objectives

- Develop new methodologies, systems and elements to measure, control, evaluate, process, transfer and store physical chemical and biological data essential for the sustainable development of the agricultural, agroindustrial and agroforestry complexes.
- Organize, systematize and diffuse knowledge accumulated in agricultural instrumentation.
- Advise EMBRAPA Units in the area of agricultural instrumentation.

Some Technologies Produced

- Development and construction of a nuclear magnetic resonance apparatus for the non-destructive selection of oil seeds (soybean and corn, among others)
- Computerized minithomograph for soils which makes possible investigations of soil water, compaction, roots and other applications which open new frontiers in soil physics
- Ultra-sonic pregnancy detector which permits detection of pregnancy of 22 days for horses and of 35 days for cattle
- Micromanipulator for cattle and horse embryo bipartition and a programmable system for embryo freezing
- Computerized climatological stations
- Device to measure the thickness of lard by ultrasound technique
- SIARCS - Integrated system for Analysis of Roots and Soil Cover.

National Center for Research on Dairy Cattle - CNPGL

Rodovia MG 133, km 42

Phone (032) 215-8550

Telex (32) 3157

Fax (32) 215-8550 (Extension 166)

CEP 36155-000 Coronel Pacheco-MG

Objectives

- Serve Brazilian society by generating, adapting and diffusing knowledge and technologies for the sustainable development of the dairy sector.

Some Technologies Produced

- Software for genetic evaluation of bulls and cows
- Cost of production schedules for milk
- Process of bovine embryo transfer
- Establishment and management of elephantgrass for milk production under pasture conditions
- Development of milk production technology involving feed, animal management, pasture rotation and sanitary control
- Technology of raising, precocious weaning, shelter, feed, control of endo- and ectoparasites and ticks
- Semen tested cross-bred Holstein-Friesian x Zebu bulls and of Zebu bulls (Gir race) genetically improved for milk production

National Center for Research on Monitoring and Evaluating Environmental Impact - CNPMA

Rodovia SP 340, km 127,5 - Bairro Tanquinho Velho

Phone (0192) 67-5633

Telex (19) 2655

Fax (0192) 67-5225

Caixa Postal 69

CEP 13820-000 - Jaquariúna-SP

Objectives

- Contribute to the adoption of the sustainability model as the guiding principle for agriculture, conceived from a perspective of agricultural, cattle raising and forestry activities and interface with the industrial sector
- Contribute to knowledge of the structure and functioning of the agroecosystems which present indications of problems of environmental degradation in terms of the biotic, abiotic and social components
- Develop, adapt and implement methodologies for the monitoring and evaluation of environmental impact
- Direct the knowledge generated on environmental impact, aiming at subsidizing the development of technologies which are adequate to the agroecosystems and to the elaboration of public policies
- Develop actions which facilitate the insertion of technical-scientific knowledge on the environment and agriculture into the National System of Agricultural Research (SNPA), as well as into other segments of society.

Some Technologies Produced

- Hand lever-operated pneumatic electrostatic back sprayer
- Solar collector for soil disinfection
- Resistant lines of *Trichoderma harzianum* for control of root diseases, principally in horticultural crops
- Technique for the quantitative detection of bacterial sunburn caused by *Xanthomonas campestris* pv. *phaseoli* in bean seeds
- Bacterization technique for bean seeds for the control of root rots, utilizing the bacteria *Bacillus subtilis*
- Biological control system of the red spider mite in horticultural crops with the use of predatory mites of the family Phytoseiidae
- Introduction of eight species of biological control agents of rhizophagous pests in sugarcane, tomato, cassava, banana and apple, with the adaptation of methods of creation of these organisms in the laboratory.

National Center for Research on Corn and Sorghum - CNPMS

Rodovia MG 424, km 65

Phone (031) 923-5644

Fax (031) 923-9252

Telex (31) 2099

Caixa Postal 151

CEP 35701-970 - Sete Lagoas-MG

Objectives

- Coordinate, execute and promote research which generates technically adequate alternatives, economically viable and socially desirable, for corn and sorghum, transferring them to producers and the agroindustry.

Some Technologies Produced

- Introduction of 26 varieties of corn adapted to the various producing regions of the country
- Introduction of five new cultivars of sweet corn and a white corn cultivar of high protein value
- More efficient and profitable production systems which include cultivars, plant population, crop rotation, green manuring, cultivation periods, utilization of herbicides and fertilizers
- Systems of product conservation by means of simple storage structures which prevent attack by rodents and provide insect control
- New cultivars of grain and forage sorghum resistant to the

principal pests and diseases, adapted to the different Brazilian ecological regions

- Biological control of the fall armyworm, (*Spodoptera frugiperda*), through use of the Baculovirus, with efficiency equivalent to that obtained with the use of chemical insecticides
- Sweet corn cultivar for canning.

National Center for Research on Soil - CNPS

Rua Jardim Botânico, 1024

Phone (021) 274-4999

Telex (21) 23824

Fax (021) 274-5291

CEP 22460-000 - Rio de Janeiro-RJ

Objectives

- Make and promote basic and applied studies in all areas of soil science
- Execute and promote studies of environmental characterization, including classification, surveys and interpretations for various ends for utilization of the soil
- Study the behavior of the soil in its environment, involving anthropic processes and degradation factors
- Normalize actions and procedures for diagnosis of the physical sphere, analytical characterization, and evaluation of the use potential of lands and zonings
- Systematize knowledge available in the area of soil science for implementation of a georeferenced data base.
- Develop models of use, management and conservation of soils on all levels of planning.

Some Technologies Produced

- Land aptitude evaluation system
- Brazilian Soil Classification System (third approximation)
- Macroagroecological delimitation of Brazil
- National inventory of the problems and critical areas of soil degradation
- Agroecological zoning of the Northeast
- Manual of soil analysis methods
- Norms and criteria for pedological surveys.

National Center for Technological Research on Agricultural Information - CNPTIA

Rodovia Dom Pedro I, km 143,6 (SP 65) - Campo dos Amarais

Phone (0192) 40-1073

Telex (19) 7720

Fax (0192) 40-2007

Caixa Postal 5010

CEP 13089-500 - Campinas-SP

Objectives

- Develop, according to the requirements of the SNPA and of the agricultural area, methods, techniques and tools in software engineering, for the production of software, integration of systems and processes, data communication and information systems, reengineering of software and reuse of components
- Promote training of human resources in methods, techniques and tools for software engineering, according to the necessities of the SNPA and of the agricultural area
- Satisfy demands for service rendering, consultancy and technical counseling in methods, techniques and tools of software engineering, according to the necessities of the SNPA and of the agricultural complex.

Some Technologies Produced

- Software environment for NTIA which offers the capacity for the treatment and manipulation of archives, recuperation of information, data entry, generation of menus and of reports, statistical analysis and calculation, and composition of graphs in two and three dimensions
- Development of a processing system for georeferenced

images - SPRING

- System for Agricultural Property Administration-FMS, and automated generation of factors applicable to the administration of agroindustrial businesses
- Development of the information system AINFO, as a technological base for the software environment of CNPTIA.

Center for Cattle Research of the Southeast - CPPSE

Rodovia Washington Luiz, km 234

Phone (016) 272-7611

Telex (162) 389

Fax (016) 272-5754

Caixa Postal 339

CEP 13560-970 - São Carlos-SP

Objectives

- Generate, adapt and diffuse knowledge and technologies adequate for the sustainable development of animal systems in the southeast region of Brazil.

Some Technologies Produced

- New lines of Canchim cattle
- Use of Canchim cattle in crossings to obtain yearlings
- Optional treatment of poisoning of domestic animals by the "jararacá", "urutu" and "jararacuçu" snake species
- Pharmacological stunning of animals (with anesthetized darts)
- Nutritive evaluation of forages by kinetic digestion in cattle
- Physical models of intensive production systems for milk of animals of the Holstein-Friesian race, semi-confined, with generation of coefficients for the elaboration of a schedule of costs of class "B" milk
- New cultivars of Andropogon and forage oats adapted to the central region of the state of São Paulo.

National Center for Research on Agroindustrial Food Technology - CTA

Av. das Américas nº 29.501 - Bairro Guaratiba

Phone (021) 410-1353

Telex (21) 33267

Fax (021) 410-1090

CEP 23020-470 - Rio de Janeiro-RJ

Objectives

- Promote the development of the food agroindustry through the generation and transfer of technologies which seek:
 - a) integration of the agricultural sector with the food agroindustry;

b) minimization of harmful impacts of the food agroindustry on the environment and the rationalization of the use of natural resources;

c) an increase in the quality and productivity of the food agroindustry;

d) an increase in food security of consumers.

Some Technologies Produced

- Production of essential oils of species of native aromatic plants; enzymatic extraction of oils and production of essential oil and resin oil of ginger
- Technology for utilization of by-products of corn and sorghum in the food industry
- Concentrated tropical fruits utilizing membrane technology
- Driers of fruits, fish and grains for small proprietors
- Silo grain drier (solar and eolic energy)
- Husker of soybean
- Vitamin complex dough enricher.

Environmental and Natural Resource Remote Sensing Unit - NMA

Av. Dr. Júlio Soares de Arruda, 803, Parque São Quirino

Phone (019) 252-5977

Telex (19) 7686 EBPA BR

Fax (019) 54-1100

e-mail: postmaster@nma.embrapa.br

Caixa Postal 491

CEP 13007-970 Campinas-SP

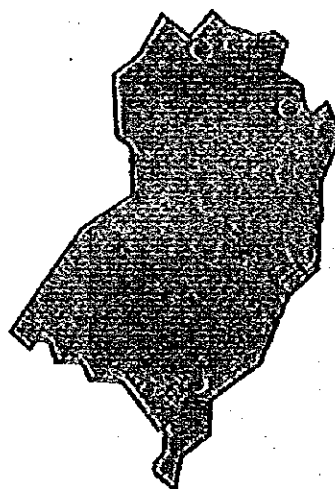
Objectives

- Conduct research, develop, adapt, evaluate and diffuse technical-scientific knowledge in the areas of monitoring of the agrosilvipastoral use of lands and evaluation of resulting environmental impact.

Some Technologies Produced

- Environmental monitoring of Amazônia
- Delimitation of the extractivist reserve of Alto Juruá-Acre
- Environmental cartography of the Island of Fernando de Noronha
- Monitoring of forest burnings in Brazil
- Evaluation of kinetic and animal extractivist resources in Rondônia, Acre and Tocantins
- Systems of agroecological, socioeconomic and critical areas monitoring.
- Alert, Information and Communication Network.

SOUTH



- Units
- Local and regional SPSB management

National Center for Forest Research - CNPF

Estrada da Ribeira, km 111 - Guaraituba

Phone (041) 359-1313

Telex (041) 30120

Fax (041) 359-2276

Caixa Postal 319

CEP 83411-000 - Colombo-PR

Objectives

- Develop production systems for planted forests
- Develop systems which facilitate the management of natural forests
- Develop agroforestry systems
- Implement programs of environmental education and of diffusion and transfer of forestry technologies.

Some Technologies Produced

- Production of improved seeds of various eucalyptus species for diverse edaphoclimatic conditions
 - Adaption and development of technology for mass production of a specialized and specific nematode for control of the wood wasp
 - Development of techniques for economic production of seedlings of diverse forest species, such as guapuruvu, Imbuia, erva-mate, bracatinga, acacia-negra, Eucalyptus viminalis, Pinus patula etc
 - Elaboration of ecological zonings for forest plantings in Paraná and Santa Catarina, with recommendations and indication of 145 species and provenances for various uses
- Development and adaption of techniques for collection, processing, storage and germination of seeds of various species such as acacia-negra, caroba, caixeta, angico bracatinga, canafistula, canela-guaica, guapuruvu, mandiocão, wild peach, Parana pine, peroba and uva-do-japão
- Selection of races of Rhizobium for inoculation of bracatinga and acacia-negra
 - Computer programs for planning and management of planted forests.

National Center for Research on Swine and Poultry - CNPSA

BR 153, km 110, Vila Tamanduá

Phone (0494) 44-0122

Telex (492) 271

Fax (0494) 44-0681

Caixa Postal 21

CEP 89700-000 - Concórdia-SC

Objectives

- Serve as a national reference center for swine and poultry culture in the program of animal production and/or related systems
- Produce or adapt technological knowledge, services and inputs, in order that they reach the target public, directly or by appropriate channels of diffusion
- Give incentive to other institutions and organizations to generate knowledge, technologies, services and inputs relevant to the mission of the CNPSA
- Promote the effective management of the resources of swine and poultry culture so as to satisfy human needs, maintaining or improving environmental quality and conserving natural resources
- Organize existing knowledge in order to make it useful in the national swine and poultry culture area
- Assure that research results on swine and poultry contribute to diminishing food and employment shortages, increase purchasing power, reduce regional differences, and are useful to society.

Some Technologies Produced

- Feed chemical composition table for the formulation of rations
- Vaccine for atrophic rhinitis of swine
- Technology for production of antiserums, antigens and conjugates
- Utilization of non-conventional phosphates for swine and poultry, in the growing and finishing stages
- EMBRAPA 001 layer of white eggs
- Methodology for identification and correction of risk factors in swine culture
- Development of the "PROSUINO" software for ration formulation, and the "ATEPROS" software for technical-administrative management of swine culture for calculating their production cost.

National Center for Research on Soybean - CNPSO
Rodovia Carlos João Strass (Londrina/Warta) Entrance Orlando Amaral - Distrito de Warta
Phone (043) 320-4166
Telex (43) 2208
Fax (043) 320-4186
Caixa Postal 1061
CEP 86001-970 - Londrina-PR

Objectives

- Generate and promote knowledge and technology for the development of soybean and sunflower, considering their interrelation with other cultures and their insertion in the agroindustrial complex, for the benefit of society
- Make knowledge and technology reach the target public (technicians, producers and society in general) through appropriate diffusion and transfer mechanisms.

Some Technologies Produced

- Creation of 35 new soybean varieties, more productive and resistant to the principal diseases, for the various producing regions
- Introduction of the juvenile period in new varieties to increase the planting period, guaranteeing plants of adequate height
- Total elimination of nitrogen fertilizer in soybean after determination of the efficiency of symbiotic fixation of nitrogen by bacteria of the genus *Bradyrhizobium*
- Biological control of the soybean caterpillar with *Baculovirus anticarsia*
- Biological control of *Elasmopalpus* by the wasp *Trissolcus basalis*
- Utilization of kitchen salt to reduce insecticide doses in control of *Nezara viridula*
- Regulation of planting periods for tropical and subtropical regions for greater productivity and improved seed quality.

National Center for Research on Wheat - CNPT
BR-285, km 174
Phone (054) 312-3444
Telex (54) 5319
Fax (054) 312-3495
Caixa Postal 569
CEP 99001-970 - Passo Fundo-RS

Objectives

- Develop and diffuse knowledge and technologies with the aim of making national production of wheat and of other winter cereals more competitive
- Contribute to an increase in competitiveness and sustainability of the grain producing complex in the southern region of the country
- Contribute to diversification of regional agricultural production, making viable new cultures and/or utilization systems.

Some Technologies Produced

- Creation of 57 new wheat cultivars for cultivation in the various regions of the country, with a consequent increase in productivity, and of 8 soybean cultivars
- Development of production systems, including fertilization and liming, control of diseases and pests, rotation of cultures and minimum tillage
- Development of technology for the culture of wheat tissues and introduction of the first wheat cultivar in the Americas obtained through biotechnology for control of diseases, pests, weeds and a technique of soil correction and fertilization
- Introduction and recommendation of triticale cultivars BR-1, BR-2 accompanied by technology for control of diseases, pests, weeds and technique of soil correction and fertilization
- Introduction and recommendation of triticale cultivars BR-1, BR-2, BR-4 and EMBRAPA-18, with establishment of a proper cultivation system which includes fertilization and soil correction, and dates, densities and spacings most appropriate for the cultivation and production of seeds

- Development of a minimum tillage planter for winter cereals
- Biological control of aphids of cereals and technology for control of the "tamanjá" (*Solubea poccila*) of wheat.

National Center for Research on Grapes and Wine - CNPUV
Rua Livramento, 515
Phone (054) 451-2144
Telex (54) 3603
Fax (054) 451-2792
Caixa Postal 130
CEP 95700-000 - Bento Gonçalves-RS

Objectives

- Generate technologies for the improvement of rural productive systems and agroindustrial processes and for quality control of the sector, seeking a greater identity of grape and wine products with the production regions
- Adapt the quality of the raw material and of products of the agroindustrial complex to the demands of the market, and reduce production costs
- Increase the efficiency of the grape and wine agroindustry and fruit culture for the southern region of Brazil
- Promote and speed up marketing and the transfer of scientific and technological information and of products and services
- Some Technologies Produced
- Recommendation of cultivars for fine white and red wines
- Development of technology for obtaining virus-free vegetal material, with production and distribution of grafting and producing stock to nurserymen and grape raisers
- Selection of the yeast *Saccharomyces cerevisiae* - EMBRAPA-208, to improve the quality of national wines
- Development of alternative technologies to classical winemaking for red wines and of the "Charentais" method for distilled drinks of high quality
- Recommendation of alternative cultural practices for soil management, with an indirect influence on productivity, economy and erosion control
- Introduction of the precocious cultivars of table grapes "Vênus" and late cultivars "Dona Zilá" and "Tardia de Caxias" as production alternatives for the wine grower and for extending the offering period for consumers
- Identification of two new viroses - necrosis of nervures and stain of nervures - which occur in a latent form in the majority of grape vines in Rio Grande do Sul.

Center for Temperate Climate Agricultural Research - CPACT
BR 392, km 78, 9º Distrito
Phone (0532) 21-2122
Fax (0532) 21-2121
Telex (53) 2301
Caixa Postal 403
CEP 96001-970 - Pelotas-RS

Objectives

- Characterize and evaluate the regional socioeconomic and natural resources, aiming at sustainable development.
- Generate, adapt promote, transfer and diffuse technologies for the agricultural complex, to increase the efficiency and quality of the productive system
- Produce and/or utilize basic knowledge and incorporate new research techniques, with the idea of amplifying the producing base of new technologies
- Diffuse research areas and generate technologies for environmental conservation or recuperation, observing the various regional ecosystems.
- Some Technologies Produced
- Introduction and recommendation of bean, soybean and corn cultivars for the plateau of the South of Rio Grande do Sul state and for utilization in lowlands

- Peach cultivars for industry - "Granito" and "Ametista" - and for consumption *in natura* - "Pampeano" and "Guaica"
- Control of black rot and of bacteriosis of the peach tree (*Xanthomonas campestris* pv. *pruni*)
- Introduction of the cultivar Ya-Cy of Brazilian guava
- Development of genetic manipulation technologies for the improvement of irrigated rice, bean and soybean
- Technology for production of lettuce and asparagus
- Utilization of Thidiazuron for breaking dormancy of the apple tree, and in the process of production of transplants of kiwi fruit, meristem culture and micropropagation of pear cultivars.

Center for Research on Cattle Raising on Southern Brazilian Grasslands - CPPSUI

BR 153, km 141, Vila Industrial, Zona Rural

Phone (0532) 42-4499

Telex (53) 2500

Fax (0532) 42-4395

Caixa Postal 242

CEP 96400-970 - Bagé-RS

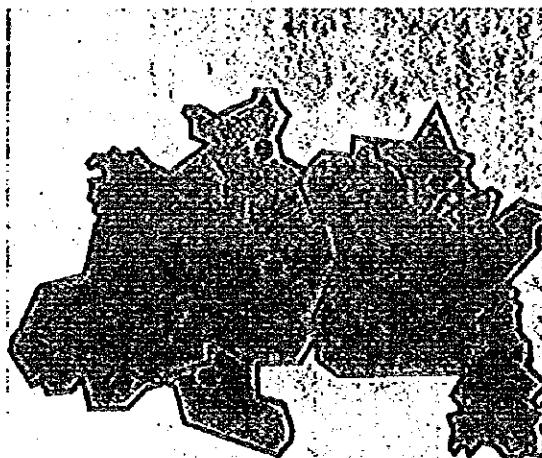
Objectives

- Generate, adapt and promote scientific and technological knowledge for the development and modernization of integrated systems of agriculture, giving priority to cattle and sheep, and preserving the natural resources in southern Brazilian grasslands.

Some Technologies Produced

- Creation of the Ibagé race of beef cattle
- Development of the white clover BR-1 Bagé cultivar
- Programs for strategic control of verminosis in beef cattle and sheep
- Reduction from four and a half years to two and a half years in the slaughter age of beef yearlings
- Increase from 55% to 75% in the rate of conception, and reduction from 9% to 5% in the mortality rate of calves
- Development of a vesicular clover cultivar (*Trifolium vesiculosum*) EMBRAPA-28, highly productive and adapted to the ecological conditions of the southeast region of Rio Grande do Sul
- Reduction of the mating age of beef cattle from three to two years.

NORTH



• Units

National Center for Agroforestry Research of Western Amazônia - CCAA

Rodovia AM-010, km 24, Estrada Manaus/Itacoatiara
Phone (092) 622-2012
Telex (92) 2440
Fax (092) 622-1100
Caixa Postal 319
CEP 69011-970 - Manaus-AM

Objectives

- Generate knowledge for the utilization and conservation of the renewable natural resources of western Amazônia
- Develop and test alternative sustainable systems in order to improve agricultural activities, cattle raising, forestry and agroforestry activities, making possible a longer time of occupation of production areas of the different ecosystems of western Amazônia
- Develop management techniques to recuperate and make productive areas altered and/or degraded of western Amazônia
- Generate and adapt agroindustrial technologies for the utilization and improvement in quality of regional products
- Develop new agricultural alternatives, especially aquaculture, in western Amazônia.

Some Technologies Produced

- Recommendation of "xingu" cultivars of rice for terra firma and "Ajuricaba" for low grassy plains ("varzeas")
- Introduction of cultivars of cowpea, BR-8 "Caldeirão", for "varzeas" and terra firma, and "IPEAN V - 69," for terra firma
- Introduction of cassava cultivars "Im-006", "BGM-021", "IM-025", for terra firma, and "IM-175", "IM-158" and "Amazonas-EMBRAPA-8", for "várzeas"
- Improvement of the technique of exploitation of rubber plantations through the stimulation of latex production, with an increase superior to 100%, and indication of new combinations crown/stem, designed for control of the principal foliar diseases
- Introduction of pollinating insects, natives of Africa, aiming for a 100% increase in the production of the African oil palm
- Recommendation of guaraná clones¹⁾
- Production of hybrid African oil palm seeds of high quality

Center for Agroforestry Research of Acre - CPAF-Acre

Rodovia BR-364, km 14
Phone (068) 224-3932/224-4035
Telex (68) 2589
Fax (068) 224-4035
Caixa Postal 392
CEP 69908-970 - Rio Branco-AC

Objectives

- Generate, adapt and diffuse technologies and knowledge which promote the diversification of production and the increased efficiency of agroforestry systems and agroindustries, emphasizing regional products
- Develop technologies and knowledge, especially for small and medium-sized producers, with emphasis on mixed production systems, sustainability and environmental problems resulting from agroforestry activities
- Produce fundamental knowledge, incorporating new research techniques so as to broaden the base for the generation of new technologies
- Promote technology transfer, technical-scientific information, products and services to society.

Some Technologies Produced

- Pineapple cultivars ("Rio Branco," "Cabeça de Onça", SNG-2 and SNG-3), of cowpea ("Rio Branco" and "Cana Verde"), of corn (BR-5109 and "Milhacre") and of rice ("Acrefino")
- Recommendation of cultivars of rice, onion, black pepper, coffee ("Catuaí" and Icatu"), and garlic, carrot, beet, guaraná and bean
- Recommendation of silvicultural management techniques in native rubber plantations
- Recuperation of degraded soils with the utilization of biofertilization with legumes
- Utilization of mulch for control of bean mildew
- Survey, identification and control of pests associated with cultures of cassava, mahogany, custard apple, rice, corn, cowpea and forage grasses
- Production system for woolless sheep, sheep and double-purpose buffalos (meat and milk)

Center for Agroforestry Research of Amapá - CPAF-Amapá
Rodovia Juscelino Kubitschek, km 5 (Macapá-Fazendinha)
Phone (096) 241-1551
Telex (096) 2399
Fax (096) 241-1480
Caixa Postal 10
CEP 68902-280 - Macapá-AP

Objectives

- Promote the utilization of technologies and/or knowledge for the development of sustainable systems of agroforestry or agrosilvipastoral systems to meet the needs of the population, maintaining or improving the quality of the environment
- Generate, adapt or promote technologies and knowledge to assure a continuous production of food, to minimize the importation of these products
- Generate technologies or adapt economically viable practices which facilitate the exploitation of potentially utilizable areas
- Diffuse and/or promote technology transfer and marketing of scientific and technological information, products and services.

Some Technologies Produced

- "Taxi-branco", (*Sclerobium paniculatum*) forest species for utilization in degraded areas, and well adapted to cerrado areas, for production of wood and charcoal
- Cultivars of rice "Ajuricaba" for flat grassy plains ("varzeas") and "Xingu" for drylands
- Cultivar of cowpea-CNC 0434
- Cultivars of tomato "Caraiba" and "cucumber Spring 440"
- Cultivars of "Crimson Sweet" watermelon; squash "Caipira Regional"; okra "Piranema" and cabbage "Sooshu" (KK Cross)
- Cultivars of "Grandes Lagos" lettuce
- Variety of pepper "Ruby King".

Center for Agroforestry Research of Rondônia - CPAF-Rondônia
BR 364 KM 5,5
Phone (069) 222-3080
Fax (069) 222-3857
Telex (69) 2258
Caixa Postal 406
CEP 78900-000 - Porto Velho-RO

Objectives

- Generate, adapt and diffuse knowledge and/or technologies in agroforestry and silvipastoral systems which permit the sustained development of agricultural and forestry systems, for the benefit of society.

Some Technologies Produced

- Genetic seeds of corn: cultivar BR 5150, low stature, half dent grains; BR 5103, medium stature, semihard grains with productivity around 3,000 kg/ha. - Cassava plantations with improved cultivars of cassava: "Pirarucu", "Amarelo", "Goela de Jacu" and "Pão do Acre"
- Improvement of dairy cows, buffalos for milk production, crossbred goats of double purpose (meat and milk) and woolless sheep
- Native forest species (*Guapuruvu*, *Parapará* and *Morototó*) of rapid growth for recuperation of deforested areas
- Production of transplants of elite material (clonal) of the "cupuaçu" (*Theobroma grandiflorum*)
- Utilization of the grass *B. Humidicola* and legumes in pasture recuperation and introduction of guinea grass "Camerom", under conditions of Rondônia
- Production system for cotton in sparse areas and of perennial cultures in mixed cropping: Seringueira x Café, Seringueira x Cacau.

Center for Agroforestry Research of Roraima - CPAF-Roraima
BR- 174, km 08, Distrito Industrial
Phone (095) 224-9211
Telex (95) 2137
Fax (095) 224-3802
Caixa Postal 133
CEP 69301-970 - Boa Vista-RR

- Develop and perfect agricultural and agroforestry production systems in harmony with the socioeconomic context of Roraima.

Some Technologies Produced

- Recommendation of varieties, spacing, density and planting date, fertilization and chemical control of weeds for dryland rice, irrigated rice, corn, cowpea, soybean and sorghum
- Recommendation of varieties of lettuce, potato, onion, cabbage and tomato, melon and sorghum
- Recommendation of varieties of guaraná, orange, passion fruit, pineapple and banana
- Recommendation on formation and maintenance of pastures, weeding, legumes and protein bank; bovine herd management, including mineralization and animal health
- Recommendation of alternatives for recuperation and utilization of deforested areas by use of diverse intercropped cultures
- Recommendation of legumes for green manuring, control of weeds and retention of soil humidity for the cerrado
- Recommendation of the date for induction of flowering for the pineapple culture.

Center for Agroforestry Research of Eastern Amazônia - CPATU
Trav. Dr. Enéas Pinheiro s/nº, Bairro do Marco
Phone (091) 226-1941/226-1741
Telex (91) 1210
Fax (091) 226-9845
Caixa Postal 48
CEP 66095-100 - Belém-PA

Objectives

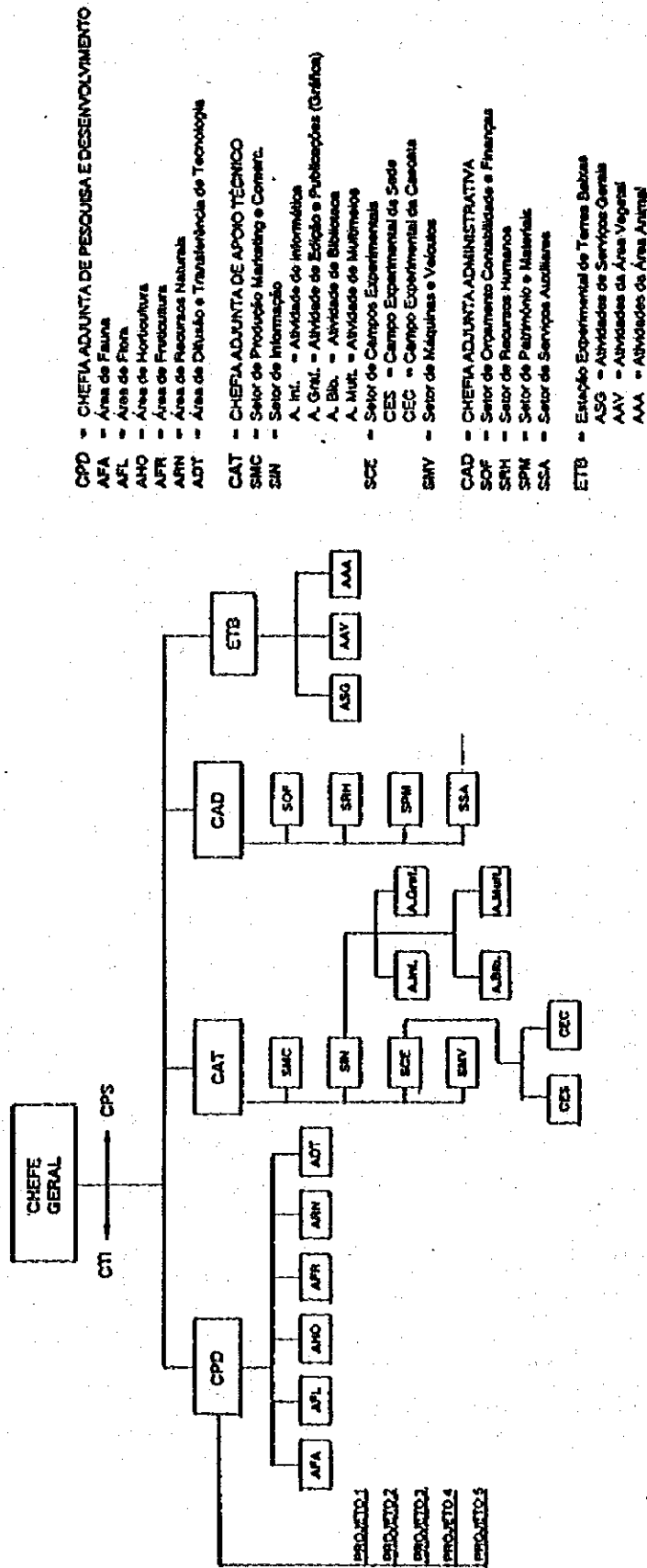
- Contribute to sustainable rural development of Amazônia, seeking the rational use and conservation of its natural resources, through the generation, adoption and diffusion of scientific, technological and socioeconomic knowledge.

Principal Technologies Produced

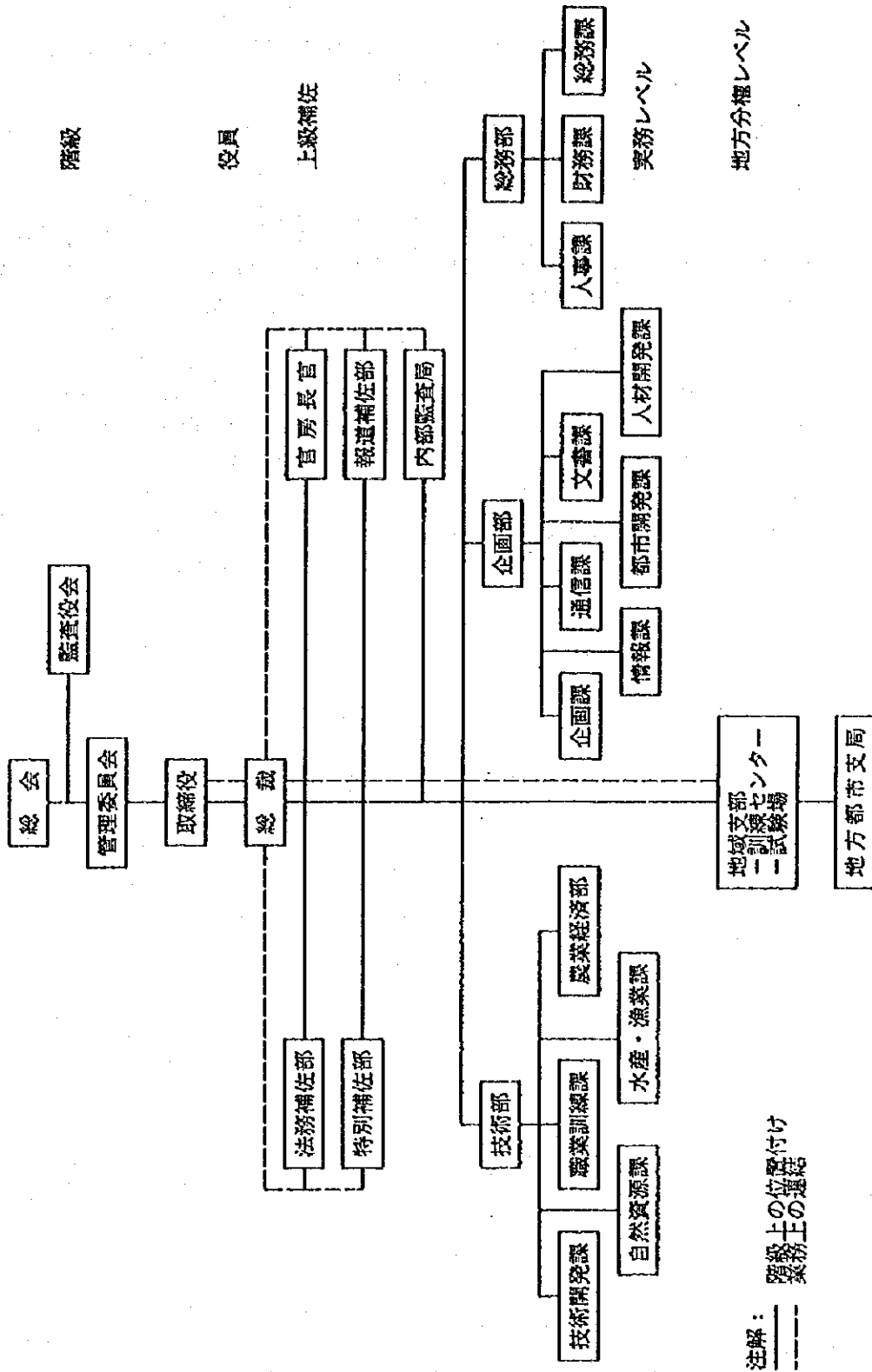
- Recuperation of degraded pastures in deforested areas of the Amazonian forest and development of management and exploitation techniques for native forest with auto-sustainable yield
- Recommendations of cultivars of rice, corn, black cassava, cowpea, tomato, mallows and black pepper and development of a technique for preparation of transplants of mangosteen by grafting
- Study of an agroforestry production system involving the combination of some forestry species with short-cycle perennial cultures
- Storage, maintenance and dissemination of herbarium, wood deposit and vegetal information on the Brazilian Amazon (SISFITO) and development of an agroclimatic information system (SISCLIMA)
- Development of technologies which make possible the transport of logs of up to 22 meters, reducing the residues which remain in the forest, and losses in saw mills, and increasing productivity for each m³ of wood extracted
- Development of technologies for improving buffalo culture in the Brazilian humid tropics
- Development of technologies for a better performance of the African oil palm culture in the state of Para and for processing of African palm oil.

付属资料 4. ブラジル農牧研究公社温帯農牧研究センター組織図

ORGANOGRAMA DO CPACT
CENTRO DE PESQUISA AGROPECUÁRIA DE CLIMA TEMPERADO

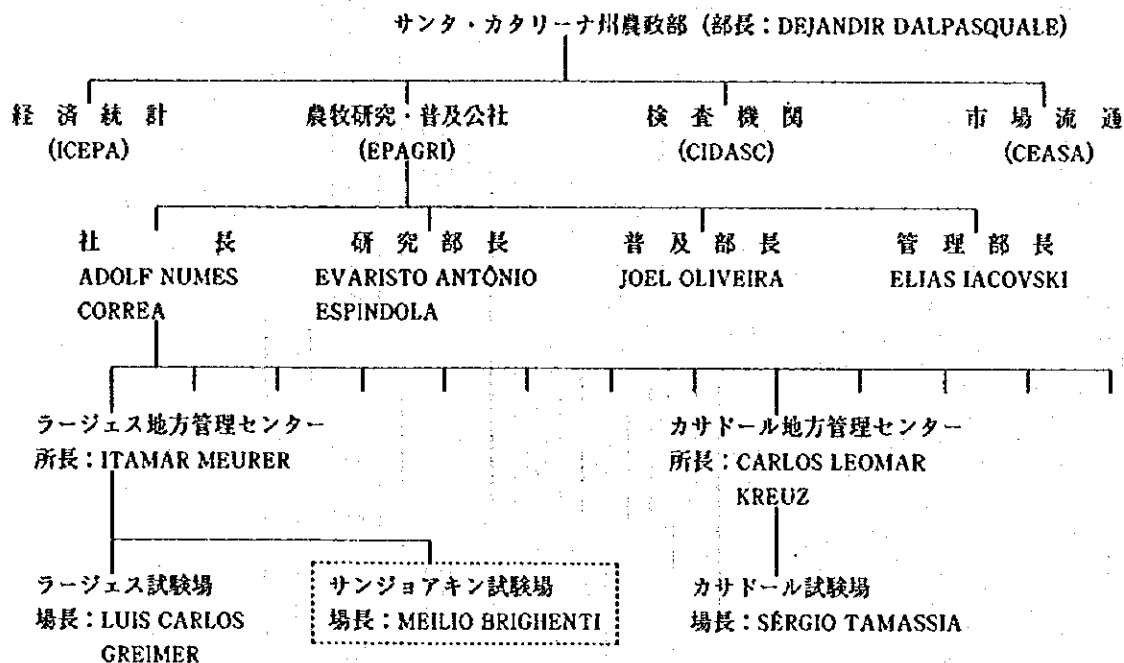


付属資料5. サンタ・カタリーナ州農牧研究・普及公社 (EPAGRI) 組織図



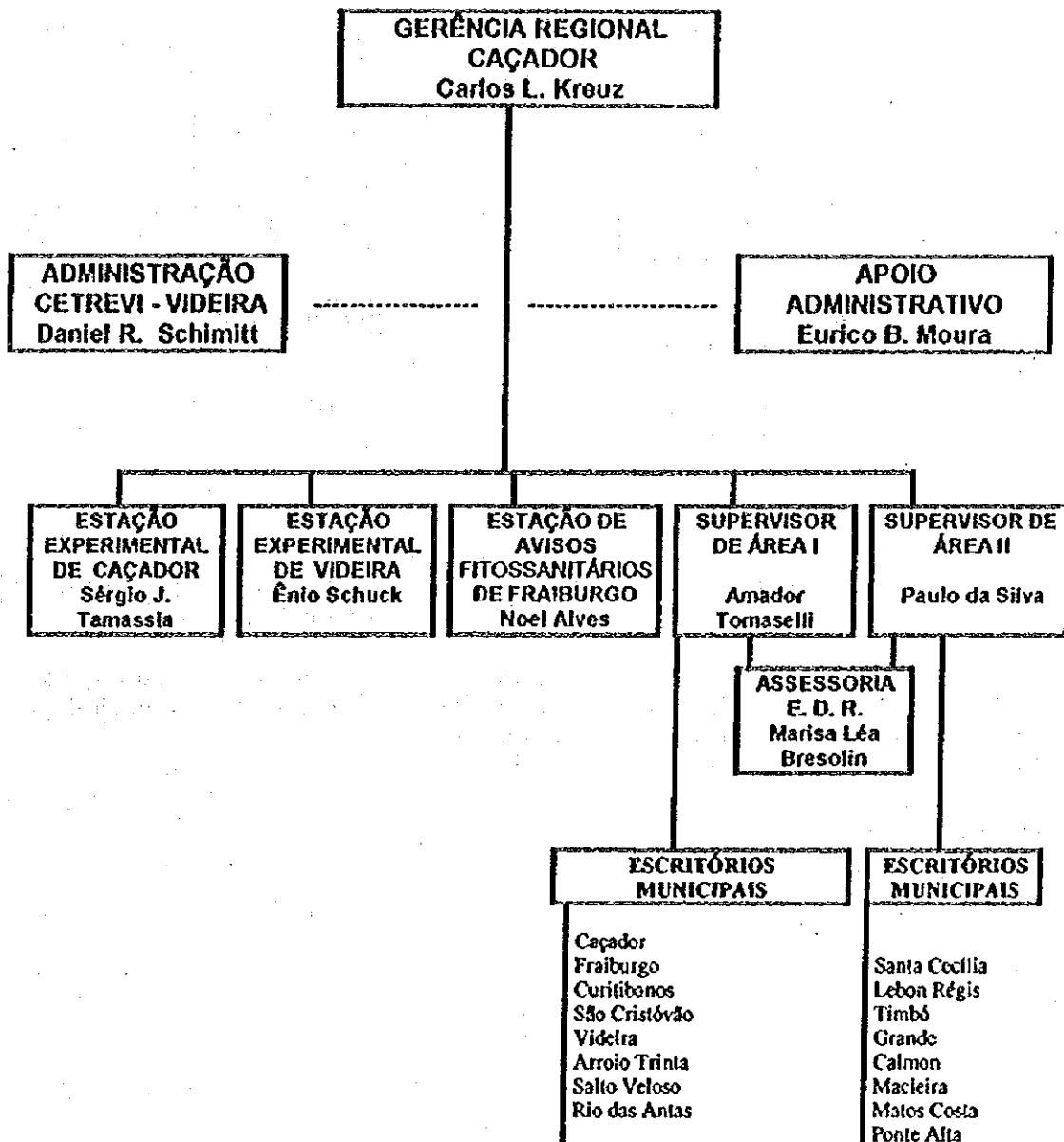
注解：
 階級上の位置付け
 業務上の連絡

EPAGRI(EMPRESA DE PESQUISA AGROPECUÁRIA E DE EXTENSÃO RURAL DE SANTA CATARINA)
 サンタ・カタリーナ州農牧研究・普及公社、組織図及び責任者 (関係分のみ、1995年2月1日改正)

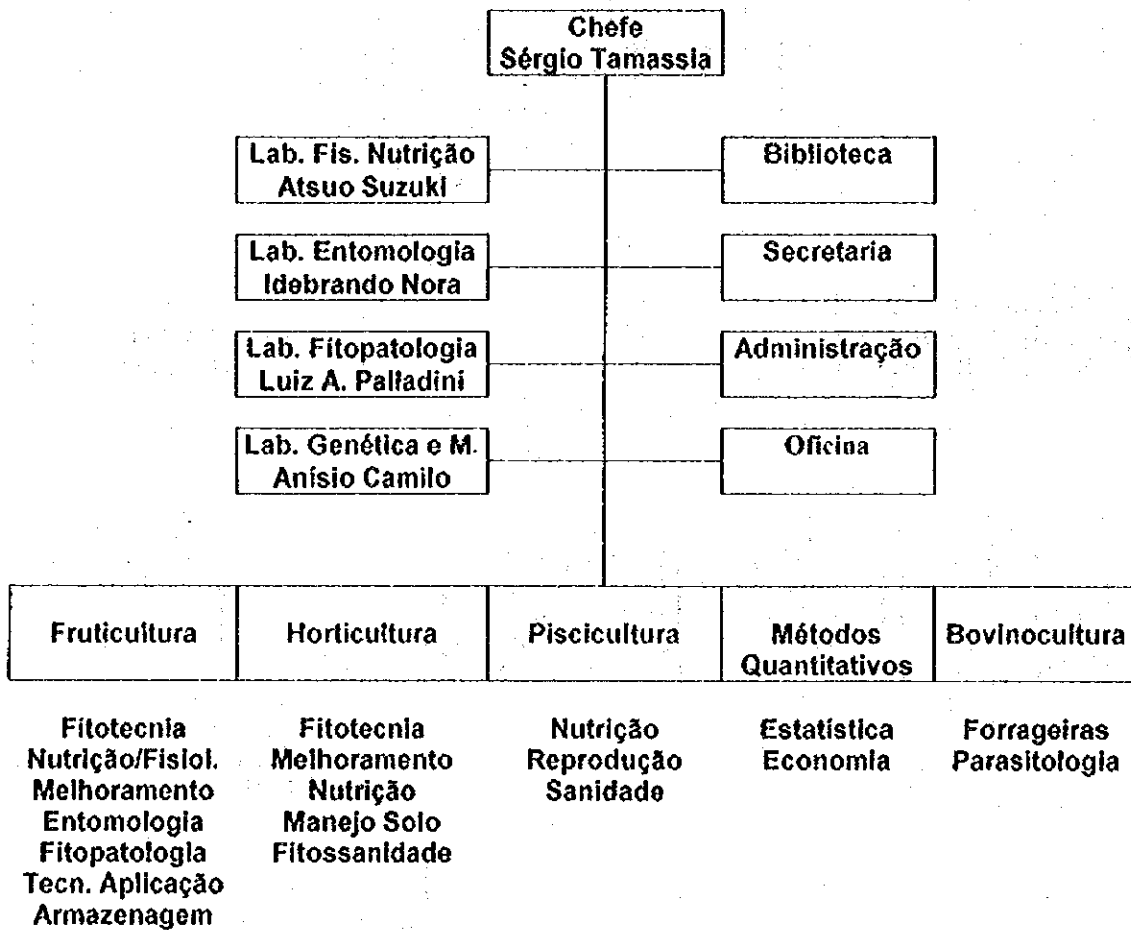


EPAGRI

ADMINISTRAÇÃO REGIONAL AVR/P



**ORGANOGRAMA
ESTAÇÃO EXPERIMENTAL DE CAÇADOR - EPAGRI**



Chefes Substitutos
Atsuo Suzuki
José Biasi

付属資料7. サンタ・カタリーナ州農牧研究・普及公社(EPAGRI)
 サンジョアキン試験場職員配置図

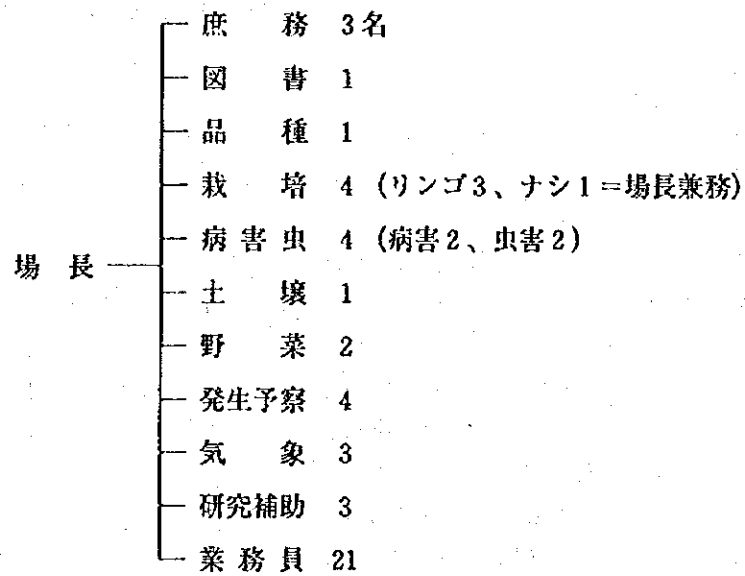


図2. サンジョアキン試験場職員配置図 (47名)

(1995年2月1日現在)

付属資料 8. カウンターパート配置計画表

P ; ポルトガル語, E ; 英語
 J ; 日本語, S ; スペイン語
 F ; 仏語, I ; 伊語, G ; 独語

カウンターパート配置計画

研究分野	氏 名	最終学歴	使用可能言語
① サンジョアキン試験場			
1) 南ブラジルにおける品種及び台木の選抜・評価			
a) 品種及び台木の南ブラジルにおける適応性評価			
	Mr. Emilio Brigenti	MSc	P, E, S
	Mr. Adilson J. Pereira(併)	MSc	P
	Mr. Pedro A. Ribeiro	-	P, E, S
b) 病害抵抗性及台木の選抜			
	Mr. Jose Itamar Boneti	MSc	P, E, S
	Mr. Emilio Brigenti(併)	MSc	P, E, S
	Mr. Adilson J. Pereira(併)	MSc	P
	Mr. Luia Gonzaga Ribeiro	MSc	P
2) 南ブラジルの土壌、気候及び社会条件に適した栽培技術の開発			
a) 栽植及び仕立て法の確立			
	Mr. Adilson J. Pereira	MSc	P
	Mr. Nazaro Vieira	BS	P
b) 収穫・貯蔵技術の開発			
	Ms. Vera L. Iuchi	PhD	P
3) 植物保護技術の開発			
a) 主要病害虫の分類同定、診断			
	Mr. Jose Itamar Boneti	MSc	P, E, S
	Mr. Yoshinori Katsurayama	MSc	P, J
	Mr. Antonio Amorih Neto	-	P
EMBRAPA	Mr. Joel F. Fortes	PhD	P, E, S
EMBRAPA	Mr. Luiz A. S. Castro	MSc	P, E
b) 主要病害虫の防除法の開発			
	Mr. Jose Itamar Boneti(併)	MSc	P, E, S
	Mr. Yoshinori Katsurayama(併)	MSc	P, J
	Mr. Reinhard Krueger	BS	P, E, G
EMBRAPA	Mr. Joel F. Fortes(併)	PhD	P, E, S
EMBRAPA	Mr. Luiz A. S. Castro(併)	MSc	P, E
c) ウイルスフリー化技術の開発			
	Mr. Jose Itamar Boneti(併)	MSc	P, E, S
	Mr. Yoshinori Katsurayama(併)	MSc	P, J

	Mr. Valdir Bonin	MSc	P
EMBRAPA	Mr. Gerson R. L. Fortes(併)	BS	P, E
EMBRAPA	Mr. Luiz A. S. Castro(併)	MSc	P, E
EMBRAPA	Mr. Eliane Augustin	PhD	P, E, S
EMBRAPA	Mr. Julio Daniels	PhD	P, E
EMBRAPA	Mr. Bonifacio H. Nakasu	PhD	P, J, E
4) 施肥技術と生理障害に関する研究			
a) 南ブラジルにおける土壌・施肥管理方式の開発			
	Mr. Jose Msanori Katsurayama		P, J
b) 生理障害発生の実態と要因の検討			
	Ms. Vera L. Iuchi(併)	PhD	P
EMBRAPA	Mr. Darcy Camelatto	PhD	P, E, S
EMBRAPA	Mr. Claudio Jose S. Freire	MSc	P, E
② カサドール試験場			
1) 南ブラジルにおける品種及び台木の選抜・評価			
a) 品種及び台木の南ブラジルにおける適応性評価			
	Mr. Ivan D. Faoro	MSc	P
	Mr. Frederico Denardi	MSc	P, E, S
	Mr. Anisio P. Camilo	PhD	P, E, S
	Mr. Gabriel B. Leite(併)	MSc	P, E
2) 南ブラジルの土壌、気候及び社会条件に適した栽培技術の開発			
a) 栽植及び仕立て法の確立			
	Mr. Jose L. Petri	MSc	P, E, S
	Mr. Gabriel B. Leite	MSc	P, E
3) 植物保護技術の開発			
a) 主要病害虫の分離同定、診断			
	Mr. Jorge Bleicher		
	Mr. Luiz. A. Palladini(併)	MSc	P, E, S
b) 主要病害虫の防除法の開発			
	Mr. Luiz. A. Palladini	MSc	P, E, S
	Mr. Ildebrando Nora	MSc	P, F, S, I
4) 施肥技術と生理障害に関する研究			
a) 南ブラジルにおける土壌・施肥管理方式の開発			
	Mr. Atsuo Suzuki	MSc	P, J
	Mr. Clori Basso	PhD	P, E
b) 生理障害発生の実態と要因の検討			
	Ms. Jose L. Petri(併)	MSc	P, E, S
	Mr. Gabriel B. Leite(併)	MSc	P, E
	Mr. Clori Basso(併)	PhD	P, E
EMBRAPA	Mr. Flavio G. Herter		

EMBRAPA	Mr. Darcy Camelatto(Off)	PhD	P, E, S
EMBRAPA	Mr. Nelson L Finarde	PhD	P, E, F, S



Epagri

EPAGRI - Estação Experimental de São Joaquim
Rua Presidente Kennedy s/n, Bairro Jardim Caiçara, C.Postal 81
CEP 88600-000 - São Joaquim, SC, Brasil
Fone/Fax: 0055-49233-0324 - E-Mail: epagri04@transpac.npd.ufsc.br

EPAGRI-Estação Experimental de São Joaquim

The Research Programs of São Joaquim Experiment Station

1) Temperate Fruits (Apple, Pear, Cherry, Plum, Prune, Grape and Feijoa)

Plant Breeding and Cleaning of Apple Virus

Screening for Apple Scab Resistance (Scion)
Screening for Collar Rot Resistance (Rootstocks)
Thermotherapy and Indexing of Apple Scions

Plant Pathology

Etiology, Epidemiology and Control of Apple Diseases (Scab, White Rot, Gala Necrotic Leaf Spot, Collar Rot, etc.)
Resistance of *Venturia inaequalis* to Dodine and EBI fungicides
Forecasting System to Apple Diseases

Entomology

Populational Dynamic Study of *Panonychus ulmi*, *Anastrepha fraterculus*, *Lepidosaphes ulmi*.
Sampling Technique of Mites
Chemical and Biological Control of Red Mites and Fruit Fly.

Cultivation

Plant Densities
Training and Pruning
Chemical and Hand Thinning
Pollen Compatibility
Phenology Evaluation of Apple, Pear, Plum, Prune, Feijoa, Cherry and Grape.

2) Other crops (Seed and Ware Potatoes, Tomato, Carrot, Bean)

Plant Breeding of Potato

Introduction and evaluation of varieties

Breeding and selection

Plant Pathology and Entomology

Etiology, Epidemiology and Control of Potato Late and Early Blight

Forecasting System for Aphid, Late and Early Blight of Potato

Cultivation

Study of Fertilizer Dose on the Potato

Production system of seed potatoes

STAFF OF SÃO JOAQUIM EXPERIMENT STATION

RESEARCHERS (Agronomists)

1. Adilson J. Pereira (M. Sc. Pomology)
2. Eduardo H. Flores (M. Sc. Entomology)
3. Emilio Brighenti (M. Sc. Pomology), Head of São Joaquim Experiment Station
4. José Itamar da Silva Boneti (M. Sc. Plant Pathology)
5. José Masanori Katsurayama (Bs. - Agronomy)
6. Luiz Gonzaga Ribeiro (M.Sc. Entomology)
7. Pedro de Alcântara Ribeiro (Bs. - Agronomy)
8. Valdir Bonin (M. Sc. Plant Production)
9. Vera Lúcia Iuchi (Ph. D. Plant Production)
10. Yoshinori Katsurayama (M. Sc. Plant Pathology)
11. Yoshio Yoshida (Doctor, Plant Breeding - Expert JICA)
12. Zilmar da Silva Souza (M. Sc. Plant Production)

AGRONOMISTS

1. Antonio Amorim Neto (Bs - Agronomy) - Apple Warning Service
2. Názaró Vieira (Bs - Agronomy) - Extensionist
3. Reinhard Krueger (M.Sc. Entomology) Apple Warning Service

TECHNICIANS

1. Humberto N. Ribeiro
2. Jorge Amilton de Souza (Apple Warning Service)
3. José Giovane Souza Góss (Warning Service)
4. Vilmar Zanelle

LIBRARY

José Carlos Gelsleuster (Bs)

ADMINISTRATIVE PERSONEEL

1. Jocemiriam Quadros Cardoso Fabre (Secretary)
2. Miguel Costa Nunes (Administrative Assistant)
3. Tadeu Amaral Ribeiro (Administrative Assistant)

LABORATORY ASSISTANT

1. Iran Souza Oliveira (Plant Pathology)
2. Jorge Alexandre Borges (Entomology)
3. Sebastião C. Pereira

METEOROLOGICAL ASSISTANT

1. Edilza Rosa (Ministry of Agriculture)
2. Evaldo Padilha de Almeida (Ministry of Agriculture)

FIELD LABOURER (Total of 19 people)

TOTAL AREA OF EXPERIMENT STATION: 40ha