Terminal Evaluation

Latin America and the Caribbean

1. Outline of the Project

Country:
Brazil

Project title:
The Research Project on Small-Scale Horticulture in Southern Brazil

Issue/Sector:
Agriculture/General

Cooperation scheme:
Project-type Technical Cooperation

Division in charge:
Livestock and Horticulture Division, Agricultural Development Cooperation Department

Total cost:
924 Million Yen

Period of Cooperation
1 December 1996 - 30 November 2001

Partner Country's Implementing Organization:
Agricultural Research and Rural Extension Enterprise of Santa Catarina (Epagri)

Supporting Organization in Japan:
Ministry of Agriculture, Forestry and Fisheries

Related Cooperation:
Dispatch of Experts

1-1 Background of the Project

Since the late 1960's, the Brazilian Government has tried to turn apples into a domestic product and has encouraged apple production. In Southern Brazil, many Japanese-Brazilian farmers were growing deciduous fruits such as apples and pears, which had become key economically important agricultural products. However, because of the limited history of cultivation, there have been technical problems in the selection of cultivars and rootstock, fertilizer application, cultivation techniques and protection techniques. The local experiment stations did not have sufficient research capabilities to solve these problems and improvement in the research system was an issue of great urgency. Moreover, since MERCOSUR was established within the southern region of South America in 1994, Brazilian deciduous fruits has been forced to compete with products from other countries in this region, such as Argentina and Uruguay, where the cultivation of deciduous fruits was well developed. Improvement of techniques for stabilizing production and quality of small-scale fruit growers, who are technically and financially disadvantaged, were of great urgency.

Under the circumstances, the government of Brazil requested the government of Japan to provide Project-type Technical Cooperation in order to improve the research abilities of Agricultural Research and Rural Extension Enterprise of Santa Catarina (Epagri) on apples and Japanese pears.

1-2 Project Overview

In order to contribute to the improvement of cultivation techniques of deciduous fruits in Southern Brazil, the following techniques were transferred to the staff of the experimental station in San Joaquin and Cacador; (1) evaluation and selection of techniques for cultivars and rootstock, (2) cultivation techniques, (3) plant protection techniques, (4) fertilizer application and soil management, and (5) extension.

(1) Overall Goal

The appropriate and sustainable cultivation techniques for horticulture crop production in Southern Brazil will be developed and introduced, thus contributing to the development of the farming of small-scale horticulturalists.

(2) Project Purpose

Research and extension activities on the development of cultivation techniques of apples and Japanese Pears at Epagri will be enhanced.

(3) Outputs

1) The evaluation and selection techniques for cultivars and rootstocks will be improved.
2) The cultivation techniques suitable to the soil, climate, and social conditions of southern Brazil will be elaborated.
3) The plant protection techniques for main diseases and pests will be developed.
4) The studies on soil, fertilization techniques, and physiological disorders will be enhanced.
5) The techniques and knowledge developed through the Project will be used for extension to small-scale horticulturists in the region.

(4) Inputs

Japanese side:

Long-term Experts	11	Equipment	182 Million Yen
Short-term Experts	13	Local Cost	46 Million Yen
Trainees received	20		

Brazilian side:

Counterparts	34
Land and Facilities	
Local Cost	5,704 Thousand Real (32 Million Yen)

2. Evaluation Team

Members of Evaluation Team

Leader: Norihiko MATSUMOTO, Special Technical Assistant to the President, JICA
Diseases and pests: Akira KUDO, National Agricultural Research Organization
Breeding and cultivation: Kazuo KOTOBUKI, National Agricultural Research Organization
Cooperation Evaluation/Promotion: Katsumi YAMAGUCHI, Ministry of Agriculture, Forestry and Fisheries
PCM Evaluation: Hiroei ISHIHARA, Nippon Giken Inc.
Project Evaluation: Kentaro YOKOTA, Livestock and Horticulture Division, Agricultural Development Cooperation Department, JICA

Period of Evaluation 17 June 2001 - 4 July 2001

Type of Evaluation:
Terminal Evaluation

3. Results of Evaluation

3-1 Summary of Evaluation Results

(1) Relevance

The Project support's the policy of the Federal Government of Brazil and the Government of Santa Catarina, which is to produce apples domestically. Many deciduous fruit growers regard Japanese pears as a fruit suitable to the South Brazilian climate and a fruit having high production potential. Improvement in productivity and quality of apples and the introduction of Japanese pears was an important issue, in order to protect the livelihood of small-scale fruit growers, which was threatened by the establishment of MERCOSUL in 1994. This project is highly relevant and beneficial since the improvement of Epagri's research abilities will contribute greatly to solving these issues.

(2) Effectiveness

Improvements were made in cultivation techniques, fertilizer application and control method for physiological disorder as results of the research activities. As for the technical publications, 95 technical reports, 10 book and 10 videos on cultivation techniques were created during the Project. Research abilities of counterparts were improved, and the soil analyzing techniques, in particular, were approved as being the highest in rank, class A, by an external organization.

In the area of extension, the Project has made considerable progress, conducting various seminars and workshops. In Santa Catarina, annual apple production increased from 18.3 t/ha on average (1992 - 1996) to 26.4 (1997-2000). The annual production of Japanese pears increased from 31 t/ha in 1999 to 50 t/ha in 2001 in one of the orchards. These indicate that the actual improvements in cultivation techniques. Overall, the Project was considered to be effective.

(3) Efficiency

At the beginning of the Project, there were some problems. For example, the arrival of equipment was delayed and full-time counterparts were not allocated at San Joaquin for some time. However, the plan was adjusted and countermeasures were taken such as the additional allocation of counterparts and the dispatch of Short-term Experts. Thanks to these measures, activities were carried out smoothly. The counterpart training in Japan had a remarkable effect on improvement of the counterparts' research abilities, and their turnover rate has been low. Overall, the Project was carried out efficiently.

(4) Impact

Japanese pears have not yet been introduced widely among the fruit growers, and those pear trees in the introduced areas are still young and not in a stage to improve their income. However, the Project increased their interest in Japanese pears. On the other hand, apple production in Brazil increased from an average of 482,500 tons annually (1992-1996) to 740,380 tons (1997-2001). The quality was improved by the development of the counterparts' research abilities and dissemination of their achievements. As apples were introduced mainly to Japanese-Brazilians, the Project contributed towards the formation of a society by Japanese immigrants. The achievements of the Project were also applied to artificially cultivated wild guava, to increase in the number of pears growers, and decrease the use of agricultural chemicals.

(5) Sustainability

The federal government and the government of Santa Catarina has promoted fruits production as a government policy, and Epagri will be able to receive support even after the Project is terminated. Epagri is also considered to be highly sustainable in terms of organization, since it is planning to continue its own research on Japanese pears, reflecting their view that the research on pears is still just one with a three-year project by itself.

As JICA had dispatched individual experts on apples prior to this Project, the counterpart personnel have already acquired adequate knowledge and skills in this area. On the other hand, as to Japanese pears, which was adopted for the first time in the area by the Project, the technical sustainability of Epagri is still insufficient. However, as Epagri is planning its own project on pears and equipment and its maintenance can be accomplished locally, research and development of pear cultivation techniques is expected to be continued independently.

In the financial aspect, it is required that a budget be secured to increase self-sufficient revenues of Epagri, judging from incidences such as the local government's suspension of its budget due to financial reasons during the project period.

3-2 Factors that promoted realization of effects

(1) Factors concerning Planning

Extension was included in the Project scope and hence an intensive extension and public relations activities were carried out. This had a massive effect on small-scale fruit growers in the Project site.

(2) Factors concerning the Implementation Process

Inputs were conducted almost on schedule. This Project went smoothly since there had been a 25-year cooperation of individual experts prior to it, which created the base for the smooth technical transfer.

3-3 Factors that impeded realization of effects

(1) Factors concerning Planning

As the PDM of this Project had not been documented properly in the first three years, it was difficult to conduct a consistent evaluation on the whole period from the planning phase to the end of the Project.

(2) Factors concerning the Implementation Process

It was difficult to maintain collaboration among relating organizations, as they were separated by a considerable distance. Whether Brazilian Agricultural Research Cooperation (Embrapa) and Temperate Climate Agricultural Research Center (CPACT) played their role as a supporting organization sufficiently is questionable.

3-4 Conclusion

As the result of the five-year activities, the Project has achieved the outputs and the Project Purpose, which were set in advance, in both areas of apples and Japanese pears.

3-5 Recommendations

(1) Though the Brazilian side requested a continuous cooperation in the field of Japanese pears, the evaluation team concludes that the cooperation should be terminated, considering the domestic situation relating to present agricultural imports. However, taking the circumstances of the past cooperation into account, the experts and associates should exchange technical information, even after the Project is completed.

(2) The cooperation among the Sao Joaquin and Cacador Experiment Station, Embrapa and CPACT should be improved.

(3) In order to keep the sustainability of the results of the Project after its termination, the Brazilian government must secure a budget.

3-6 Lessons Learned

(1) The cooperation in the cultivation of apples has been continued for about 30 years, including the dispatch of individual experts. In a technical cooperation project which requires long-term research, as that in the fruit cultivation area, JICA should not always apply the standard period of project-type technical cooperation (5 years). JICA should consider a cooperation plan for a 20-year project, which consists of Project-type Technical Cooperation and the dispatch of individual experts.

(2) The statistics and data on the pre-set indicators did not necessarily exist, and it was difficult to collect them in this evaluation. The planner of a project must set indicators suitable for use in the Terminal Evaluation.

3-7 Follow-up Situation

N/A