

MEMORANDUM OF UNDERSTANDING BETWEEN THE GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES AND THE GOVERNMENT OF AUSTRALIA RELATING TO THE CONTROL OF RIPENING IN PAPAYA AND MANGO BY GENETIC ENGINEERING

1. GENERAL

1.1. This MEMORANDUM expresses the understandings of the Government of the Republic of the Philippines and the Government of Australia concerning the responsibilities and contributions respectively of the two Governments with regard to the implementation of the ACIAR Project No. PN 9445 - Control of Ripening in Papaya and Mango by Genetic Engineering.

1.2. The project aims to improve the postharvest characteristics of papaya fruits. The project will also provide the foundations for plant tissue culture and transformation in mango, one of the more important fruit commodities in the region. The project is further described in Attachment 1 of this Memorandum of Understanding.

2. DEFINITIONS

In This Memorandum:

"Australian institutions, firms and organizations" means Australian institutions, firms or organizations engaged in the project;

"Australian personnel" means Australian nationals or permanent residents or other persons who are not nationals or permanent residents of the Philippines, who are working in the Philippines on the project and whose salaries or other costs are funded from the contribution of the Government of Australia to the project;

"dependant/dependent" means the spouse or unmarried minor children of a member of the Australian personnel or any person recognized by the two Governments as dependant/dependent of a member of the Australian personnel;

"professional and technical material" means equipment, motor vehicles, and other goods imported by members of the Australia personnel or Australian institutions, firms and organizations of their professional use in carrying out their assigned duties under the project and paid for from funds provided by the Government of Australia;

"project supplies" means equipment, material and other goods supplied for the execution of the project, the cost of which is funded from the contribution of the Government of Australia to the project;

"services" means services performed by individuals or by general professional partnerships registered in the Philippines as detailed in Attachment 1;

"personal and household effects" means equipment, motor vehicles and other goods imported by Australian personnel or Australian institutions, firms and organizations for the personal use of Australian personnel and their dependents while engaged in the project;

3. COORDINATING AUTHORITIES AND IMPLEMENTING AGENCIES

3.1. Each Government will implement the research project through respective Coordinating authorities.

3.2. The Department of Foreign Affairs, hereinafter referred to as the DFA, will be the Philippine Coordinating Authority. The Australian Centre for International Agricultural Research, hereinafter referred to as ACIAR, will be the Australian Coordinating Authority.

3.3. Under the terms of this Memorandum of Understanding, the DFA nominates the University of the Philippines at Los Banos, hereinafter referred to as UPLB, to carry out the project on its behalf, and ACIAR nominates the University of Queensland, hereinafter referred to as UQ, to carry out the project on its behalf, as described and detailed in Attachment 1.

4. CONTRIBUTIONS

4.1. The contributions of the Government of the Republic of the Philippines and the Government of Australia as described in Attachment 1 are estimated to value One Hundred Thousand, Five Hundred Dollars (AUD\$100,500) and Three Hundred and Sixty Three Thousand Dollars (AUD\$363,000) respectively. The financial contribution of the Government of the Republic of the Philippines will be subject to its annual Congressional appropriations. The financial contribution of the Government of Australia will be subject to the normal annual parliamentary approval of appropriations.

4.2. Further to the estimated contributions above, additional funds will be provided by the Government of the Republic of the Philippines for payment of taxes incurred through implementation of the project.

5. PERSONNEL

5.1. The Government of the Republic of the Philippines and the Government of Australia will provide personnel possessing the competence required for the project, including Philippine and Australian project leaders. The project leaders will have responsibility for effective implementation in their respective countries.

5.2. Personnel composition in UPLB and UQ are described in Attachment 1.

6. IMPLEMENTATION, MONITORING AND REVIEW

6.1. Project implementation will follow the schedule specified in Attachment 1. The project leaders will provide a yearly progress report to ACIAR, copies of which will be forwarded to the DFA.

6.2. The Philippine and Australian project leaders will establish regular consultations on project progress, direction and schedules.

6.3. Philippine project leaders will join the yearly coordination meeting of all project leaders from the three countries involved in the project.

6.4. The project will be reviewed approximately six months prior to its conclusion. The main reviewer(s) (1 or 2) will be an independent acknowledged eminent scientist(s) or any nationality, specifically contracted by ACIAR for the purpose. The reviewers will be joined by the relevant ACIAR program coordinator, and a

representative from the DFA during the review process in the Philippines. They will participate in the deliberations.

7. PROJECT SUPPLIES, MOTOR VEHICLES AND PROFESSIONAL AND TECHNICAL MATERIAL AND SERVICES

7.1. In respect of project supplies, motor vehicles, professional and technical material and services whether to be imported into and/or procured within the Philippines for the purposes of the project, the Government of the Republic of the Philippines will:

- (a) be responsible for the payment of import duties, Value Added Tax (VAT), and other duties and taxes imposed in the Philippines and be responsible for inspection fees, storage charges and all other levies, fees and charges;
- (b) facilitate the expeditious clearance and release of imported project supplies and motor vehicles including the provision of appropriate customs and wharfage facilities in the port of entry closest to the site of the project; and
- (c) unless mutually arranged otherwise, provide expeditious internal transport to the site of the project.

7.2. Project supplies and motor vehicles provided by the Government of Australia for the project will be available for the unrestricted use of the project and will not be withdrawn from that use without the consent of the Government of Australia.

7.3. Motor vehicles provided by the Government of Australia for the purposes of the project will be registered as Official Exempt Vehicles and handed over at the completion of the project to the agency or another project as mutually agreed between ACIAR and UPLB. These vehicles will be under the administrative control of the Philippine project leader for the duration of the project.

8. IMPORTATION OF PERSONAL AND HOUSEHOLD EFFECTS AND MOTOR VEHICLES FOR PERSONAL USE

In respect of the importation into the Philippines of bona fide personal and household effects, including motor vehicles, for the personal use of Australian personnel or their dependants/ dependents, which accompany such persons or arrive within six months from either the date of their first arrival in the Philippines, or the signing of this Memorandum whichever is the later, the Government of the Republic of the Philippines will:

- (a) be responsible for the payment of all customs duties, other duties, taxes, levies, and other charges of similar nature; and
- (b) expedite their clearance through customs.

9. EXPORT OF PROFESSIONAL AND TECHNICAL MATERIAL AND PERSONAL AND HOUSEHOLD EFFECTS

In respect of the export from the Philippines at the end of the assignment of Australian personnel, of professional and technical material, personal and household

effects and motor vehicles for personal use, the Government of the Republic of the Philippines will:

- (a) be responsible for the payment of all customs duties, taxes, levies and other charges of similar nature; and
- (b) expedite clearance through customs and other export controls.

10. LOCAL LAWS AND REGULATIONS

The Philippine Coordinating Authority and the Philippine Implementing Agency(s) will exert their best efforts to inform and keep advised Australian firms, institutions and organizations of local laws and regulations which may concern them in the performance of their duties.

11. CLAIMS

The Government of the Republic of the Philippines will deal with any claim which may be brought by third parties against Australian personnel and Australian firms, institutions and organizations and will hold harmless said Australian personnel and Australian firms, institutions and organizations from civil liability from acts or omissions occurring in the course of the performance of their duties in the execution of the project except where both Governments accept that their acts arise from gross negligence and willful misconduct.

12. SECURITY

The Government of the Republic of the Philippines will provide security arrangements for Australian personnel and their dependents and property on project sites and elsewhere when they are involved in official activities in accordance with the present Memorandum. The nature of such security arrangements will be mutually determined by the two Governments.

13. AMENDMENTS

Amendments to this Memorandum may be made at any time by written arrangement between the parties. These shall take effect on the date of the latter written notification by the Parties, through diplomatic channels, indicating that the domestic requirements for its entry into force have been complied with.

14. DURATION

This Memorandum will take effect from on the date of the latter written notification by the Parties, through diplomatic channels, indicating that the domestic requirements for its entry into force have been complied with. The contribution of the Government of Australia to the Project and all undertakings given will cease on 30 June 2000 or on such other date as may subsequently be arranged between the two Governments.

15. ATTACHMENTS

Attachments referred to in and attached to this Memorandum form an integral part of it.

SIGNED at the City of Manila, this 4th.day of November 1997.

Date

Date

ATTACHMENT 1

**CONTROL OF RIPENING IN PAPAYA AND MANGO BY GENETIC
ENGINEERING**

1. BACKGROUND

Tropical fruits ripen, deteriorate in appearance and eating quality and succumb to postharvest diseases very rapidly after harvest. Poor postharvest characteristics such as poor flavour development, very short shelf-life, quick softening, easy spoilage, sensitivity to low temperatures (chilling injury) and easy pathogen attack (fungi, etc.), are major constraints to profitability for the domestic market, and to the expansion of existing and new export markets.

Studying the ripening of fruits, they are classified as climacteric or non-climacteric depending upon their patterns of respiration and ethylene synthesis during this process. Climacteric fruits are characterised by an increased respiration rate at an early stage in the ripening process accompanied by autocatalytic ethylene production whereas non-climacteric fruits show a different respiration pattern and display a lack of autocatalytic ethylene synthesis.

Ethylene is one of the simplest organic molecules with biological activity and is the only gaseous hormone known to date. Large losses of fruits and vegetables are incurred annually due to ethylene's effects on plant senescence. In climacteric fruits ethylene controls the rate of ripening. Finding methods to control the ripening process and prevent spoilage is extremely important. Various strategies have been employed to prevent or delay fruit ripening in a reversible way, such as ventilation with air under hypobaric pressures and the application of inhibitors of ethylene action (Yang and Hoffman, 1984). However, these approaches are expensive, often fail to regulate fruit senescence in a satisfactory manner and furthermore, the chemical methods are becoming unacceptable by society. In addition to this, in developing countries there is the added problem of creating the necessary infrastructure close to the growing fields and the transfer of technology to the farmers. This lack of infrastructure makes impractical many of the approaches used in developed countries.

Biotechnological manipulation of genes controlling ethylene production and other important fruit traits have been proven extremely useful and transgenic fruits with improved postharvest characteristics are already available in the international markets. One very especial advantage of this approach is that once the transgenic fruit is developed, it is the final product by itself. No additional technology transfer is needed and no especial training to farmers is required. In this project, the technology transfer will be directed to specific scientific institutions in order to boost their capacity to apply the techniques to solve additional problems in the same commodity, or to solve similar problems in other commodities.

Biotechnology has been declared as one of the flagship programs in the Philippines bid to attain Newly Industrialising Country Status (NICS) by year 2000. The national biotechnology action plan was approved in 1990 by the Science and Technology