PHILIPPINE COUNTRY REPORT OF THE NATIONAL INSTITUTE ACTIVITIES ON AGRICULTURAL MECHANIZATION

Agricultural Mechanization Development Program
Institute of Agricultural Engineering
College of Engineering and Agro-Industrial Technology
U.P. LOS BAÑOS
College, Laguna, Philippines

Presented at the Third Session of the Technical Advisory Committee of the Asia-Pacific Centre for Agricultural Engineering and Machinery
Hanoi, Vietnam, 13-14 December 2004
OUTLINE OF PRESENTATION

- R&D Group
- Training, Extension and Information Group
- Special Projects
- General Services and Other Accomplishments
R&D GROUP
R&D Group
Corn Mechanization Subprogram
- Primary Corn Production Systems

Hand tractor with steering mechanism.
- Fabrication was completed
- Working drawings were completed
- AMTEC test was completed
- Fabrication of riding tool bar was completed

Manure Applicator - Prototype 2
- Improvement of the prototype 1 was completed.
- Conducted laboratory tests.
- Prototype 2 improvements:
  - Increase hopper capacity
  - Hitch made adaptable to the power tiller,
  - Furrow opener and closer was made integral part of the machine

Field testing of the first prototype.
R&D Group
Corn Mechanization Subprogram

Primary Corn Production Systems

Pneumatic Seed Planter cum Fertilizer Applicator

- Completed metering test of fertilizer applicator & second row planting unit.
- Verification of the suitability of the blower for 2 units is being done
- Field planting tests for corn seeds were also conducted

Upland Water Management System

- Installed rainfall collection system
- Laboratory tests conducted.
- Delineated farmer’s field (0.25-ha corn farm)
- Installed water storage tank
R&D Section

Corn Mechanization Subprogram

- Post-Harvest and Secondary Processing Systems

- Fabrication of the prototype 2 including: milling unit, by-product separator, dehuller/degermer and cleaning unit.
- Conducted laboratory tests

- Continued monitoring of the unit in the farmers’ field
R&D Section
High Value Crops Mechanization

- Completed design and construction.
- Installed environmental control systems (misting & fertigation).
- High value crops were planted to determine environmental control on crop growth.

- Conducted prototype field trials/testing.
- Prototype was subjected to AMTEC formal test.

Greenhouse

Mini Tractor
## R&D Section

### Farm Power Mechanization Sub-program

#### Advance Electrolysis set-up

- Performed experiment in determining the molecular form of H and O from electrolysis
- Verified the stoichiometric ratio
- Designed a testing technique for the electrolysis system using the prototype.
- Evaluated the performance of the electrolysis system

#### Village-level ethanol distillation set-up

- Project focused on the performance testing of the ethanol production set-up using corn grains and gabi as raw materials
- Results showed experiment set-ups provided positive saccharification & fermentation activities
The refurbished/modified rotor of the windmill

The assembled main windmill components

- Two (2) components of the windmill were fabricated, namely, (a) Main pivot and (b) Bearing housing and eccentric plate.
- Existing rotor blades were repaired
- The attachment of the rotor blades to the main shaft was modified.
TRAINING, EXTENSION AND INFORMATION GROUP
Extension Activities

- Information Communication Technology Sub-Program
  - Enhancement of Agricultural Mechanization through ICT
  - Development of CEAT Webpage

College of Engineering and Agro-Industrial Technology
UPLB
http://www.ceat.uplb.edu.ph

Engineering builds a better nation!

Welcome CEAT Freshmen 2002!

College of Engineering and Agro-Industrial Technology
University of the Philippines Los Banos
College, Laguna, Philippines 4031

Telephone: (63-49) 336-2823
Homepage: http://www.ceat.uplb.edu.ph
Email: ceat@mudspring.uplb.edu.ph
Extension Activities

- ICT Sub-program
  - Corn Plant Disease Recognition Using Machine Vision

- Corn plant disease
- Image capture device
- Desktop computer/laptop
Extension Activities

Production of the following training manuals:

- Training syllabi on the Operation Servicing and Maintenance of Agricultural Machinery Technology
- Familiarization Training Course for Farm Technicians on the Operation of Farm Machinery Technology
- Training on Post-Harvest Technology and Processing of Farm Products
- Training on the Fabrication of Farm Machines, Tools and Implements
- Training on the Production of Organic fertilizer, and Operation and Maintenance of Production Machinery
- Training on the Operation, Simple Repair and Maintenance of Small Engine for Farmers and Fisherman
Extension Activities

- **Staff Development**
  - Two planning workshops were conducted to plan and review the program’s activities.
  - Conducted Techno-Demo on Corn Mechanization Technologies in Los Baños annual town festival.

- Participated in seminars, trainings, conventions, conferences, short courses, study tours and exhibits.
Extension Activities

**AMDP Publications:**
- Philippine Agricultural Mechanization Bulletin (2 issues for 2004)
- Philippine Journal of Agricultural and Biosystems Engineering (1 issue in progress)
- Mechanization Update (2 issues for 2004)
Extension Activities

- **Print/audio and media production:**
  - Revised AMDP Brochures
  - Prepared colored leaflets of AMDP developed agricultural machines
Extension Activities

- Extension and other extension activities
  - Maintenance of display area
  - Participation in exhibits
  - Conducted technology demonstrations
Extension Activities

- Provided expert services to 2,005 clients
- Provided reading room services to 122 students, researchers, faculty, etc.
- Conducted project on Establishment of Pilot Farm for the Introduction of Corn Mechanization Technologies in Region 7
Special Projects Group

- Farm Clustering/Land Consolidation and Policy Strategy formulation for agricultural mechanization
  - Preparation of Terminal Report is in progress
- Gender Impacts of selected commodities for agricultural mechanization: Gender impacts of manual corn sheller on processing in Barili, Cebu
  - Performed analysis of survey data

AMDP hand-held introduced in the area

Traditional methods of corn shelling
Special Projects Group

Other Projects conducted:

- Impact assessment and/or comparison of the traditional and semi-mechanized corn production and post production systems.

- Impact analysis of large-scale mechanization in Isabela – title renamed as “Alternative Social Arrangements And Agricultural Landscape For Large-Scale Mechanization In Corn Production Areas In Isabela, Philippines”

- Mechanization Need survey and Analysis
  - Muscovado equipment modernization
    - design and development of sugarcane juice evaporator was completed.
GENERAL SERVICES SECTION and OTHER ACCOMPLishments
General Services Section And Other Accomplishments

- The General Services Section provided support services on transport, fabrication of R&D machines, stockroom materials, property management and other logistical requirements of the Program.
- Conducted collaborative works with other institutions working on related machinery development.
- Developed mechanization proposals.
End of presentation.