COUNTRY PRESENTATION PAPER (PHILIPPINES)

Regional Roundtable of National Agriculture Machinery Associations in Asia and the Pacific

Connecting for Growth and Cooperation

28-30 October 2014
Wuhan, China

Heng Dong T. Lim
Established in 1964 to promote mechanization and adopt modern field practices

Sole national association composed of major manufacturers, importers, and distributors of agricultural machinery such as gasoline and diesel engines; four-wheel tractors (standard and compact) and their implements; power tillers and their attachments; irrigation equipment; post-harvest equipment; processing equipment; crop maintenance and protection equipment

Currently at 32 members, most of which supply world-renowned brands such as Landini, McCormick, John Deere, New Holland, Massey Ferguson, Kubota, Deutz, Yanmar, Robin, Honda, Mitsubishi, Suzuki, Yamaha, and others

Monthly meeting to discuss plans and programs relevant to the industry

Produced three cabinet ministers/secretaries, two of whom past presidents of the associations
Agricultural Machinery Manufacturers and Distributor’s Association (AMMDA)

**ROLE IN GOVERNMENT**

- plays a big role in policy-making of the government for the country’s agricultural mechanization program
- coordinates with various gov’t agencies (DA, UPLB, IRRI, DOST, Philrice, PSAE) to unify efforts and set production goals
- represents the country in major trade shows internationally
- a lead agency, advising which machines are suitable for local conditions

**ROLE IN PRIVATE SECTOR**

- official voice for the industry
- members supply ~80% of the country’s agricultural machinery
- promote development of local manufacturers of agri-machinery
- monitors warranty policies of importers/distributors/manufacturers
- share market information and statistics to members
- donate machineries to various state colleges and universities
Overview of Philippine Agriculture

- Agriculture grossed Php776.5b (U$17.3b) for Jan-June 2014 at current prices (+11.3% higher than 2013 figure)
- Farm gate prices up by 9.3% during the 1\textsuperscript{st} half of 2014

![Value of Agriculture Production 1H ‘14 (Php Billions)](chart)

![Volume of Crops Production 1H ‘14](chart)

Total: 44.8 Million Metric Ton

Source: Bureau of Agricultural Statistics
Overview of Mechanization Status

- Local manufacturing started in 1960s and reached nationwide proportion by 1975
  - The International Rice Research Institute (IRRI) made most contribution to local manufacturing by distributing basic designs of agricultural machinery; these designs were later improved by the manufacturers according to demand
- Slow improvement over the years
  - 2010 estimated level of mechanization for rice: 1.5hp / ha → 2012: 1.6hp/ha
  - 2014 overall mechanization level: 1.52 hp/ha
- Still behind most ASEAN neighbors

Mechanization Spectrum for Major Philippine Crops*

<table>
<thead>
<tr>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coconut</td>
<td>Cassava</td>
<td>Sugarcane</td>
</tr>
<tr>
<td>Banana</td>
<td>Corn</td>
<td>Pineapple</td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td></td>
</tr>
</tbody>
</table>

*UPLB – Bureau of Agricultural Research Definition:
Low – operation done with man and animal
Medium – operation done with non-mechanical power in combination with mechanical power operated by man
High – operation done solely with use of mechanical power operated by man

Source: AMMDA/Philmech
## Level of Mechanization Per Major Crop: Sugarcane

<table>
<thead>
<tr>
<th>Operation</th>
<th>Mechanization Level</th>
<th>Machinery Utilized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Preparation</td>
<td>High</td>
<td>• 90 -165 hp 4WD tractors</td>
</tr>
<tr>
<td>Planting</td>
<td>Medium to High</td>
<td>• 4WD tractors with billet transplanter using manual labor</td>
</tr>
<tr>
<td>Cultivation</td>
<td>Medium to High</td>
<td>• 4WD tractors with cultivators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Manual weeding operation</td>
</tr>
<tr>
<td>Harvesting</td>
<td>Low</td>
<td>• Manual cutting, loading, and hauling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Harvesters very limited in number; Department of Agriculture to start buying by 2015</td>
</tr>
</tbody>
</table>
## Level of Mechanization Per Major Crop: Rice

<table>
<thead>
<tr>
<th>Operation</th>
<th>Mechanization Level</th>
<th>Machinery Utilized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Preparation</td>
<td>Medium to High</td>
<td>• Walk-behind 7-8hp hand tractor with cage wheel, rake, disc plow and leveler&lt;br&gt;• 18-35 hp Japanese surplus tractors&lt;br&gt;• 22 hp – 90 hp brand new tractors</td>
</tr>
<tr>
<td>Planting</td>
<td>Low to Medium</td>
<td>• Rice transplanter (Kioti and Kubota)&lt;br&gt;• Majority still manual</td>
</tr>
<tr>
<td>Crop Care</td>
<td>Low to Medium</td>
<td>• Manual weeding and fertilizing operation&lt;br&gt;• Manual and power sprayers</td>
</tr>
<tr>
<td>Harvesting</td>
<td>Low to Medium</td>
<td>• Rice reaper (Taro)&lt;br&gt;• Rice combine harvesters (Kubota, JD)&lt;br&gt;• Majority manual harvesting</td>
</tr>
<tr>
<td>Threshing</td>
<td>High</td>
<td>• Rice thrasher: mini 8-9hp (1T/h), medium 10 hp (1.5 – 2T/h), standard (2.5T/h)</td>
</tr>
<tr>
<td>Drying</td>
<td>Low to Medium</td>
<td>• Flat bed / recirculating dryers&lt;br&gt;• Multi-pass dryers&lt;br&gt;• Majority is still sun drying</td>
</tr>
<tr>
<td>Milling</td>
<td>Medium to High</td>
<td>• Single pass and multi-pass rice mills</td>
</tr>
</tbody>
</table>
# Level of Mechanization Per Major Crop: Corn

<table>
<thead>
<tr>
<th>Operation</th>
<th>Mechanization Level</th>
<th>Machinery Utilized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Prep.</td>
<td>Low to Medium</td>
<td>• Animal plowing&lt;br&gt;• Mini tractors&lt;br&gt;• 90 hp tractors becoming more common</td>
</tr>
<tr>
<td>Planting</td>
<td>Low to Medium</td>
<td>• Manual&lt;br&gt;• Corn direct seeder&lt;br&gt;• Corn vacuum transplanter very limited number</td>
</tr>
<tr>
<td>Harvesting</td>
<td>Low to Medium</td>
<td>• Manual&lt;br&gt;• Single row harvester</td>
</tr>
<tr>
<td>Shelling</td>
<td>Medium to High</td>
<td>• Mobile shellers</td>
</tr>
<tr>
<td>Drying</td>
<td>Low to Medium</td>
<td>• Sun drying&lt;br&gt;• Flatbed / recirculating type dryers</td>
</tr>
<tr>
<td>Milling</td>
<td>Medium to High</td>
<td>• Corn mills</td>
</tr>
</tbody>
</table>
Status of Philippine Agricultural Machinery

Volume of Machineries Sold in 2013

<table>
<thead>
<tr>
<th>Machine Type</th>
<th>New</th>
<th>Surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Cylinder Engine</td>
<td>500</td>
<td>400</td>
</tr>
<tr>
<td>Mini 4WD Tractor (&lt;50 hp)</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>4WD Tractors (51-200 hp)</td>
<td></td>
<td>1,500</td>
</tr>
<tr>
<td>Rice Combine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Couple Pumps</td>
<td></td>
<td>8,000</td>
</tr>
</tbody>
</table>

Source: AMMDA estimates
Supply Chain of Agricultural Machinery

- Assembly and fabrication of small equipment such as power tillers, seeders, weeders, shellers, dryers, threshers
- Prime movers and tractors are all imported
- Majority of single-piston engines and pumps come from China
- Major brands of tractors are represented

- Local Manufacturer
- Importer – Distributor
- Government
- Dealers
- Beneficiaries / Farmers

- Gov’t actively purchasing farm tractors and other machinery to boost mechanization
- ~200 combined dealers nationwide from AMMDA members
- Gov’t provides full grant or 85% support on cost of machinery to farmers
- Cooperatives can afford to buy with or without gov’t support

Source: AMMDA, Philippine Statistics Authority, Mechanizing Philippine Agriculture for Food Sufficiency
Agricultural Machinery Policies, including Trade and Investment Policies

- **Agricultural Machinery Testing and Evaluation Center (AMTEC)**
  - Established in 1977 to be the testing center for imported and locally-made machinery and equipment

- **AFTA Signatory (1992): ASEAN Free Trade Agreement**
  - Zero tariff program among ASEAN members

- **Republic Act 8435 (1997): Agriculture and Fisheries Modernization Act (AFMA) Law**
  - Promote modernization of the Philippine agriculture

  - Promote and upgrade the practice of agricultural engineering profession to guarantee the delivery of basic and technical services to accelerate agricultural modernization

  - Enable agricultural mechanization development in the country by promoting conducive environment for local manufacturers, registration of ownership of machinery, and standardized testing and evaluation of equipment
### Challenges/Constraints for Sustainable Agricultural Machinery Sector

#### DEMAND CHALLENGES
- Farmer’s lack of capital to purchase and maintain big agricultural machinery
- Insufficient knowledge, training, and know-how of farmers
- Small-sized farms cannot reap economies of scale for large equipment, unless farms are consolidated
- Labor displacement causing resistance to mechanization
- Poor access to credit and financing

#### SUPPLY CONSTRAINTS
- **Financial Capital:**
  - High cost of energy (Philippines ranked top 7th in the world)
  - Prohibitive cost of logistics (cost to ship from Manila to Davao > cost to ship from China to Manila)
  - Poor access to financing for SME
- **Human Capital:**
  - Skilled engineers fleeing the country
  - Low level of R&D due to lack of resources and funding
- **Technological Capital:**
  - Substandard machinery
Potential Bigger Roles for Associations

- Help formulate standards in farm machinery in the country
- Enforce accreditation of Philippine agri-machinery distributors and manufacturers to comply with national farm equipment standards
- Lobby for zero tariff for raw materials used in local manufacturing
- Lobby for 0% VAT for agri-machinery and other inputs
- Lobby for friendly manufacturing environment to help local manufacturers
- Share information and knowledge with other foreign associations engaged in agricultural machinery industry for cross-country learning
- Forge synergy with other foreign associations in creating a regional database of farm equipment standards
- Explore potential business opportunities with foreign companies for trade or joint venture
Farm Tractor Small HP
Farm Tractor with Mounted Harrow
Farm Tractor with Ditcher
Farm Tractor with Trailing Harrow
Cultivator
Rice Transplanter