The Third National Agricultural Policy (NAP3)

- The over-riding objective of NAP3 is the maximization of income through the optimal utilization of resources in the sector.
- Maximizing agriculture's contribution to national income and export earnings.
- Maximizing income of producers.
- Specifically, the objectives of the Policy are:
  - a) to enhance food security;
  - b) to increase productivity and competitiveness of the sector;
  - c) to deepen linkages with other sectors;
  - d) to create new sources of growth for the sector; and
  - e) to conserve and utilize natural resources on a sustainable basis.

Mechanization

Covers value chains from land preparation to primary productions, handling, packaging, processing and waste management of crop, livestock and fishery industries.

- Overcome certain operational constraint such as low and inefficient work rate, to stimulate agricultural growth within the globalized economy.
- Plays a leading role in the modernization of the agricultural sectors.
- An important factor in the transformation of Malaysian agriculture to ensure continued competitiveness.

Targeted agricultural production situation in 2020

- Highly mechanized and operated like a business entity.
- Professionally and skillfully managed.
- Economics of scale that emphasizes on productivity and competitiveness.

Technology Status

Most of the technologies for crop production are available.

- ranges from field water management, land preparation to harvesting of the produce.
- Adoption depends on the local condition and the skill of the farmer or the contractor/ operator.
- Adoption of machine depend on farm and lot size, soil bearing capacity.
- Sophistication depend on the skill of the farmers or the service providers or operators.
- All sectors adopt the highest level in mechanization technology for land preparation.
- In harvesting process, only paddy production adopted the highest level of mechanization.
Technology Status : PADI

- Highly mechanized in field preparation, harvesting and irrigation
- Medium in terms of crop maintenance (fertilizer and pesticide application) and direct seeding (50-60%)
- Low in land leveling activities, straw cutting and lime application

field preparation

- Rotary Tilling
- Half Track

Technology Status : PADI

- Irrigation
  - static pump, transferable pump provided by government agency
  - portable pump is privately owned
- Land Preparation is fully mechanized
  - 1st, 2nd and 3rd ploughing use 4 and 2 wheels tractors
  - Land Leveling uses technology developed by MARDI

Row Seeder

- Spreader
- 2W Power Tiller & Seeder

LAND LEVELING
Cement Earthen

FLOORING FOR SEEDLING MAT

Cement Earthen

Rice nursery centre - irrigation method

Basin Irrigation Sprinkler irrigation - solid set

Mechanical Transplanting

Technology Evolution

Water management requirements for rice seedling mat production

Boom Granular Distributor

High Clearance Prime Mover
Combine Harvester

Images of field and crop conditions

Automated Weather Station

[Diagram of Automated Weather Station]

GSI MODEL & PROTOCOL

GIS Database System
- Subsoil/Soil Surveying Models
- GIS Crop Soil Levels (Kts) for Seeding
- Soil Water Management
- Weeds, Pest & Disease management
- Fertigation & Eddy metering system

[Diagram of GIS Database System]

(1) UAV Remote Sensing Systems - Below cloud monitoring

GSI Database System
- Weather Sensor (Kts) for Monitoring
- Data Collection by Surveillance
- Post Processing

Other Sensors and Platforms
- GPS
- Crop, Soil Level Index for Seeding
- Weather Station

[Diagram of Sensor and Platform Integration]

VRT N Application

[Diagram of VRT N Application]

Resource Establishment

GSI Database System
- Weather Sensor (Kts) for Monitoring
- Data Collection by Surveillance
- Post Processing

Other Sensors and Platforms
- GPS
- Crop, Soil Level Index for Seeding
- Weather Station

[Diagram of Sensor and Platform Integration]

Automated Crop Establishment

Soil Nutrient Type of sensors

Sensor & Crop interface

10 20 30 40

[Diagram of Sensor and Crop Interface]

Developed - Agricultural Research and Education Initiatives

Soil & Water Management, Field Control

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