

Agricultural Machinery and Mechanization Development in Malaysia

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Ministry of Agriculture & Agro-based Industry

East Asia



Location of Malaysia In East Asia

The Eastern and Western regions of Malaysia

Social and Economy

- Total Population : 28 million
- Rural population : 30%
- Urban population: 70% (Cities & Towns)
- Population involved in agric: 16%
- Population involved in industries: 28%
- Main exported goods: electronic equipment, petroleum and liquefied natural gas, wood and wood-based products, palm oil, rubber, textiles and chemicals
- Major agri. commodities: palm oil, natural rubber, timber and rice



Contribution to GDP

- ❑ Manufacturing sector accounts for 28%
- ❑ Service sector contributes 57%
- ❑ Agricultural sector at 7%

- ❑ GDP-per capital (purchasing power parity)
US\$16,900 (2012 est)



Breakdown of Agricultural Land Usage, (÷000ha)

Crops	1995	2000	2005	2010	Average Annual Growth Rate (%)			
					1995-2000	2000-2005	2005-2010	1995-2010
Rubber	1,679.0	1,560.0	1,395.0	1,185.0	-1.5	-2.2	-3.2	-2.3
Oil Palm	2,539.9	3,131.0	3,461.0	3,637.0	4.3	2.0	1.0	2.4
Paddy	672.8	521.2	475.0	450.0	-5.0	-1.8	-1.1	-2.6
Cocoa	190.7	163.8	160.0	160.0	-3.0	-0.5	0.0	-1.2
Coconut	248.9	213.8	193.2	175.5	-3.0	-2.0	-1.9	-2.3
Pepper	10.2	9.2	8.5	8.1	-2.0	-1.6	-1.0	-1.5
Vegetables	42.2	48.3	63.7	86.2	2.7	5.7	6.2	4.9
Fruits	257.7	291.5	329.8	373.2	2.5	2.5	2.5	2.5
Tobacco	10.5	9.3	7.8	6.2	-2.4	-3.5	-4.5	-3.5
Other	99.1	106.4	111.4	30.0	1.4	0.9	3.1	1.8



Farmer Categories

Four categories of paddy farmers in Malaysia

1. Tenant farmers whom rent the land for farming
2. Farmers as well as the land owners who farm on their own land
3. Combination of A and B whereby these farmers not only farm on their own land but also rent other people's land.
4. Land owners who lease their land to others for farming



Farmers' age pattern in Paddy Sector

Age categories (years old)	%
< 35	1.9
35.1 ó 45	7.3
45.1 ó 55	24.8
55.1 ó 65	38.2
> 65	27.8
Total	100

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Immediately after harvest



Straw slasher



Primary tillage - Dry field conditions



Field conditions before and during the primary tillage



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Secondary tillage ó Dry field conditions



Field conditions before and during the secondary tillage



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Secondary tillage - Wet field conditions



Field conditions before,
during and after the
secondary tillage



Land smoothing before seeding



Land leveling - optional



Rotary tillage before land leveling



During leveling



During leveling



Rear bucket

Current Technology in Rice Production

2. Crop Establishment

a. Direct Seeding - Knapsack power blower, Row seeder



Saturated soil seeding



Water seeding

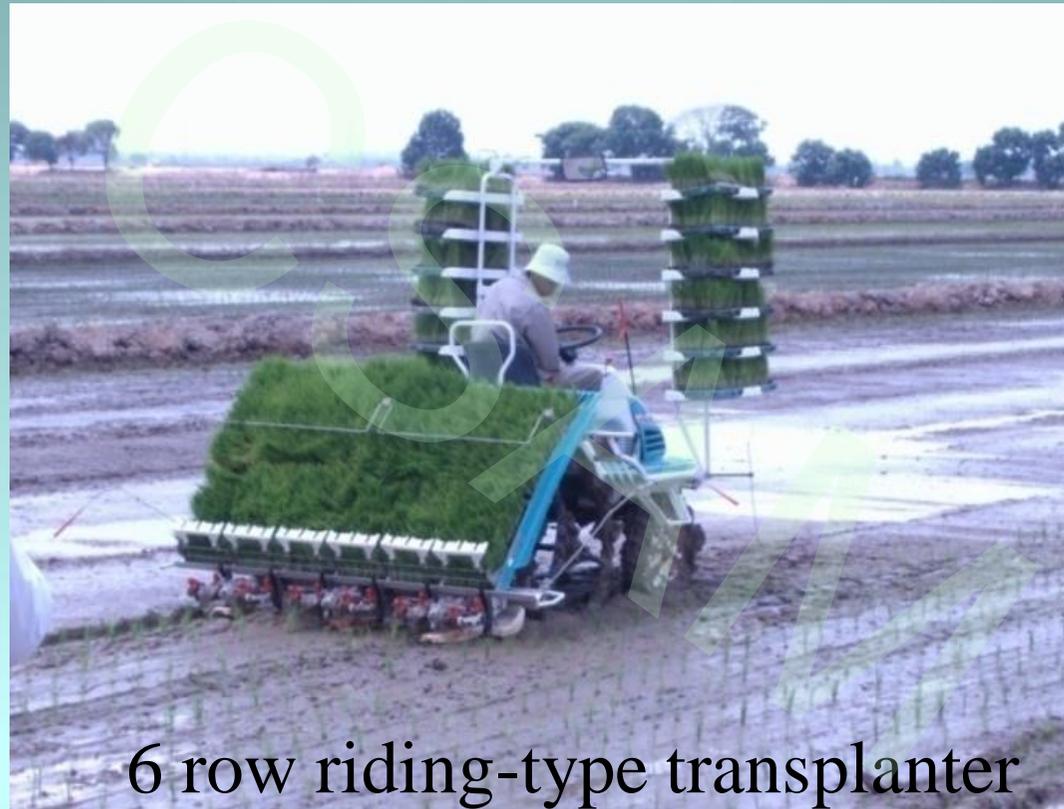


Row seeder



Crop Establishment

b. Mechanical transplanting -Riding-type transplanter



Current Technology in Rice Production

Crop Care and Maintenance

Fertilizer application ó Knapsack power blower

Chemical application - Knapsack power sprayer or manual sprayer



Knapsack power blower/sprayer



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Crop Care and Maintenance



Jecto



Side Boom Sprayer



In field Boom Sprayer



Fertilizer Spreader



Current Technology for Rice Production

Harvesting and bulk handling

- a. Grain harvesting ó Combine Harvester
- b. Grain transportation ó Lorry, truck (3-10 ton)



Soft Soil problem on Mechanization



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Causes of soft soil conditions

- Indiscriminate use of heavy machinery
- Insufficient field drainage
- Planting not done according to planned schedule ó field water cannot be completely drained
- Effect of climate change where rainfall pattern changes



Challenges in solving soft soil problems



Traction aids



Improve in Irrigation
and Drainage System



Half-track system



National Agro-Food Policy (2011-2020)

The National Agro-food policy was approved in Sept 2011

The policy outlines are as below:

- To address issues of food supply and food safety for consumption
- To modernize and commercialize the food production sector
- To ensure continuous adoption and utilization of mechanization and automation technologies in agricultural production



Financial Aids

Several measures were introduced by the government to encourage personal ownership of small and medium machinery. Such measures are

Matching grant ó to support farmers acquire small and medium farm machinery ó e.g. power tiller, pump set etc

Tax exemptions ó Agricultural machinery that is imported enjoys a 100% tax exemption and spare parts imported subjected to a levy of 10% only

Government grants ó Government offer financial grants to farmer organization without interest for them to acquire and own heavy machinery such as tractors and combine harvesters



Issues and Challenges

The issues and challenges faced by transition of this industry to modernization are

1. No comprehensive database available on the number of farm machineries owned by the private sector, government agencies and individual farmers
2. No standard regulations imposed on importers in importing farm machineries
3. No standard procedures regulated on farm machinery movement results in spreading of paddy plant diseases and rice weeds
4. Not sufficient training programs available and insufficient funding by the authorities results in failure to produce sufficient modern farmers

Conclusion

To improve mechanization, several strategies need to be outlined and implemented:

1. Implement the mechanization programmes efficiently at all levels
2. Good field infrastructure for easy machine access
3. Develop and sustain hardpan to support machine mobility
4. Further encourage small and medium machine ownership through favorable financial assistance
5. Introduce subsidies and incentives at operational level
6. Subject imported machineries to compulsory standard tests to assure quality compliance





Thank you



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