

# **RICE PRODUCTION AND POTENTIAL FOR HYBRID RICE IN MALAYSIA**

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## **INTRODUCTION**

Rice is staple food and is indigenous to this region. The amount of variations is tremendous, which also lead to many types of planting method and uses. There are many types of preparation/cooking; some are associated with specific cultural and religious ceremonies. Our production practices have change over the years; from completely manual transplanting using animal power for land preparation to direct seeding and mechanical transplanting with 100 percent mechanized land preparation and harvesting. Breeding of new varieties, irrigation facilities and mechanization brought about these changes. Most of the paddy in Malaysia is wet paddy and dry land paddy is very small and mostly in Sarawak and Sabah.

Paddy production is almost entirely a smallholder crop. A total of 296,000 paddy farmers exist in Malaysia, 138,000 (47%) of them are in eight rice granaries operating a total of about 200,000 ha of land.

### **Paddy Production – wetland paddy**

. The planted rice area in 2007 was 604293 Ha down from 680650Ha in 1990.; 345623Ha was planted in the Main Season and 258670Ha was planted in the Off-season. Off-season planting is the irrigated crop and mostly planted in the 8 granary areas. These eight granaries produce about 70% of the national rice output.

Production volume has changed little over the years since 2000 (Table 1). In 2007, Malaysia produces about 2.3 million MT of paddy, most are produced in

Peninsular Malaysia. At 60 percent rice recovery, total rice production in 2007 is about 1.3860 MT

The national average yield is low at about 3.642 t/ha in the main-season and 4.065 T/Ha in the off-season. The average yields for is much higher in Peninsular Malaysia than in Sarawak or Sabah.

**Table 1. Rice production in 2007.**

	<b>Main season 2006/07</b>	<b>Off season 07</b>
<b>1. Planted area (Ha)</b>	<b>345623</b>	<b>258670</b>
1.1 West Malaysia	261862	249627
1.2 Sarawak	57957	521
1.3 Sabah	25804	8522
<b>2. Average yield T/Ha</b>	<b>3.642</b>	<b>4.065</b>
2.1 West Malaysia	3.866	4.082
2.2 Sarawak	2.752	2.184
2.3 Sabah	3.368	3.678

Malaysia was and is one of the major importers of rice. Rice imports increase year by year. Major suppliers are Thailand and Vietnam. Pakistan and India supply specialty rice.

**Table 2. Production and Importation of rice:**

	<b>1990</b>	<b>2000</b>	<b>2006</b>	<b>2007</b>
<b>Production Million MT</b>	<b>1.2151</b>	<b>1.3817</b>	<b>1.3853</b>	<b>1.3860</b>
<b>Imports Million MT</b>	<b>0.3297</b>	<b>0.5941</b>	<b>0.8361</b>	<b>0.672 (Jan. to October)</b>

## Rice Price

Local rice price is normally higher than international rice price, thus Malaysia, or BERNAS, is happy to import rice from international Markets. BERNAS is the sole rice importer in Malaysia.

World rice production is around 370 million-ton rice (milled). Traded rice is only about 5% of total production or about 18 million tonnes. Major exporters are Thailand, Vietnam, United State, Burma, and Australia. Pakistan and India are major exporter of Basmati rice, which is the most expensive rice. Because of the small volume for export market, price can rise sharply when something happen to the production of exporter or major consuming countries.

This happened once in 5 –10 years and also recently, when international rice price rose sharply in 2008 causing worldwide rice/food crisis. Although rice price was on the upward trend since 2004, but in 2008 the price increased almost three times that of 2007 price. This cause the domestic rice price to increase almost double.

**Table 3: Major rice price - US\$ per MT**

Year	Thai white rice 100%	Thai Fragrant 100%	Pak. Basmati ordinary
2003	201	449	357
204	244	443	468
2005	291	404	473
2006	311	470	516
2007	335	550	677
2008 – Jan.	385	643	888
- Feb.	463	748	1040
- March	567	837	1100
- April	853	1004	1100
- May	963	1210	1100
- June	870	1096	1100
- July	837	1021	1100
- August	787	943	1100

International rice price is slowly going down now, but it will probably never go back to the 2033/2004 prices. To protect and stabilise local rice price, local production must be increase.

### **Need to increase local Production**

Local yield is low compared to what the potential is. Table showed the achievable average for the granary areas. This is based on MARDI local verification trials and also the yield obtained by the advance farmers. There are farmers in these granary areas that obtained much higher yield than the estimated achievable yield shown in the table.

**Table 4. Achievable Potential Yield of Granary Areas (t/ha)**

<b>Granary Areas</b>	<b>Achievable Potential</b>	<b>Current Yield (0S 07)</b>
MADA	7.0	4.66
KADA	6.0	3.61
SEBERANG PERAI	7.0	4.71
PBLS	7.5	5.14
SEBERANG PERAK	6.5	2.92
KETARA	6.5	3.82
KEMASIN/SEMARAK	6.0	3.32
KRIAN	6.0	3.34

There are many factors resulting in low yield obtained by farmers.

**i. Low plant population.**

This is directly the result of poor crop establishment; poor land preparation, seed quality and germination process, seeding rate and method, soil nutrient status and water depth.

**ii. Weeds (including Padi Angin)**

Weeds infestation is serious in most field and this is due to poor land preparation, water depth or late flooding of field after sowing, not proper herbicides application, choice of herbicides and application timing and others

**iii. Low number of filled grains**

This is due to low tiller/plant number, small panicles and due to diseases and pests. This is the results of poor fertilizer management, weeds management, pest and disease management.

**iv. Harvesting losses**

Harvesting losses are due to poor condition of combines, poorly trained combine operators, crop conditions – lodging, too easy shattering varieties and poor field conditions due to late water removal and field with no hard-pan.

**To increase average yield of rice**

**1. Crop management.**

Based on the above reason for low yield, crop management is the most important and must be improved. Training of service providers: land preparation contractors, seeding contractors, harvesting contractors is important for them to increase level of efficiency. Crop care management must be improves by training smallholder farmers or estate/mini estate managers in fertilizer management, pest and disease management

**2. Change production system**

Production system now is mostly smallholder, with old farmers doing mainly part-time rice farming, but there is trend for bigger smallholder operator. These are younger and full time farmers who rent paddy land. Should encourage this trend have some control and more orderly.

Encourage older and part-time farmers to leave the paddy farming and entrepreneurs or group under PPK, manage the farms on mini-estate basis and share profits or long term lease. Have exit plan for these group of farmers.

**3. Set up crop monitoring system**

This is to monitor pests and disease incidence and give advance notice to farmers on the occurrence of pest and diseases and what and where to apply

pesticides. This monitoring can include water status, weeds and fertilizer status of the crop and when and where to apply inputs.

#### **4. Hybrid rice**

Based on experience of other countries and research here, hybrid rice has the potential to increase yield by 15 – 20 percent. However, to make hybrid rice a success in Malaysia, there must be:

##### **4.1 Hybrid rice varieties**

At present MARDI is testing many imported hybrid rice varieties as well trying to breed our own hybrid varieties using imported Male-sterile lines. A few varieties showed promising yield and are now in LVT

##### **4.2 Agronomic practice**, especially low seed establishment techniques.

Currently, the most common practice is seed broadcast direct seeding with high seed rate of 120 –150 kg/ha. This has to be changed to other methods with seed rate of about 25 – 30kg/ha only. MARDI has researched on a few options and are now testing on large scale

**4.3. Seed multiplication system or package.** Rice is self-pollinated crop, flower structure and breeding system do not encourage cross pollination. This has to be overcome to increase cross-pollination seed set and thus yield.

#### **Conclusion**

The government policy now is to increase rice production to more than 90 percent SSL. Thus it is important to increase rice yield to meet government target as well as stabilise domestic rice price. With higher local production, the effect of world or international rice price on domestic rice price will be minimal.

