

Original: *Buletin Teknologi MARDI, Bil. 8(2015): 71 – 79 Potensi durian hibrid MARDI: MDUR 88 (MARDI potential hybrid durian: MDUR 88) Mohd Asrul Sani, Hartinee Abbas, Ahmad Hafiz Buniamin, Mohd Fairuz Nordin dan Hamzah Abdul Rashed*

Introduction

Durian (*Durio zibethinus* Murr.) Famous tropical fruit throughout Southeast Asia especially Thailand, Indonesia and also Malaysia. Durian fruit is highly nutritious and becomes popular passion because of its unique taste and smell.

Instead, durian is a local fruit that brings good results to the entrepreneur. At the time now, demand for fresh durian or processed is increasing for local market and also export.

Durian is the main crop for the fruit sector in Malaysia from the point of breadth of the plant. Nevertheless, following the terms made by the MOA, the breadth of the plant durian decreased from 122,000 hectares in 2000 to 96,000 hectares in 2008 and the breadth of durian plants in 2013 is 74,000 hectares. Conversely, the value of the output increased from RM622 million in 2000 to RM913 million in 2006 and soared to RM2.1 billion in 2013. This trend was caused by durian plant entrepreneurs switch to high quality durian clones like Weasel King (D197) and others that have the potential selling price may break RM40 / kg. Therefore, the construction of durian clones qualified people are very important to guarantee the plant industry durian continues to grow in Malaysia in the nearest future.

Construction of MDUR hybrid durian

The variety of durian clones that are popular and commercialized in Malaysia obtained from farmers' fields and forests from all of Malaysia. Assessment and selection of outstanding clones and has high commercial potential in farmers' fields throughout the country. Clones that have been known for sure will be cultured by looking at the wedge listing method, side or bud eye listing and scientifically assessed before registered as a new clone by the Agricultural Office and MARDI.

The intended durian clones are like D2, D10, D24, D145 and D197.

MARDI's role in the durian industry in Malaysias is to run an investigation and development for adding good durian fruit quality through the program. Blessing is a goal to realize diversity which is new for the purpose of selecting quality durian clones.

Since the introduction of the D24 clone in the early 1930s, Malaysia still not meeting the durian clones that are comparable.

Criteria the selection used by MARDI for durian breeders is like the following:

1. Early fruitful and successful high
2. High-quality fruit that has a delicious taste, bitter, creamy, thick, yellow and flavorful and interesting, long storage period
3. Percentage of contents exceeds 20% of the overall weight of the fruit
4. Having a high tolerance stage for disease durian cancer (*Phytophthora palmivora*) and insect slaughter (mainly fruit-ripening caterpillars such as *Lepidoptera* and *Coleoptera*)
5. Extensive goodness encompasses all zones agroecology in Malaysia
6. Easy to breed through breeding methods

The MDUR breeding and selection program starts with hybridization of 10 selected parent clones (Schedule 1) which are local durian clones that show fruit yield and quality tall one. A total of 510 F1 progenies were produced through the program this.

Then, the 168 items that were successful were planted so that they were mature and produce fruit, has been assessed the results and quality.

Conception and fruit quality of each F1 progeny are compared with D24 clones, clones are a popular choice to plant commercially because of the quality of the fruit and high yield (Schedule 2).

Based on scientific evaluation and selection systematic, MARDI has declared three hybrid durians named MDUR 78, MDUR 79 and MDUR 88 between years 1991 - 1992.

MDUR 78 hybrid clone is the result of a D10 x D24 when MDUR79 and MDUR88 are also the results of hybrid D24 x D10.

MDUR series hybrid advantages

Although MDUR 78, MDUR 79 and MDUR 88 (Figure 1) have been declared in the years 1991 and 1992, the planting of this clone somewhat there is less promotion for commercial crops. The results of the study show that this clone attempts to produce results as early as 5-6 years, has high yield potential as well quality and most importantly, these clones are tolerant to cancer attack.

The MDUR series fruits are simple and large longitudinal round shape. The three-third fruit of this hybrid clone too usually has five large shares with one to three pillows. These clones also have exceeded contents 20%. MDUR 78 fruit content texture, MDUR 79 and MDUR 88 categorized as smooth.

Between the features of MDUR 88 compared to MDUR78 and MDUR 79 are less juicy and yellow in color golden when the contents of MDUR 78 and MDUR 79 are yellow-orange and fruit contents are also thick.

MDUR 88 fruit is easily recognizable compared to MDUR 78 and MDUR 79 for its spines yellowish green and short fruit stalks. Fruit

Schedule 1. Selected durian clones as parent in the program of breeding and MDUR 88 selection

No. Klon (Normal Name)	Origin	Features
D2	Melaka	• Large simple fruit (1.3 - 1.8 kg), • gangsa green skin and fruit shape • such as the shape of the kidneys. • • Short thorns, thin but hard skin • opened. Short fruit stalks and • big. • • Fill the golden yellow. • • The quality of the fruit is very good, the taste of fat content • sweet. Low yield. Tolerant to • stem cancer.
D3		• Long longitude shape, skin color green. Fill white, large seeds and lime.
D4 - (Repok 52)	Batu Kurau, Perak	• Round shape. • Pale green skin color. • Simple size, fill in lime, lots of seeds and low quality.
D8	Kuala Lumpur	• The shape of the longitude and skin color green. • The fruit is large. • The contents of lime and the taste are simple sweet, white. High yield.

D10 (Green Durian)	Gombak, Selangor	• Large simple fruit (1.0 - 1.7 kg) and oval-shaped, has a thorn greenish yellow and sharp. • The quality of fruit storage is low. • Sense of sweet fat. • Vulnerable to stem cancer.
D16		• Round and fruity fruit shapes green skin. Simple, seedy size the thick content is white and the quality simple. • It tastes sweet.
D24	Bukit Merah, Perak	• Large simple fruit (1.0 - 1.8 kg) and longitude. • The skin color is light green and skinned. Its duration is sharp, smooth and the same around the fruit. The skin is difficult poked. • The contents are thick and yellow. • The quality of the contents is very good. • The taste of the contents is fat, sweet and little bitter. • Very susceptible to cancer of the stem and have physiological problems that is maturity not just uneven fruit ripening (UFR).
D63	Relau, Pulau Pinang	• Round fruit shape. • War of green skin color. • Thick skin. • Fill creamy color. • Each share has two pillows.
D66 (Durian King)	Batang Padang, Perak	• Small fruit, lots of seeds, fill in lime, yellow and tastes tasteless. 10 D96 Serdang, Selangor • Large, colorful fruit gangsa if it is mature enough. • The ends are slightly bent and the thorns short and tight. • Fill in orange and thick yellow. • Sweet fat flavor.

		• The quality of the contents is very good.
D96	Serdang, Selangor	

hybrid clones MDUR 78 and 88 can be stored 3 - 4 days due to has a thick skin compared to other clones in a market that can only last no more than 3 days.

Nevertheless, the MDUR 78 and MDUR 88 skin is easy to open even a day after the fall makes it so potentially to be exported freshly.

With proper plant management, the MDUR series is capable Produce as early as 5 years and bear fruit on a regular basis in the following years. MDUR 78 has average revenue higher seed (99 seed / tree) compared to MDUR88 (58 biji / pokok), but the size of the MDUR 88 is larger from MDUR 78. MDUR series flowering pattern is also available different. MDUR 78 manufactures the earliest mature fruits followed by MDUR 79 and MDUR 88. MDUR series planting by mix is recommended to prolong the season durian fruit up to 2 months compared to planting by a single clone that only produces results between 3 - 5 week only.

In addition, durian clone resistance to cancer disease. The main disease of durian is very important. The cancer is caused by this Phytophthora palmivora fungus infect the fruit and cause durian tree death in farm.

Durian clone D24 is among the best clones and many are planted throughout Malaysia. Clone D24 is very vulnerable to cancer disease compared to clone D2 and D10. Therefore, the D24 x D10 and D10 x D24 is aimed at producing new hybrid capable reduce this problem.

This is evident when the study was conducted Running on the field found all three hybrid durian clones. This is more resistant to cancer attacks than the D24 clone, however, MDUR 88 and MDUR 79 resistance were found to be better compared with MDUR 78 (Table 3).

Conclusion

Generally, the pattern of election and fan demand durian has changed. Users prefer the durian fruit oval-shaped and oval long, medium-sized or large and easily packaged. Users also choose durian thick yellow, golden yellow or yellow copper and taste sweet fat. Current users too preferring fruit with full seed and big.

All the features mentioned make MDUR 88 as the best option for commercial operation in besides having good resistance to disease stem cancer. Breeding by adult graft is capable replacing existing durian trees to selected clones especially MDUR 88 in addition to being able to manufacture results as early as 3 years.

Appreciation

Along with appreciation for everyone involved in successful research activities. Thank you for not finite to Dr. Zainal Abidin Mohamed, 'father' to durian hybrid series of MDUR and group of researchers who have develop the three hybrid durian MDURs.

Summary

MDUR is a series of hybrid durian clones which was developed by MARDI and was introduced in 1991. The members of this series are MDUR 78, MDUR 79 and MDUR 88 which were derived from D10 and D24 crosses. Among them, MDUR 88 is one of the best because it has moderate tolerance to stem canker besides having good eating taste and quality. The aril is very thick and each pulp unit is big. The flesh is golden yellow in colour and has a sweet and nutty taste. The fruit has a relatively long storage life, between 78 – 86 hours and the tree can bear fruits as early as 6 years, thus MDUR 88 has great potential to be commercialised fresh and processed.

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