



**Improved Costa Rica seed
now produced in Indonesia**
PT. ASD - Bakrie Oil Palm Seed Indonesia

DXP THEMBA SPRING MR GANO



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Seed Sales
Jl. Abdi Satya Bhakti No. 1
Kisaran Barat
Budi Setiawan Nasution
0852 1330 2004
Arip Hidayatullah
0852 1330 2007

Jakarta
QQ PT. Bakrie Sumatera Plantation, Tbk
Jl. H.R. Rasuna Said
Kompleks Rasuna Epicentrum
Bakrie Tower 19th Floor
Jakarta 12960
No Telp : (021) 29941412 / (021) 29941413
Sales@asd-bakrie.com

Seed Garden
Jl. Besar Air Joman
Pasar IX Desa Subur
Kec. Air Joman - Kab. Asahan
Sumatera Utara (21263)





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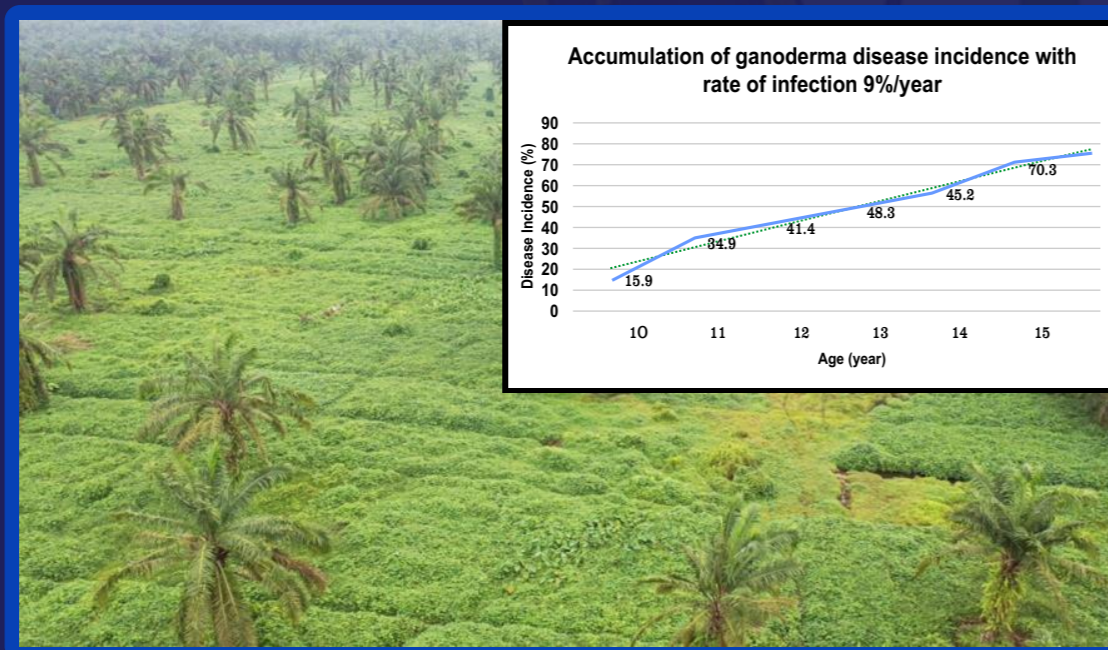


Planting Materials of ASD-BAKRIE OPSI

Improved oil palm planting materials from ASD Costa Rica had been planted in Indonesia from 1994 to 2014. But since 2015, these materials have been produced at Kisaran North Sumatera by ASD-Bakrie Oil Palm Seed Indonesia (ASD-Bakrie).

The quality of these new planting materials is better than those previously imported because they were the results of new breeding cycle done at Kisaran since 2007.

Eight new DxP varieties were successfully developed and consecutively were released for commercial planting, namely two varieties (Spring and Themba) in 2015, two (Supreme and Ovane) in 2016, two (Spring MR Gano and Themba MR Gano) in 2022 and two (Tanza MR Gano and Compact MR Gano) in 2024. The latest four varieties were specially bred for resistance to Ganoderma basal stem rot (BSR) in addition high bunch and oil yield as the primary characters.



This is very suitable site for field screening genotypes resistant to Ganoderma

Breeding Procedure for Gano Resistance

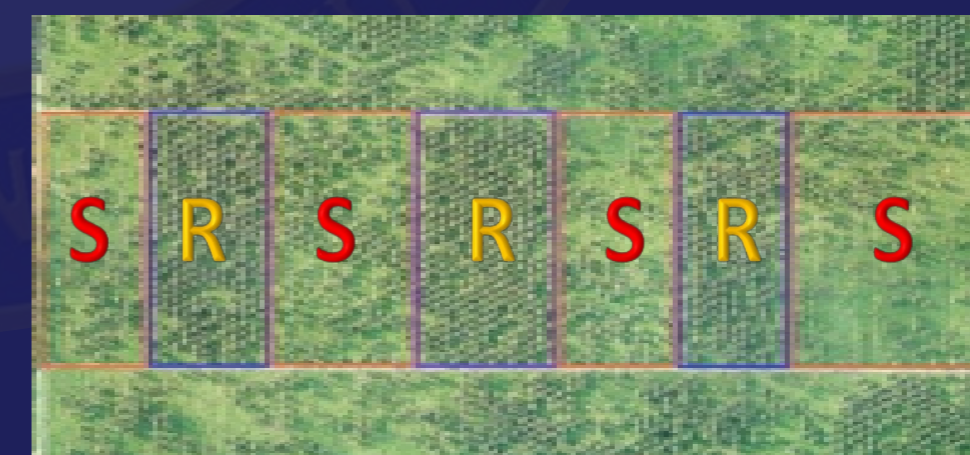
Genetic improvement for resistance to BSR at ASD-Bakrie were done at Kisaran seed Garden was done in three steps, namely

- Selection of dura through field screening at Ganoderma endemic area
- Selection progenies or DxP crosses by both field and nursery screening
- Sevelop new varieties resistant to Gano using selected dura and progenies with high degree of



Selected progenies through field screening, reseeded for confirmation by treating artificial inoculation at nursery screening

SCREENING OF PROGENIES AND DURA FOR RESISTANCE AT ENDEMIC FIELD CONDITION



Very clear cut between resistant (R) and susceptible (S) lines and crosses in field screening



High Yielding Varieties and Resistant to Ganoderma BSR

ASD-Bakrie OPSI has eight commercial varieties and four of them are categorized as moderately resistant to Ganoderma BSR. Among the four, two were crosses using Deli dura as mother palms and the other two using Compact dura and Tanzania dura.

Resistant progenies and parental lines were strictly selected through field and nursery screening. Only progenies with high level of resistance were selected to form four new DxP varieties, namely:

1. Spring MR Gano, SK Mentan No 119/Kpts/KB 0.20/12/2022

2. Themba MR Gano, SK Mentan No 124/Kpts/KB 0.20/12/2022

Resistant to Ganoderma is polygenically controlled which giving the expression of partial resistant with different levels ranging from very low resistant to highly resistance.

Resistant variety is working to slowing down disease development.

The higher the resistance the lower rate of disease incidence, and vice versa.

ECONOMIC BENEFIT OF RESISTANT VARIETY GROWN UNDER ENDEMIC CONDITION

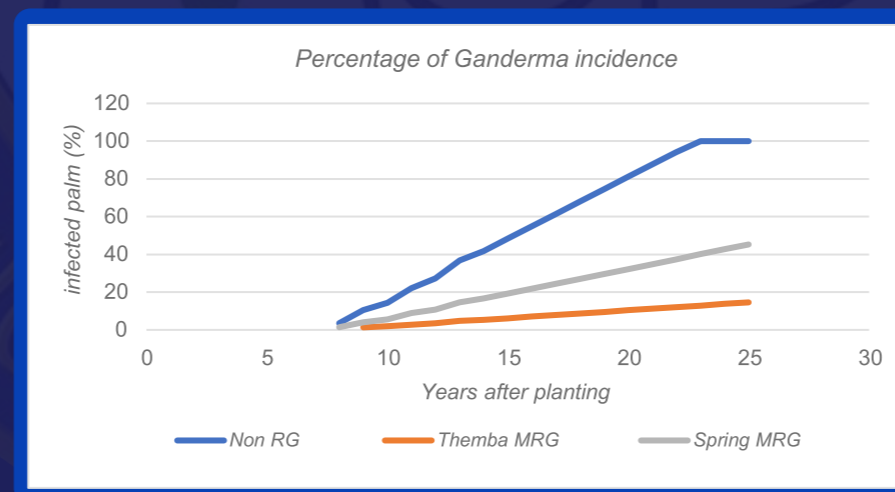
Parameter	Non Resistant Variety	Gano Resistant Variety	
		Themba MR Gano	Spring MR Gano
Infection Rate (%/y)	9.9	1.0	3.3
Potential Dead Palm (palm/ha/y)	8	1	4
Period Of Economical Palm (y)	15	25	25
Accumulated Yield (t/ha/cycle)	326	746	570

By having low infection rate, the resistant variety has the ability to

1. Slowing down dead palms and maintain normal economic growing cycle up to 25 years
2. Give high accumulated yield, revenue and margin per crop cycle

While non resistant variety has to be replated at y15 because remaining productive palms <50%

Different growth of Ganoderma disease incidence on susceptible (non-RG) and resistant varieties (MRG)

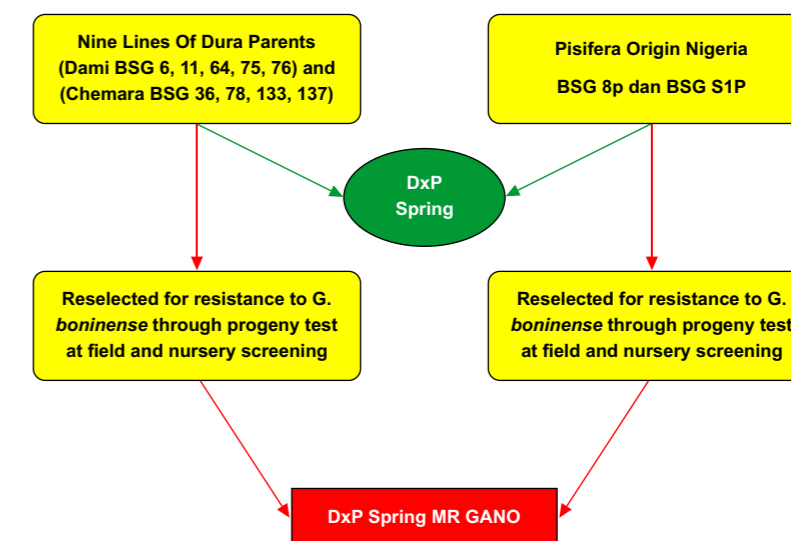


Resistance is working to slowing down disease incidence because of its ability to control infection rate.

Themba MRGano and Spring MRGano has very low infection rate as compared to very high infection rate (9.9%/y) on non-resistant variety

❖ SPRING MR GANO

► Breeding Procedure of Varietas DxP Spring MR GANO



❖ THEMBA MR GANO

► Breeding Procedure of Varietas DxP Themba MR GANO

