



No.	Group	Variety	Average Bunch Number (bunch/palm/year)	Average Bunch Weight (kg)	Potential FFB (ton/ha/year)	OER (%)	CPO (ton/ha)	Height Increment (cm/year)	Fronde length (m)	Density (palm/ha)
1	Dumpy	Dy x P SP-1 (Dumpy)	8	25	32	26	7.5	40 - 55	6.20	130
2	SP540	D x P AVROS	12	16	30	26	7.8	70 - 80	6.08	130
		D x P Simalungun	13	19.2	33	26.5	8.7	75 - 80	5.47	143
		D x P PPKS 540	14.1	15.4	33	29.9	9.6	72	5.47	143
3	Yangambi	D x P Yangambi	13	16	39	26	7.5	60 - 70	6.09	130
		D x P PPKS 718	9.3	22.8	28	25.17	8.11	75	5.47	143
		D x P PPKS 239	15.3	17.2	38	25.8	8.4	62.5	6.50	130
4	Langkat	D x P Langkat	12.5	19	31	26.3	8.3	60 - 70	5.31	143

IOPRI's SUPERIOR OIL PALM PLANTING MATERIALS



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Since it has been introduced in 1848 at the Bogor Botanical Garden, oil palm (*Elaeis guineensis* Jacq.) in Indonesia has grown tremendously and has brought the country to be the largest producer of palm oil in the world. Breeding effort through the exploitation of heterosis effect from the crosses between dura (D) x pisifera (P) to produce DxP hybrid materials has undoubtedly contributed to the increasing of oil palm yield. Oil palm breeding program in Indonesian Oil Palm Research Institute (IOPRI) has been started since 1920s when the breeder in AVROS selected an elite line SP540T. The scheme of reciprocal recurrent selection (RRS) was applied to base populations developed by IOPRI in the beginning of 1970s.

Breeding Populations	Origin
Advanced Dura	<ul style="list-style-type: none"> • Dura Deli • Dumpy
Advanced Tenera/Pisifera	<ul style="list-style-type: none"> • SP 540 • Yangambi • Cote d'Ivoire (La Mé) • Binga • Marihat • Recombination
Wild type <i>E. guineensis</i>	<ul style="list-style-type: none"> • Cameroon • Angola
<i>E. oleifera</i>	<ul style="list-style-type: none"> • Wild type and interspecific hybrid from Suriname and Brazil • BC1 and BC2

High oil yield is still the main focus in oil palm breeding program. The other focus is to develop varieties that possess resistance/tolerance to diseases, especially basal stem rot disease caused by *Ganoderma boninense*. Along with the demands on oil quality, the aim of breeding is also directed to develop varieties with high beta-carotene and unsaturated fatty acids content, especially oleic acid, and additional minor components such as tocopherols and tocotrienols. The ease on harvesting characters, such as plants with a low height increment, long stalk bunches, fruit that are not easily detached, and a clear distinction between the color of ripe and unripe fruits also began to attract attentions of oil palm breeders. Oil palm development in marginal areas requires availability of adaptive plant materials at sub-optimum conditions, such as drought tolerant, adaptive in the highlands, and tolerant to acid soil condition.

IOPRI's Superior Oil Palm DxP Varieties

Dumpy

Oil palm variety DxP Sungai Pancur 1 (SP-1), which is commonly known as Dumpy variety, has low height increment (<55 cm / year). With this character, Dumpy variety is able to achieve economic life up to 30 years or longer than other varieties (25 years). Dumpy has also a relatively large trunk, making it is suitable to be planted in peatlands that sufficient in water availability.



SP540

Oil palm varieties in this group consists of DxP PPKS 540, DxP Simalungun, and DxP AVROS. These varieties are produced from descendants of SP540T. They are mostly quick starter and high in mesokarp per fruit content. These varieties can be grown in various topography of area (flat to undulating) due to their wide adaptability.



Yangambi

Yangambi population is widely used as source of oil palm varieties worldwide. Yangambi-derived oil palm varieties developed by IOPRI are including: DxP Yangambi, DxP PPKS 239, and DxP PPKS 718.

DxP PPKS 718 has weightier bunch compared to other Yangambi varieties.

DxP PPKS 239 has higher production of CPO and PKO, suitable for food and non-food industry.



Langkat

DxP Langkat is the first oil palm variety derived from a recombination between pisifera AVROS, Yangambi, and Marihat population, crossed with the best Deli Dura. This variety has relatively short rachis and the potential of CPO up to 8.3 tonnes/ ha/year. This variety is suitable to be planted in undulating and hilly areas and begin to fruit at the age of 22 months after planting.

