PERFORMANCE OF PB 330 CLONE RUBBERS

Keragaan Klon Karet PB 330

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ABSTRACT

Keragaan Klon Karet PB 330 bertujuan untuk mengevaluasi tingkat adaptasi terhadap lingkungan, pertumbuhan tanaman, produktivitas lateks, mutu lateks dan sifat klon karet PB 330, potensi hasil kayu serta ketahanan terhadap hama dan penyakit. Evaluasi adopsi dan keragaan klon karet PB 330 dilakukan melalui pengumpulan data primer, data sekunder dan wawancara dengan peneliti maupun pelaku pengembangannya dengan menggunakan kuesioner terstruktur. Data sekunder diperoleh dari Perusahaan Perkebunan dan Tinjauan Pustaka. Data primer diperoleh melalui kunjungan lapang (*field assessment*) ke kebun produksi dan kebun pembibitan yang dilakukan pada bulan Oktober 2007. Evaluasi mutu hasil dilakukan melalui studi pustaka dan kunjungan ke pabrik pengolahan. Data hasil survey dianalisis secara deskriptif dan ditampilkan dalam bentuk tabel maupun gambar. Klon PB 330 ternyata memiliki pertumbuhan dan produksi yang sangat baik, dapat dipanen pada umur 4 tahun dengan produktivitas yang langsung tinggi (*quick starter or precocious yielder*). Dibanding klon PB 260 yang merupakan klon terbaik saat ini, klon PB 330 ternyata memiliki produktivitas sekitar 11% lebih tinggi. Dengan pertumbuhan lebih tegap, maka diperhitungkan PB 330 juga memiliki potensi produksi kayu yang tinggi, mempunyai daya adaptasi cukup baik terhadap lingkungan pertanaman karet di Indonesia dan belum ada laporan kendala gangguan hama dan penyakit yang serius di pertanaman komersial.

Kata kunci*: PB 330. klon karet unggul, keragaan, produksi.*

INTRODUCTION

Rubber is a major plantation crop in Indonesia. Rubber Development areas in Indonesia is about 3,31 million hectare with the production of 2,637 million tons of crumb rubber. Mostly (2.4 million ton) rubber production was exported abroad and has gave around $ 4.300.000.000 for Indonesian revenue. Rubber commodity is a biggest supporting income for Indonesian GNP from non-oil product (Ditjenbun, 2004). Rubber plantation in Indonesia mostly 85% is a public/farmer plantation and only 15% is own by superior estate company (Soewar *et al*., 1998). Currently, rubber plantation sector is highly prospective agricultural crop improvement because of better natural rubber price (above $ 2 / kg) in the last four year.

Productivity of public rubber plantation in Indonesia is still low as farmer not yet applied the production technology suitably. Only 30% public rubber plantation is using high quality of seed varieties, the rest about 70% is still use local seed (Azwar, *et al*., 2001; and Suhendry, *et al*., 2001). Applying incorrect tapping system and minimum plantation cultivation is cause the condition of rubber plantation faraway from expectation. Public rubber plantation has the loss the production about 50% from the rill condition. Totalize of production loss have reach 2,6 million ton of crumb rubber with the value of $ 4,5 billion or equal to 40 trillion rupiah each year.

Presently, Indonesia government have revitalization program for rubber by replanting and promote cultivation of newly rubber clone that produce both latex and wood. Problem arise that availability of newly rubber clone varieties was an unsolved classical problem and became a dilemma for the replanting program and intensification areas. In consequence, innovation of newly high yield variety and expanded clone accessibility is a high priority action by Government in order to reach the target in increasing productivity.

PB 330 is an introductory rubber clone which is already widely spread in the society. Through field observation, the clone has varied in characterization of growth and high quality in crumb rubber production. This paper is presented PB 330 clone adoptability and characterization of the clone with its quality of excellence in widely areas (Aidi *et al*., 1995). This article also expose an evaluate clone adaptation laver in the environment, crop growth, latex productivity, quality of latex and nature of PB 330 characteristic, potency of wood and also resilience to pest and disease incidence

MATERIALS AND METHOD

Adoption appraisal and characterization of rubber PB 330 clone was done by analyzing some primary data collecting, secondary data and interview with the researcher and its developer using structural questionnaire. Secondary data was obtained from some plantation company and literary study. Primary Data was acquired by field assessment in rubber productive plantation and nursery. Research was conducted from August to October, 2007. Evaluation of rubber production quality was prepared by literary and visited rubber processing factory. Assessment Data was analyzed by descriptively approach and presented in the form of tables and figure.

RESULTS AND DISCUSSION

Environmental adaptations

Clone PB 330 was introduce from Malaysia in the year of 1985. After the time, this clones therewith some other clones in a series of PB like PB 260 has been tested and planted by some Plantation Company in North Sumatra. From cultivation assessment, it shown The PB's series of rubber clone had good quality of rubber characterization. Hence, the clone has widely spread from time to time (Aidi, *et al*., 1998). Currently, the improvement of PB's clone has no longer been limited to some giant plantation company but also has developed in public plantation.

From monitoring of clone distribution in Jambi Province, it has known that this clone variety is enough stirred by public. This was proven that the number of PB 330 clone was particularly traded from Sembawa, South Sumatra into Jambi. Highly disseminating of this clone type is triggered by two factors namely: highly adaptable in specific location, and supported by research finding (Aidi, *et al*., 2001). PB 330 clone is expected as recommended clone since 1995 and big company like PT. Bridgestone Sumatra Rubber Plantation (BSRP) has the largest PB 330 clone plantation (Table 1).

Table 1. Composition of five best rubber clones which has cultivated by PT. Bridgestone Sumatera Plantation in Simalungun, North Sumatera.

No.	Clone type	Aek Tarum Plantation		Dolok Marangir Plantation		BSRP Total	
		Ha	%	Ha	%	Ha	%
1	PB 260	1,751	59.3	5,668	55.2	7,418.9	56.1
2	RRIM 921	275	9.3	1,845	18.0	2,120.2	16.0
3	PB 340	148	5.0	1,460	14.2	1,608.4	12.2
4	**PB 330**	**585**	**19.8**	**904**	**8.8**	**1,489.0**	**11.3**
5	PB 235	191	6.5	390	3.8	581.6	4.4
Grand Total		2,950	100.0	10,268	100.0	13,218.1	100.0

PB 330 clone rubber has been planted in 1.489 hectare covering 11,3% from total areas of PT. BSRP. The Clone takes as fourth major clones area after PB 260, RRIM 921 and PB 340. Present information from Management of PT. BSRP, PB 330 clone has moved into third progression areas because of better characteristic than clone RRIM 921.

Crop Growth

Clone PB 330 have been reported as clone which has fast growth rate (Woelan, *et al.*, 2006) and classified into matured clone in the age of 4 year. It also categorized as high clone latex and wood producer. Observation was done by PT. BSRP (Table. 2) indicating that PB 330 was reaching wood size cycle equal to 46,2 cm at age of 4 year.

PB 330 having wood size cycle about 56.9 cm at age of 8 year and larger than wood size cycle PB 260 about 54,3 cm. PB 330 clone type has minimize size of branch and has axis tree vertical as same as PB 260. This clone type as knows fir-tree type.

Lateks Production

PB 330 was included in the hasty latex production clones (precocious yielder). Woelan *et al.,* (2006) reported that production test of PB 330 for the duration of 2 year was 2 t / ha or average of more than 1.000 kg/ha/year. After 5 period of production, PB 330 clone productivity has attained about 9 t/ha or average of 1.800 kg/ha/year. Production data of PT. BSRP in commercial rubber production period of 16 year was shown in Table 3.

Table 2. Size of Wood Cycle of PB 330 Compared to PB 260 at The Age of 2 till 8 year in Commercial Rubber Plantation Simalungun, North Sumatera.

Clone Type	Planted	Areas (Ha)	Yearly Size of Wood Cycle						
			2	3	4	5	6	7	8
PB 260	1998	25	19.4	32.7	43.0	49.2	52.6	55.2	57.4
		25	19.6	34.7	43.6	49.2	52.6	53.4	54.2
		25	18.3	31.1	45.0	48.8	53.1	53.3	55.6
		25	15.1	25.2	41.2	46.1	49.0	51.2	52.5
		25	16.3	27.3	44.7	45.2	47.4	49.5	53.2
		25	15.3	26.4	42.6	45.0	47.1	49.0	52.8
Total Areas and Average		**150.0**	**17.3**	**29.6**	**43.4**	**47.3**	**50.3**	**51.9**	**54.3**
PB 330	1998	25	23.7	35.0	46.4	51.0	53.0	54.1	56.2
		25	19.5	36.1	47.3	50.0	52.1	55.2	57.1
		25	18.9	35.1	45.6	49.0	53.1	55.6	58.2
		25	21.3	37.1	46.1	49.8	53.3	55.4	57.2
		25	22.0	37.9	46.6	49.4	52.9	54.6	56.2
		25	17.5	35.2	45.0	49.1	52.6	55.1	56.3
Total Areas and Average		**150**	**20.5**	**36.1**	**46.2**	**49.7**	**52.8**	**55.0**	**56.9**

Table 3. Average Productivity (Kg/ha/year) of PB 330 clone rubber compared to PB 260 at the age of 5 till 20 year in Simalungun Rubber Plantation, North Sumatra

Age (Years)	Clone Type		Differ
	PB 330	PB 260	
5	573.0	395.0	178.0
6	1,488.0	1,515.0	(27.0)
7	2,113.0	2,074.0	39.0
8	2,329.0	2,265.0	64.0
9	2,269.0	2,390.0	(121.0)
10	2,389.0	2,583.0	(194.0)
11	2,612.0	2,773.0	(161.0)
12	2,839.0	2,610.0	229.0
13	2,819.0	2,485.0	334.0
14	2,472.0	2,395.0	77.0
15	2,416.0	2,045.0	371.0
16	2,811.0	2,079.0	732.0
17	2,778.0	1,988.0	790.0
18	2,804.0	1,905.0	899.0
19	2,409.0	1,761.0	648.0
20	1,418.0	1,735.0	(317.0)
Total (kg/16 th)	36,539.0	32,998.0	3,541.0
Average (Kg/ha/th)	**2,283.7**	**2,062.4**	**221.3**
Persentase	110.7	100.0	

PB 330 was able produce crumb rubber upto 36.539 kg/ha or average productivity about 2,284 kg/ha/year. Compared to PB 260 clone, productivity of PB 330 is 10,7% higher or equivalent to 221 kg/ha/year. The Difference of PB 330 productivity was reported by Rubber Research Center and PT. BSRP because of difference in tapping treatment. PT. BSRP was used stimulant 12 times per year for

tapping, while Rubber Research Center was tapping the rubber without using stimulant (Woelan, *et al*., 2006).

Lateks Quality and Characteristic of PB 330 Clones

Field observation data and examine rubber manufactured shown that PB 330 clone was having colorless latex with highly crumb rubber contain (> 40%). PB 330 has a good quality of latex and can be processes for goods that come from natural rubber.

Wood Potential

Field observation indicates that PB 330 clone has rapidly growth rate with extended branch as follow a crop height. It's happening due to PB 330 has diametrical and elongated wood size. PB 330 clone is able to produce wood rubber more than 200 m^2 /ha at juvenile period.

Resistance from Pest and Disease

PB 330 clone have been developed widely in Malaysia and Indonesia. Currently, there are no pest and disease prevalence's. Examination test in Rubber Research Center indicated that PB 330 clone was resistance to the major rubber diseases, namely: leaf disease which is cause by fungi of *Clotetrichum gleosporoides, Oidium hevea,* and *Corynespora cassiicola.*

CONCLUSION

PB 330 is introductory clone which is developed in a widely areas by giant rubber company and public rubber plantation. PB 330 Clone has highly potention of fast growth and high production. PB 330 Clone can be harvested at the age of 4 year with the high direct productivity (quick of starter of or precocious yielder). Compared to famous PB 260 clone in this time, PB 330 clone has higher production about 11%. Performance of crop is hefty and has high potency to produce fine wood quality. PB 330 clone has better adaptation in spesific environmental ecosistem in Indonesia. There was no report about of serious pest and disease incidence in all commercial plantations.

LITERATURE CITED

Aidi-Daslin, R. Azwar, and S. Ginting. 1995. Keragaan beberapa klon karet introduksi di kebun pengujian dan pertanaman komersial. Hal. 101 – 112. 81 In: Azwar, R. et al (Eds) Proc. Lokakarya Nasioanal Pemuliaan Karet 1995, Medan, 29-30 Nopember.

Aidi-Daslin, I. Suhendry, and R. Azwar. 1998. Keragaan dan adaptasi klon karet anjuran dan klon harapan 1996-1998. Hal. 157 – 189. In: Azwar, R. *et al*., (Eds) Proc. Lokakarya Nasioanal Pemuliaan Karet 1998 dan Diskusi Nasional Prospek Karet Alam, Medan, 8-9 Desember.Nopember

Aidi-Daslin, I. Suhendry, and R. Azwar. 2001. Growth characteristics and yield performance of recommended clones in commercial plantings. In: Azwar, R et.all (eds). Proc. Indonesian Rubber Conference and IRRDB Symposium 2000. Bogor – Indonesia, 12 -14 September 2000.

Azwar, R., Aidi-Daslin, I. Suhendry, and Sekar Woelan. 2001. Quantifaying genetical and environmental factors in determining rubber crop productivity. In**:** Azwar, R et.all (eds). Proc. Indonesian Rubber Conference and IRRDB Symposium 2000. Bogor – Indonesia, 12 -14 September 2000.

Ditjenbun. 2004. Statistik Perkebunan Indonesia 2002-2003 : Karet. Departemen Pertanian, Direktorat Jenderal Bina Produksi Perkebunan, Jakarta.

Hasibuan, E. 2007. Personal komunikasi. Bridgestone Runber Sumatera Plantation. Dolok Marangir, Simalungun, Sumatera Utara.

Smith, H. P. 2007. Global supply and demand balances for natural and synthetic rubber. Proc. Indonesian Rubber Conference and Exhibition. Bali, 13-15 June.

Soewar, A., H. Asmady and D. Kurnia. 1998. Keragaan beberapa klon anjuran pada areal komersial karet PT. Socfin Indonesia. Hal. 177 – 189. In: Azwar, R. *et al.*, (Eds) Proc. Lokakarya Nasioanal Pemuliaan Karet 1998 dan Diskusi Nasional Prospek Karet Alam, Medan, 8-9 Desember.

Suhendry, I. Aidi-Daslin, and A. Anas. 2001. Keragaan dan produksi klon karet anjuran di pertanaman komersial. Hal 54 – 81 In: Azwar, R. et al (Eds) Proc. Lokakarya Nasioanal Pemuliaan Karet 2001, Palembang 5-6 Nopember.

Woelan, S., I. Suhendry and Aidi-Daslin. 2006. Pengenalan klon karet penghasil lateks dan kayu. Balai Penelitian Sungei Putih.