

## DAFTAR PUSTAKA

- Adu-Gyamfi JJ, Fujita, K, Ogata, S. 1990. Phosphorus fractions in relation to growth in pigeon pea (*Cajanus cajan* L.) at various levels of P supply. *Soil science and Plant Nutrition* 36, 531-543.
- Ahmad, F. 2015. Aplikasi Air Kelapa dan Uncur Hara Zn untuk Mengatasi Layu Pentil (Cherelle Wilt) pada tanaman kakao (*Theobroma cacao* L.) dengan Teknik Penyemprotan Buah. Skripsi. Universitas Jember.
- Ai, S dan Ratnawati. 2004. Responsi konduktansi stomata dan laju transpirasi rumput blembem (*Ischaemum ciliare* R.) di sekitar sumber emisi gas kawah Sikidang, Dieng. *Prosiding Penelitian, Pendidikan dan Penerapan MIPA. FMIP. Universitas Negeri Yogyakarta*. 2 Agustus.
- Alam, N. M, S, Saleh. G, S, Hutomo. 2010. Karakteristik buah kakao yang dipanen pada berbagai ketinggian tempat tumbuh dan kelas kematangan. *Journal Agroland*. 17 (2): 123-130.
- Albab, B, R, U. Ali, K, H. Rusdi, E. Tamaluddin, S. 2014. Evaluasi kesesuaian lahan pertanaman kakao di Desa Penyandingan, Kecamatan Punduh Pidada, Kabupaten Pesawaran. *Jurnal Agrotek Tropika*. (2), 3, 494-498. Universitas Negeri Lampung.
- Alvim, P. de. T. 1977. Cacao. P: 279-313. In P. de T. Alvim dan T. T. Kazlowski (Eds). *Ecophysiology of Tropical Crops*. Academic Press. New York.
- Ambarwati, R. 2015. Pengaruh Konsentrasi Pyraclostrobin terhadap Kandungan Protein, Lemak, dan Total Fenolik Total Biji Kakao (*Theobroma cacao* L.) Klon ICCRI 04 dan Scavina 6. Skripsi, Fakultas Pertanian, Universitas Gadjah Mada, Yogyakarta.
- Aneja, M., T. Gianfagna, dan Edward Ng. 1999. The roles of abscisic acid and ethylene in the abscission and senescence of cocoa flower. *Plant Growth Regulation* 27: 149-155.
- Anita-Sari, I. F, Zakariya. A, W, Susilo. 2015. Relationship between physiological characteristic and bean quality on some cocoa (*Theobroma cacao* L.) clones. *Pelita Perkebunan* 31 (3) 143-151.
- Anita-Sari, I dan A. W. Susilo. 2013. Stabilitas karakter pembungaan, pertunasan, dan potensi jumlah buah pada 21 klon kakao harapan koleksi puslitkoka. *Pelita Perkebunan* 29: 82-92.
- Avianto, Y. 2017. Pengaruh Arah Lereng terhadap Aktivitas Fisologis dan Kualitas Minyak Daun Cengkeh (*Syzygium aromaticum*) di Pegunungan Menoreh. Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.

- Balai Besar Pengkajian dan Pengembangan Teknologi Pertanian. 2008. Teknologi Budidaya Kakao. Balai Besar Pengkajian dan Pengembangan Teknologi Pertanian. Lampung.
- Balai Penilaian Tanah. 2009. Petunjuk Teknik Analisis Kimia Tanah, Tanaman Air, dan Pupuk. Balai Penelitian Tanah, Bogor.
- Baligar, V, C. N, K, Fageria. J, A, Bunce. M,K, Elson. 2010. Irradiance, external carbondioxide concentration and temperature influence photosynthesis in tropical cover crop legumes. *Tropical Grass-lands*. 44. 24-32
- Bancal, P and Soltani, F. 2002. Source-sink partitioning. Do we need Munch ?. *Journal of Experimental Botany*. 53. 1919-1928
- Banyo, Y dan N, S, Ai. 2011. Konsentrasi klorofil daun sebagai indikator kekurangan air pada tanaman. *Jurnal Ilmiah dan Sains*. 11. (2).
- Baon, J. B. 1988. Tata cara penilaian kesesuaian lahan untuk kakao. Hal: 55-63. Cit K. Pamian, S. Danimihardja, T. Hutomo (Eds). *Prosiding Konferensi Nasional Kakao III, Buku 2*. Rispa. Medan.
- Boan, J. B., S. Abdullah., Herman., dan A. Purwanto. 2007. *Prospek dan Arah Pengembangan Agribisnis Kakao Edisi Kedua*. Badan Litbang Pertanian, Jakarta.
- Boonman, A. E, Prinsen. F, Gilmer. U, Schurr. A, J, M, Peeters. L, A, C. Voesenek. T, L, Pons. 2007. Cytokinin imports rate as a signal for photosynthesis acclimation to canopy lights gradient. *Plant Physiologic*. 143: 1841-1852.
- Budi, F, S dan A, Purbasari. 2009. Pembuatan pupuk fosfat dari batuan fosfat alam secara acidulasi. *Jurnal Teknik*. 30. (2).
- Campbell, N.A, J.B. Reece, L.G. Mitchell. 2003. *Biologi Jilid 1 (Terjemahan)* Erlangga. Jakarta.
- Chazdon, R, L. Dan R, W, Peacy. 1991. The importance of sunfleck for forest understory plants. *Journal of Bioscience*. 41; 760-766.
- Cheesman, E.E. 1927. Fertilization and embryogeny in *Theobroma cacao*, L. *Annals of Botany*, 11: 107–126.
- Chiera, J. J, Thomas. T, Rufty. 2002. Leaf initiation and development in soybean under phosphorus stress. *Journal of Experimental Botany*. 53. 4713-481.
- Colla G, Roupheal Y, Cardarelli M, Tullio M, Rivera CM, Rea E. 2008. Alleviation of salt stress by arbuscular mycorrhizal in zucchini plants grown at low and high phosphorus concentration. *Biol Fertil Soils* 44:501–509.

- Daymond, A, J and P, Hadley. 2004. The effects of temperature and light integral on early vegetative growth and chlorophyll fluorescence of four contrasting genotypes of cacao (*Theobroma cacao*). *Ann. Appl. Bio.* 145; 257-262.
- Daymond, A, J. P, J, Triker. P, Hadley. 2011. Genotype variation in photosynthesis in cacao is correlated with stomatal conductance and leaf nitrogen. *Biologia Plantaru.*,. 55; 99-104.
- De Groot C, C. L, F, M, Marcellis. V, d, R, Boogard. H, Lambers. 2001. Growth and drymass partitioning in tomato as affected phosphorus nutrition and light. *Plant, Cell, and Environment.* 24 ; 1309-1317.
- Direktorat Jenderal Perkebunan. 2015. Statistik Perkebunan Indonesia 2014 – 2016. Direktorat Jenderal Perkebunan, Jakarta.
- Epstein, E. 1972. *Mineral Nutrition of Plants: Principles and Perspectives*. John Wiley and Sons, Inc. New York. 412 p.
- Ernawati. 2017. Pengaruh Cekaman Mangan terhadap Sifat Anatomi dan Pertumbuhan pada Fase Pembibitan Utama Kelapa Sawit (*Elais guinensi* Jacq). Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.
- Faber, B. A., R. J. Zasonski, D. N. Munss, and K. Shakel. 1991. A method for measuring hyphal nutrient and water uptake in mycorrhizal plants. *Canad. J. Bot.* 69, 87 -94.
- Foth. 1990. *Fundamental of Soil Science*. 8<sup>th</sup> ed. Jhon Willey and Sons, United States of America.
- Fredeen A, L. I, M, Rao. N, Terry. 1989. Influence of phosphorus nutrition on growth and carbon partitioning in *Glycine max*. *Plant Physiology.* 89. 225-230.
- Fujita, K. M, Okada. K, Lei. J, Ito. K, Okhura. J, J, Adu-Gyamfi. P, K, Mohapatra. 2003, Effect of P-deficiency on photo assimilate partitioning and stem diameter of tomato during fruit growth. *Journal of Experiment Botany.* 54. (392); 2519-2528.
- Gardner, F. P., R. B. Pearce, R. L. Mitchell. 1991. *Fisiologi Tanaman Budidaya* (diterjemahkan dari: *Physiology of Crop Plants*, penerjemah: H. Susilo). UI Press, Jakarta.
- Giri B, dan Mukerji, K .2004. Mycorrhizal inoculant alleviates salt stress in *Sesbania aegyptiaca* and *Sesbania grandiflora* under field conditions: evidence for reduced sodium and improved magnesium uptake. *Mycorrhiza* 14:307–312.
- Handoko. 2005. *Klimatologi Dasar*. Bogor: Pustaka. Jaya.
- Hardie, K.. 1985. The effect of removal of extraradical hyphae on water uptake by vesicular arbuscular mycorrhizal plants. *New Phytol.* 101, 677 -684.

- Harsono, A. 2002. Kajian kendala produksi kacang tanah lahan kering tanah mediteran merah di Jawa Timur dan Jawa Tengah. Prosiding Seminar Nasional dan Pertemuan Tahunan Komisariat Daerah Himpunan Ilmu Tanah Indonesia. 16-17 Desember 2002. Hal. 144-150. Malang.
- Incoll, L. D. and P, C, Jewer: Cytokinins and stomata. In: Zeiger, E., G. D. Farquhar, and L. R. Cowan (eds.): Stomatal function, pp. 281-292. Stanford University Press, Stanford (1987).
- Jacob, J and D, W, Lawlor 1992. Dependence of photosynthesis of sunflower and maize on phosphate supply, RuBP activity, RuBP pool size. *Plant Physiology*. 98. 801-807.
- Jarvis, A, J. T, A, Mansfield. W, J, Davies. 1999. Stomatal behavior photosynthesis and transpiration under rising CO<sub>2</sub>. *Plant, Cell, and Environmental*. 22. 639-648.
- Jhonson, R, W. M, A, Dixon. D, R, Lee. 1992. Water relation of the tomato during fruit growth. *Plant, Cell, and Environmental*. 15. 947-953.
- Jiang, H, M. Yang, J, C. Zhang, J, F. 2007. Effect of external phosphorus on the cell ultra structure and the chlorophyll content of maize under cadmium and zinc stress. *Environmental pollution*. 147; 750-756.
- Karmawati, E., Z. Mahmud, M. Syakir, I. K. Ardana, S. J. Munarso, dan Rubiyo. 2010. *Budidaya dan Pasca Panen Kakao*. Puslitbangbun Badan Litbang Pertanian. 92 p.
- Mohr, H. & P. Schopfer. 1994. *Plant Physiology*. Springer Publishers, New York.
- Kasno, A. 2009. Respon tanaman jagung terhadap pemupukan fosfor pada typic distrubed. *Jurnal Tanah Tropical*. 14 (2) ; 111-118.
- Konsens, I., M. Ofir., and J. Kigel. 1981. The effect of temperature on the production and abscission of flower and pods in snap bean (*Phaseolus vulgaris* L.) *Annals of Bot*. 67, 391-399.
- Kusumadati, W. Sutardi. B, Kartika. 2002. Kajian penggunaan berbagai metode pengeringan dan jenis mutu biji kakao lindak terhadap sifat-sifat kimia bubuk kakao. *Gama Sains*. 4 (2) :102.111.
- Lakitan, B. 2013. *Dasar-Dasar Fisiologi Tumbuhan*. Rajawali Press, Jakarta.
- Lambers, H. 2008. *Plant Physiological Ecology*. Springer, Australia.
- Li R, P Guo, M. Baum, S Grando, S Ceccarelli. 2006. Evaluation of chlorophyll content and fluorescence parameters as indicators of drought tolerance in barley. *Agric. Sci. in China* 5 (10) : 751-757.

- Limbongan, J. 2012. Karakteristik morfologis dan anatomis klon harapan tahan penggerek buah kakao sebagai sumber bahan tanam. *Jurnal Litbang Pertanian* 31 (1): 14 – 20. Kementrian RI. 2014. Permintaan Kakao Dunia Meningkat. <<http://kemenperin.go.id/artikel/7461/Permintaan-Kakao-Dunia-Meningkat>>. Diakses 12 Juni 2017.
- Liyanda, M. A, Karim. Y, Abubakar. 2013. Analisis kriteria kesesuaian lahan terhadap produksi kakao pada tiga klaster pengembangan di Kabupaten Pidie. *Jurnal Agrista*. 16 (2) : 62-79.
- Lynch, J. Lauchli, A. E, Eipstein. 1991. Vegetative growth of common bean in response to phosphorus nutrition. *Crop Science*. 31; 380-387.
- Mansfield, T. A.: Hormones as regulators of water balance. In: Davies, P. J. (ed.): *Plant hormones and their role in plant growth and development*, pp. 411- 430. Martinus Nijhoff Publisher. Dordrecht. Boston, Lancaster.
- McKelvie, A. D. 1956. Cherelle wilt of cacao. I. Prod Development and Its Realition to Wilt. *Journal of Experimental Botany*, 7: 250-263.
- Melnick, R, L. 2016. *Cherelle Wilt of Cacao : A Physiological Condition*. Springer Internatioanl Publishing, Switzerland.
- Melnick, R.L., M.D. Strem, J. Crozier, R.C. Sicher, and B.A. Bailey. 2013. Molecular and metabolic changes of cherelle wilt of cacao and its effect on *Moniliophthora roreri*. *Physiological and Molecular Plant Pathology* 84 : 153.
- Melnick, R.L., M.D. Strem, J. Crozier, R.C. Sicher, and B.A. Bailey. 2013. Molecular and metabolic changes of cherelle wilt of cacao and its effect on *Moniliophthora roreri*. *Physiological and Molecular Plant Pathology* 84 : 153.
- Miller, A. N. and C. S. Walsh. 1990. Indole 3-acetid acid concentration and ethylen evolution during early fruit development in peach. *Journal of Plant Growth Regulation*, 9 : 37-46.
- Mitrosuhardjo, M.M. 2002. Efisiensi serapan P pupuk oleh tanaman kacang tanah yang tumbuh pada 2 tingkat kelembaban tanah. *Prosiding Seminar Nasional dan Pertemuan Tahunan Komisariat Daerah Himpunan Ilmu Tanah Indonesia*. 16-17 Desember 2002. Hal. 151-161. Malang.
- Mollier and Pellerin. 1999. Maize root systems growth and development as influenced by phosphorus defficiency. *Journal of Experimental Botany*. 50; 487-497.
- Nagar, J. P. 2002. Soil phosphorus, its transformation and their relevance to crop productivity, p.109-135. In: K. R. Krishna (Ed.). *Soil Fertility and Crop Production*. Science Publishers, Inc. USA.

- Neil. 2002. Biologi. Penerbit Erlangga, Jakarta.
- Nicholas, R. 1960. Auxins of cacao and cherelle wilt. Proceedings international VIII International America Cacao Conference. Trinidad and Tobago.
- Nichols. 1990. Xylem occlusion in the fruit of cacao and their relation to cherelle wilt. *Annals of Botany*. 25 (100); 465-475.
- Niemenak, N., C. Cilas, C. Rohsius, H. Bleiholder, U. Meier, R. Lieberei. 2009. Phenological growth stages of cacao (*Theobroma* sp.): condification and description according to the BBCH scale. *Annals of Applied Biology* : 155.
- Niglas, A., P. Kupper, A. Tullus dan A. Sellin. 2014. Responses of sap flow, leaf gas exchange and growth of hybrid aspen to elevated atmospheric humidity under field conditions. *AoB Plants* 6: 1–14.
- Ninemets, U. 2007. Photosynthesis and resource ditribution through plant canopies. *Plant cell environemntal*. 30 : 1052-1071
- Notohadiprawiro, T. 1998. Tanah dan Lingkungan. *Repro : Ilmu Tanah Universitas Gadjah Mada*; Yogyakarta
- Pence V.C. 1991. Absciscic acid in developing zygotic embryos of *Theobroma cacao*. *Plant Physiology*, 91 : 1291–1293.
- Prawoto, A. A .1999. Morphological, anatomhycal, and biochemical study of cherelle wilt and its of the control development effort. *Jurnal Pelita Perkebunan*. Pusat Penelitian Kopi dan Kakao. Jember.
- Prawoto, A.A. (2000). Pengaruh zat pengatur tumbuh dan beberapa unsur hara mikro terhadap pembungaan, CW dan hasil buah kakao. Pusat Penelitian Kopi dan Kakao Indonesia, Jember.
- Pujiyanto, 1999. Materi Sekolah Lapang Kopi. *Puslitkoka Indonesia*,Jember.Taufiq dan Sundari (2012
- Purnomo, J. 2007. Respon tanaman jagung terhadap pemberian pupuk fosfat pada tanah Inceptisol dariBogor. Dalam: D. Subardja, R. Saraswati, Mamat H.S., P. Setyanto, D. Setyorini, Wahyunto, M. Noor dan Irawan (Eds). *Pros. Lokakarya Nasional Inovasi Teknologi Pertanian Mendukung Hari Pangan Sedunia 2007*. Bandar Lampung, 25-26 Oktober 2007, hal. 377-394.
- Purseglove, J. W. 1997. *Tropical Crops Dicotyledones*. John Willey and son Inc., New York.
- Puslitkoka. 2006. *Klon-Klon Unggul Kakao Lindak*. Pusat Penelitian Kopi dan Kakao, Jember.

- Radin, J, W and M, P, Eidenbock .1982. Hydraulic conductance as factor limiting leaf expansion of phosphorus deficient cotton plants. *Plant Physiology*. 75; 372-277.
- Radin, J,W and Boyer, J, S. 1982. Control of leaf expansion by nitrogen nutrition in sunflower plants. Role hydraulic conductivity and turgor. *Plant Physiology*. 69; 771-775.
- Rao, I, M and N, Terry. 1995. Leaf phosphate status, photosynthetic, and carbon partitioning in sugar beet. IV. Changes with time following increased supply of phosphate to low phosphate plants. *Plant Physiology*. 107; 1313-1321.
- Rubiyo. 2013. Inovasi teknologi perbaikan bahan tanam kakao (*Theobroma cacao* L.) di Indonesia. *Buletin Riset Tanaman Rempah dan Aneka Tanaman Industri*. 4 (3); 99-214.
- Salam, M. 2014. Perkembangan Bunga Kakao (*Theobroma cacao* L.) Tipe Forastero Berdasarkan Karakteristik Morofologi dan Anatomi. Skripsi. Universitas Jember, Jember.
- Salisbury, F.B dan C.W. Ross. 1995. Fisiologi Tumbuhan. Terjemahan D.R. Lukman dan Sumaryono. Penerbit ITB. Bandung.
- Sannazzaro AI, Oscar R, Edgardo A, Ana M (2006) Alleviation of salt stress in *Lotus glaber* by *Glomus intraradices*. *Plant Soil*. 285:279–287.
- Santoso, D., J. Purnomo, I G.P. Wigena, Sukristiyonubowo, dan R.D.B. Lefroy. 2000. Management of phosphorus and organic matter on an acid soil in Jambi, Indonesia. *J. Tanah Iklim* 18: 64-72.
- Scahctman , D, P. R, J, Reid. S, M, Ayling. 1998. Phosporus uptaje bya plants; from soil to cell. *Plant Phsyiology*. 166; 477-453.
- Sena, J, O, A. H, A, Zai,. P, R, C, Castro. 2007. Transpiration and stomata; resistance variation of parennila tropical crops under soil water availability condition and water deficit. *Brazillian archives of Biology and Technology*. 50 ; 51-67.
- Silahoy, C.H. 2008. Efek pupuk KCL dan SP-36 terhadap kalium tersedia, serapan kalium, dan hasil kacang tanah pada tanah bruinxem. *Bul. Agron* (36) (2) 126-132.
- Siniwi, R, A. 2017. Pengaruh konsentrasi pyraclostrobin terhadap kandungan protein, lemak, dan fenolik total biji kakao (*Theobroma cacao* L.) klon ICCRI 04 dan Scavina 6. Fakultas Pertanian. Universitas Gadjah Mada.
- Siregar, T. H. S., S. Riyadi, dan L. Nuraeni. 1997. Budidaya, Pengolahan dan Pemasaran Hasil. Penebar Swadaya, Jakarta.**

- Smith, C. F. 1960. Aphids (Aphidae: Homoptera) on “Cacao” in the Dominican Republic. *Journal of the Agricultural University of Puerto Rico* 44:154-156.
- Soepardi, G. 1983. Sifat dan Ciri Tanah. IPB. Bogor.
- Solangi, G, S. M, K, Lohar. G, H, Abro. A, S, Buriro. 2012. Biology and relase of exotic predator *Cryptolaemus montrouzieri* Mulsan on melabug *Phenococol solenopsis* Tinsley at Tandojam. *Sarhad Journal Agriculture*. 28; 429-435.
- Srivastave, L. M. 2002. *Plant Growth and Development: Hormones and Environment*. Elsevier Science, California.
- Suastika, IW., D. Setyorini, dan E. Hidayat. 2007. Efektivitas fosfat alam Ikan Paus terhadap pertumbuhan dan hasil tanaman jagung pada Inceptisols dan Ultisols. Dalam: D. Subardja, R. Saraswati, Mamat H.S., P. Setyanto, D. Setyorini, Wahyunto, M. Noor dan Irawan (Eds.). *Pros. Seminar Nasional Sumberdaya Lahan Pertanian*. Bogor, 14- 15 September 2006, hal. 111-124.
- Sudaryono, 2002. Peran pasokan hara P pada tanah kapur terhadap peningkatan hasil kacang tanah. *Prosiding Seminar Nasional dan Pertemuan Tahunan Komisariat Daerah Himpunan Ilmu Tanah Indonesia*. 16-17 Desember 2002. Hal. 104- 109. Malang.
- Sukadi. 2018. Pengaruh penggunaan paranet sebagai pelindung sementara terhadap pertumbuhan tanaman kakao (*Theobroma cacao L.*). *ISSN Elektronik* 2355-3545. 43 (1) ; 65-69
- Susanto. 1994. *Budidaya Tanaman Kakao*. Penebar Swadaya, Jakarta.
- Swanson, J. D. 2005. Flower development in *Theobroma cacao L.* An assessment of morphological and molecular conservation of floral development between *Arabidopsis thaliana* and *Theobroma cacao L.* PhD Thesis, The Pennsylvania State University, USA.
- Syakur, A. 2012. Heat unit approach for determining growth and development phase of tomato plants in greenhouse. *Journal Agroland*. 19 (2) : 96-101.
- Thorold, C. A. 1975. *Diesase of Cocoa*. Calendron Press. Oxford.
- Tisdale, S. L., W. L. Nelson, J. D. Beaton. 1990. *Soil Fertility and Fertilizer* Macmillan Pub. Co. NewYork. 00 p.
- Tjahjana, B, E. H, Supriadi. D, N, Rokhmah. 2013. Pengaruh lingkungan terhadap produksi dan mutu kakao (*Theobroma cacao L.*) Balai Penelitian Tanaman Industri dan Penyegar.

- Tjitrosoepomo, G. 1988. Taksonomi Tumbuhan (Sperma thopyta), Yogyakarta: Universitas Gadjah Mada.
- Turgeon, R dan Medville, R .1998. The absence of phloem loading in willow leafes. Proc. Natl. Acad. Sci. USA. 95 ; 12055-12060.
- Utomo, B., A. A. Prawoto, S. Bonnet, A. Bangviwat, S. H. Gheewala. 2016. Environmental performance of cocoa prodction from monoculture and agroforestry systems in Indonesia. Journal of Cleaner Production 134: 583-591
- Wahyudi, T. R, Panggabean. Pujiyanto. 2008. Panduan Lengkap Kakao. Jakarta: Penebar Swadaya.
- Wahyudi, T., T.R Panggabean., Pujiyanto. 2008. Panduan Lengkap Kakao Manajemen Agribisnis dari Hulu hingga Hilir. Penebar Swadaya, Jakarta.
- Widya, Y. 2008. Budidaya Bertanam Cokelat. Tim Bina Karya Tani, Bandung.
- Wijayanto, N dan Nurunnajah. 2012. Intensitas cahaya, suhu, kelembaban, dan perakaran lateral mahoni di RPH Babakan Madang, BPKH Bogor, KPH Bogor. Jurnal Silvikultur Tropika. 3 (1) ; 8-13.
- Wilkins, M.B., 1984. Advanced Plant Physiology. Pitman Publishing Limited. London
- Wood, G. A. R. 1975. Cacao. Longmans Group Ltd. London. 292 hal.
- Wood, G. A. R., and R. A. Lass. 1987. Cocoa. Longman Scientific and Technique, New York.
- Zakariyya, F dan A, Prawoto. 2015. Stomatal conductance and chlorophyll characteristic and their relation ship with yield of some cocoa clones under *Tectonia grandis*, *Leucaena* sp, *Casia surattensis*. Pelita Perkebunan. 31 (2). 99-108.