UNIVERSITAS
GADJAH MADA
ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abarquez, A., Bush, D. Ata. J. Tolentino El, G.H. Gilbero. 2015. Early growth and genetic variation of mahogani (*Sweitenia macrophylla*) on progeny plantaed in Norther Mindanau, Phylipines. Journal Tropical Forest Science 27 (3) :314-324.

Adams, W.T., J. Zuo, J.Y. Shimizu and J.C. Tappeiner. 1998. Impact of alternative regeneration methods on genetic diversity in coastal Douglas-fir. *Forest science*, *44*(3), pp.390-396.

Adinugraha, H.A. 2017. Pertumbuhan Tanaman Uji Keturunan Jati Pada Umur 7 Tahun Di Gunung Kidul, Yogyakarta.Seminar Nasional Pendidikan Biologi dan Saintek. 2017. ISSN: 2527-533X. Hal 8-13.

Ahmed, M.F., I.R. Kennedy, A.T.M.A. Choudhury, M.L. Kecskes and R. Deaker. 2008. Phosphorus adsorption in some Australian soils and influence of bacteria on the absorption of phosphorus. *Communications in Soil Science and Plant Analysis*. 39:1269-1294.

Amadau, H.I., P.J. Bebeli and P.J. Kaltsikes. 2001. Genetic Diversity in Bambara groundnut (*Vigna subterranea* L.) Germplasm Revealed by RAPD Markers. Genome Vol 44: 995–999.

Aminah, A., D. Syamsuwida dan R. Uli. 2006. Tingkat Keberhasilan Bunga Menjadi Buah Spesies Suren (*Toona sinensis* Roem.). Makalah Seminar Benih Untuk Rakyat: Menggunakan dan Menghasilkan Benih Secara Mandiri. Balai Teknologi Perbenihan-Bogor.

Anggraeni, I. 2003. Penyakit pada persemaian suren. Bulletin Penelitian Hutan No. 635/2003:61-70. Pusat Litbang Hutan dan Konservasi Alam. Bogor

Anindita, A., Umam, C., Fatimah, S. and Suwarno, F., 2018. The Study of Early Selection Method through Vigor and Viability Parameter in Citrus amblycarpa (Hassk) under Salinity and Drought Stress Condition. *Journal of Tropical Horticulture*, *1*(1), pp.1-6.

Arief, V.N., I.H. DeLacy, J. Crossa, T. Payne, T. Singh, R. Braun, H.J. Tian, K.E. Basford and M.J. Dieters. 2015. Evaluating testing strategies for plant breeding field trials: redesigning a CIMMYT international wheat nursery. *Crop Science*, *55*(1), pp.164-177

Arnold, R.J. 2003. Genetic Variation In Early Growth, Stem Straightness And Survival In *Acacia Crassicarpa, A. Mangium* And *Eucalyptus Urophylla* In Bukidnon Province, Philippines. *Journal of Tropical Forest Science* 15(2): 332-351 (2003)

Azizah dan I.Z Siregar. 2014. Keragaman Genetik dan Sistem Perkawinan pada Tegakan Benih Mindi (*Melia azedarach* Linn.) di Wanayasa, Purwakarta. Skripsi Fakultas Kehutanan Intitut Pertanian Bogor (tidak dipublikasikan).

Baliklimat. 2011. Data Iklim harian Kabupaten Ciamis dan Kabupaten Tasikmalaya. Balai Penelitian Klimatologi.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Badan Litbang Kehutanan. 2009. Road Map Penelitian dan Pengembangan Kehutanan. Badan Penelitian dan Pengembangan Kehutanan Jakarta. Halaman 4 – 16.

Barnes, R.D., J. Burley, G.L. Gibson and J.P.G. De Leon. 1984. Genotype and environment site interaction in tropical pine and their effect and the structure of breeding population. Silvae Genetika 33 (6) 186-198.

Bawa, K.S. 1990. Plant pollinator interaction in tropical rain forests. Ann. Rev. Ecol. Syst., 21, 399±422.

BBPBPTH. 2010. Sintesa Kegiatan Penelitian Tahun 2010. Balai Pelitian Bioteknologi dan Pemuliaan Tanaman Hutan. Hal 10 - 25.

Bilgen, B.B., Y. Kurt and N. Kaya. 2012. Mating system in natural population of Taurus cedar (*Cedrus libane* A.Rich). Turk J Agric for 36 (2012):379-387

Blakesley, D., G. Pakkad, C. James, F. Torre and S. Elliott. 2004. Genetic diversity of *Castanopsis acuminatissima* (Bl.) A. DC. in northern Thailand and the selection of seed trees for forest restoration. *New Forests*, *27*(1), 89–100. **https://doi.org/10.1023/A**: 1025016331835

BPPT. 2017. Laboratorium Tanah, Pupuk dan Air. Balai Pengkajian Pertanian Tekonologi Yogyakarta.

BPDASPS. 2014. Pengelolaan Hutan Rakyat. Balai Pengelolaan daerah Aliran Sungai dan Perhutanan Sosial. Dialog Dua Mingguan Kementerian Kehutanan Jakarta, April 2014

BUK. 2013. Potensi Hutan Rakyat Indonesia. Bina Usaha Kehutanan.Website. http://www.google.co.id**.**

Bulgarella, C., M. Navascuez, A. Soto, A. Lora and S. Fici. 2007. Narrow genetic base in forest restoration with holm oak (*Quercus ilex* L.) in Sicily. *Ann. For. Sci*, *64*, 757–763. https://doi.org/10.1051/forest:2007055

Burdon, R.D. 1977. Genetic correlation as a concept for studying genotype-environment interaction in forest tree breeding.Silvae genetica 26: 168-175.

Burdon, R.D. 1979. Generalisation of multi-trait selection Indices using information from several site. N.Z J. For. Sci 9:145152

Brown, A.H.D. 1990. Genetic characterisation of plant mating systems. In: Plant population genetics, breeding and genetic resources (Brown AHD, Clegg MT, KahlerAL, and Weir BS, eds). Sunderland, Massachusetts: Sinauer; 145–162.

Buitjtenen J.V.P. and J. I. Yeiser. 1989. Exercise in Quantitative genetic of Forest Trees. Forest Genetic Laboratory. Texas A & M University. Pp 10 – 25.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Bian, L., Z. Renhua and X. Hui. 2014. Genetic Parameter and Genotype-Environment Interaction of Chinee Fir (*Chuninghanmia lancveolata*) in Fuhian Province. Canadian Journal of Forest Reesearch 44:585-592

Carson S.D. 1991. Genotype x Environment Interaction and Optimal Number of Progeny Test Site for Improving *Pinus radiate* in New Zealand. New Zealand Journal of Forestry Science 21 (1):32-49 (1991).

Chae, S.S. and W.D. Warde. 2005. Effect of using principal coordinates and principal components on retrieval of clusters. *Comput Stat. Data An.* 50:1407-1417.doi: 10.1016/j.csda.2005.01.013.

Chang, H.C. 2002. *Toona sinensis* Roem. American Journal of Chinese Medicine, Vol. 30, Nos. 2 & 3, 307-314).

Changtragoon, S. and R. Finkeldey. 1995. Inheritance of isozymephenotypes of *Pinus merkusii*. *J Trop For Sci* 8:167-177

Cengel, B., Y. Tayanc¸ G. Kandemir, E. Velioglu, M. Alan and Z. Kaya. 2012. Magnitude and efficiency of genetic diversity captured from seed stands of *Pinus nigra* (Arnold) subsp. pallasianain established seed orchards and plantations. New Forests (2012) 43:303–317.

Chapman, S., M. Cooper, D. Podlich, and G. Hammer. 2003. Evaluating plant breeding strategies by simulating gene action and dryland environment effects. *Agronomy Journal*, *95*(1), pp.99-113.

Cheliak, W.M. and D.L. Rogers. 1990. Integrating Biotechnology Into Tree Improvement Program. Canadian Journal of Forest Research 20: 452-463.

Chiari, L., R.M.S. Resende and E.T. Matida. 2010. Mating System Parameters in *Stylosanthes guianensis* (Aubl) Sw. Based on RPAD Markers. African journal of Biotechnology Vol 9 (36) pp.5820-5822.

Cipriano, J., A. Carvalho, C. Fernandes, M.J. Gaspar, J. Pires, J. Bento and J. Lima-Brito. 2013. Evaluation of genetic diversity of Portuguese *Pinus sylvestris* L. populations based on molecular data and inferences about the future use of this germplasm. Journal of genetics, 1-8.

Clegg, M.T. 1980. Measuring plant mating systems. Bioscience 30: 814-818

Collins, S. and S. Walker. 1998. Propagation of red cedar by cuttings. In: Managing and Growing Trees Training Conference, Farm forestry and Vegetation Management, held 19-21Octoboer 1998, Kooralbyn Hotel Resort, southeast Queensland, pp 347-353

Danarto, S., E.B. Hardiyanto, M. Na'iem, dan O.H. Suseno. 2000. Strategi Pemuliaan *Pinus merkusii* Generasi Kedua. Prosiding Seminar Nasional Status Silvikultur 1999. Fakultas Kehutanan Universitas Gadjah Mada. Jogyakarta. hlm. 137-143.

UNIVERSITAS GADJAH MADA
ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Daquinta, M., Y. Lezcano, M. Cid, D. Pina and R. Rudriguez. 2005. In Vitro Morphogenesis of *Toona ciliata* from young leaf Rachis using Thidiazuron. Colomb Biotechnol.Vol 7 (2) December 2005.

Dalimoenthe, S.L., R. Wulansari, dan E. Rezamela. 2016. Dampak Perubahan Iklim Terhadap Produktivitas Pucuk Teh Pada Berbagai Ketinggian. Jurnal Littri 22(3), September 2016. Hlm. 135 - 141

David, P.B., M.G. Hamilton, C.E. Harwood, T.G. Baker and B.M. Potts. 2013. Assessing genetic variation to improve stem straightness in *Eucalyptus globulus*. Annals of Forest Science (2013) 70:461–470.

de Campos, T., M.O. da Cunha, A.D.B. de Sousa, R.B. Teixeira, A. Raposo, A.M. Sebbenn, and L.H. Wadt. 2013. Mating system parameters in a high density population of andirobas in the Amazon forest. Pesq.gropec. bras. vol. 48 no.5 Brasília May 2013.

Dering, M. and I. Chybicki. 2012. Assessment of genetic diversity in two species oak seed stand and their progeny populations. Scandinavian Journal of Forest research 2012 (27):2-9.

Díaz, R. and J.F. López. 2005. Genetic variation at early ages for several traits of interest for timber-production breeding of *Juglans regia.* Can. J. For. Res. 35: 235–243 (2005).

Djam'an, D.F., E. Rohani, A. Muharam dan G. Lanjar. 1997. Penangan Benih Suren (*Toona sureni* Merr). Laporan Uji Coba BTP 247 Balai Teknologi Perbenihan Bogor, September 1997. Hal 1-17.

Doligez, A. and H.I. Joly. 1997. Mating System Of *Carapa Procera* (Meliaceae) In The French Guiana Tropical Forest. American Journal Of Botany 84(4): 461–470. 1997.

Dvorak, W.S., J.L. Hamrick, B.J. Furman, G.R. Hodge and A.P. Jordan. 2002. Conservation Strategies For *Pinus Maximinoi* Based On Provenance, Rapd And Allozyme Information. Forest Genetics 9(4):263-274, 2002

Edmonds, J.M., AndStaniforth, M., 1998. *Toona sinensis* (Meliaceae). Curtis' Botanical Magazine 15(3):186-193

Eriksson, G., G. Namkoong and J.H. Roberds, 1993. Dynamic gene conservation for uncertain future. For Ecol Manage 62: 15-37

Falconer, D.S. and Mackay, T.F.C. 1996. Introduction to quantitative genetics. 4th ed. Addison Wesley Longman, London, UK. 464 p.

Ferreira, M.A.J., R. Vencovsky, M.L.C. Vieira and M.A. Queiroz. 2000. Outcrossing rate and implications for the improvement of a segregating population of watermelon. Acta Hort. 510, 47—54.

Ferreira, T.G.T., H.A. Penha, M.I. Zucchi, A.A. Santos, L.R. Hanai, N. Junqueira, M.F. Braga, R. Vencovsky and M.L.C. Vieira. 2009. Outcrossing Rate In Sweet Passion Fruit Based On Molecular Markers. Plant Breeding doi:10.1111/j.1439-0523.2009.01744.x

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Feres, J.M.A., M. Sebbenn, C. Guidugli, M.A. Mestriner, M.L.T. Moraes and A.L. Marin. 2012. Mating system parameters at hierarchical levels of fruits, individuals and populations in the Brazilian insect-pollinated tropical tree, *Tabebuiaroseo alba* (Bignoniaceae). Conserv Genet (2012) 13:393–405.

Fins, L., S.T. Friedman and J.V. Brotschol. 1992. Handbook of Quantitative Forest Genetic. Kluwer Academic Publishers. Netherlands

Finkeldey, R. 2005. Pengantar Genetika Hutan. Terjemahan oleh Edje Djamhuri, Iskandar Z. Siregar, Ulfah. J. Siregar dan Arti W. Kertadikara. ASEAN-EU University Network Programme (AUNP). Fakultas Kehutanan IPB. Bogor

Finkeldey, R. and H.H. Hattemer. 2007. Tropical Forest Genetics. Berlin, Heidelberg: Springer. 315 p.

Freitas, M.L.M., A.M. Sebbenn, M.L.T. Moraes and E.G.M. Lemos. 2004. Mating system of a population of *Myracrodruon urundeuva* F.F. & M.F.Allemão using the AFLP molecular marker. Gen. Molecular Biology. 27 (3):425-431.

Frankham, R., J.D. Ballou and D.A. Briscoe. 2002 *Introduction to conservation genetics*. Cambridge University Press, Cambridge,UK.

Fuchs, E.J., J.A. Lobo and M. Quesada. 2003. Effects of Forest Fragmentation and Flowering Phenology on the Reproductive Success and Mating Patterns of the Tropical Dry Forest Tree *Pachira quinata*. Conservation Biology,17(1): 149-157.

Fuchs, E.J. and J.L. Hamrick. 2011.Mating system and pollen flow between remnant populations of the endangered tropical tree, *Guaiacum sanctum* (*Zygophyllaceae*). Conserv Genet (2011) 12:175–185

Gaiotto F. A., M. Bramucci and D. Grattapaglia. 1997. Estimation of outcrossing rate in a breeding population of *Eucalyptus urophylla* with dominant RAPD and AFLP markers. Theor Appl Genet. 95:842-849Gapare,W.J., B.S.Baltunis, M.Ivkovic, H.X.Wu. 2009. Genetic Correlations Among Juvenile Wood Qualityand Growth Traits and Implications for Selection Strategy in *Pinus radiate* D.Don. Annals of Forest Science, 66, 606 -660

Gapare,W.J., B.S.Baltunis, M. Ivkovic, H.X.Wu. 2009. Genetic Correlations Among Juvenile Wood Quality and Growth Traits and Implications for Selection Strategy in *Pinus radiate* D.Don. Annalsof Forest Science, 66, 606p0 - 660p9.

Gauer, L. and S.C. Molina. 2000. Genetic variation in natural populations of maté (*Ilex paraguariensis* A. St.-Hil., Aquifoliaceae) using RAPD markers. *Heredity* (2000) 84, 647–656.

Glaubitz, J.C. and G.F. Moran. 2000. Genetic Tools: The Use of Biochemical and Moleculer Markers in Forest Conservation Genetics-Principles and Practice (Eds: A. Young, D. Boshier and T. Boyle). CSIRO Publishing. Collingwood. 352p.

UNIVERSITAS GADJAH MADA
ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ,¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Glaubitz, J.C., J.C. Murrell and G.F. Moran. 2003. Effects of native forest regeneration practices on genetic diversity in Eucalyptus consideniana. *Theoretical and applied genetics*, *107*(3), pp.422-431.

Gui-Xiang, Z., Z. Bao-Gang , L. Lin, Z. Qin, G. Lin, P. Ya-yun, C. Xia. 2010. Study on the relationship between *Toona sinensis* Roem. stand productivity and site Conditions in Sichuan Basin. Ecological Economy (2010) 6:387-394

Gusmiaty, M. Restu dan I. Pongtuluran. 2012. Seleksi Primer Untuk Analisis Keragaman Genetik Jenis Bitti (*Vitex coffassus*). Jurnal Perennial, 2012 Vol. 8 No. 1: 25-29 ISSN: 1412-7784 hal 25 -29.

Hamrick, J.L. and M.W. Godt. 1996. Effects of life history traits on genetic diversity in plant species. *Phil. Trans. R. Soc. Lond. B*, *351*(1345), pp.1291-1298.)

Hardy, G. H. 1908. Mendelian proportions in a mixed population. *Science 28: 49*–50 (reprinted in J*ameson* 1977).

Hardiyanto, E.B. 1996. Genetic parameter estimates for stem form and diameter in two *pinus merkusii* Jungh. Et de vriese progeny test in java Indonesia. Tree Improvement for sustainable tropical forest. Proc. QFRI-IUFRO Conf.Caloundra, Queensland, Australia. 27 0ct – 1 Nov 1996:138 – 142

Handayani, B.R., S.Sunarti, A. Nirsatmanto. 2017. Seleksi Dan Perolehan Genetik Pada Kebun Benih Semai Generasi Ketiga *Acacia mangium.* Jurnal Pemuliaan Tanaman Hutan Vol. 11 No. 1, Juni 2017, p. 57 – 66

Halawane, J., J. Kinho dan A. Irawan. 2015. Variasi Genetik Pertumbuhan Tanaman Uji Keturunan Nyatoh (*Palaquium Obtusifolium*) Umur 1,5 Tahun Di Hutan Penelitian Batuangus, Sulawesi Utara. Pros Sem Nas Masy Biodiv Indon. Volume 1, Nomor 4, Juli 2015: 819-823

Han, Y.C., C.Z. Teng, R.W. Gituru, Q.Z. Ming, L.H. Zhong and C.S. Yun. 2009. Mating system and genetic diversity in natural populations of *Nelumbo nucifera* (Nelumbonaceae) detected by ISSR markers. Plant Systematics and Evolution. January 2009, Volume 277, pp 13–20 .

Haryjanto, L. dan Prastyono. 2014. Pendugaan Parameter Genetik Semai Nyawai (*Ficus variegata* Blume.) Asal Pulau Lombok. Jurnal Penelitian Kehutanan Wallacea Vol. 3 No.1, April 2014: 37 – 45

Hardjowigeno, S. 2007. *Ilmu Tanah*. Jakarta (ID): Akademika Pressindo

Herwanti, S. 2015. Potensi kayu rakyat pada kebun campuran di desa Pesawaran Indah Kabupaten Pesawaran. Jurnal Sylva Lestari ISSN 2339-0913 vol. 3 no. 1, januari 2015 (113—120)

Hidayat, Y. 2010.Perkembangan Bungan dan Buah Pada tegakan benih surian (*Toona sinensis* Roem). Jurnal Agrikultural 2010. 21 (1): 13-20.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Hidayat, H. and I.Z. Siregar. 2011. Preliminary Evaluation On Genetic Variation Of Two Year Old Surian (*Toona sinensis* ROEM) Progeny Test Assessed By RAPD MARKER. http://library.forda-mof.org/libforda/files/Proceeding%20INAFOR%202011.pdf

Hidayat, Y., S.P. Dewi dan Sunarya. 2014. Evaluasi Parameter Genetik Tanaman Uji Keturunan surian (*Toona sinensis* Roem). Prosiding Seminar Nasional Silvikultur II "Pembaruan Silvikultur untuk Mendukung Pemulihan Fungsi Hutan menuju Ekonomi Hijau" University Club, Universitas Gadjah Mada Yogyakarta, 28 Agustus 2014. Hal 326-330.

Hong, C., S.I. Lee, K.K. Siong, N. Muhammad and W. Ratnam. 2009. Mating system and seed variation of Acacia hybrid (*A. mangium* × *A. auriculiformis*). Journal of Genetics,Vol. 88, No. 1-April.

Ikhwani, N. 2014. Seleksi Primer RAPD-PCR untuk menampilkan pola pita *Phyllanthus* sp. dan *Amomum cardamomum.* Departemen Biokimia Fakultas Matematika Dan Ilmu Pengetahuan Alam Institut Pertanian Bogor Bogor 2014 (tidak dipublikasikan)

Indrioko, S., S. Hardiwinoto and S. Purwanta. Peningkatan Kualitas Jati Pada Pertanaman Uji Keturunan Di Perum Perhutani KPH Ngawi Dan KPH Cepu. Prosiding Symbion (*Symposium on Biology Education*), Prodi Pendidikan Biologi, FKIP, Universitas Ahmad Dahlan, 27 Agustus 2016.

Indira, E.P. 2006. Provenans variation in *Gmelina arborea* with particular reference to tree form. Journal of tropical forest science 18(1): 36-50.

Isik, K., J. Kleinschmit and W. Steine. 2010. Age–Age Correlations and Early Selection for Height in a Clonal Genetic Test of Norway Spruce. *Forest Science* 56 (2) 2010.

Iddrisu, N.M and K. Ritland. 2014. Genetic variation, population structure, and mating system in bigleaf maple (*Acermacrophyllum Pursh)*. Can. J. Bot.82: 1817–1825 (2004).

Jayusman, Mashudi dan D. Syamsuwida. 2006. Mengenal dan Membudidayakan Surian. Jenis dengan Spektrum Pemanfaatan Luas. ISBN 978-979-3819-42-6. Hal. 1-49

Jayusman., A. Fiani dan W.S. Manik. 2008. Evaluasi Variasi Pertumbuhan Beberapa Populasi Tanaman Surian Di Plot Konservasi Eksitu. Prosiding Ekspose Hasil-hasil Penelitian "Peran Penelitian dalam Pelestarian dan Pemanfaatan Potensi Sumberdaya Hutan di Sumbagut". Medan, 3 Desember 2008.

Jayusman. 2011. Keragaman Genetik 8 Populasi Surian (*Toona sisnensis*) Pada Tingkat Persemaian. Wana Benih 12 (1) Juli 2011. ISSN 1412-8284.

Jayusman. 2016. Respon Pertumbuhan Stek Surian Putih Berdasarkan Konsentrasi Hormon Pertumbuhan dan Bentuk Stek. Wana Benih 17 (1) Juli 2016. ISSN 1410-1173

Jayusman, 2018. Keragaman Genetik Pertumbuhan pada Sifat Bentuk Batang dan Indeks Volume Kayu Surian (*Toona sinensis* Roem) Di Plot Uji Provenans Candiroto, Jawa Tengah, BIOEDUKASI: Jurnal Pendidikan Biologi UNS Volume 11, Nomor 1 Februari 2018. Halaman 12 – 16.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Johson R.C. 1997. Site to Site Genetic Correlation and their Implication on Breeding Zone Size and Optimum Number of Progeny Test sites for Coastal Douglas-Fir. Silave Genetica 411:55-62.

Johson, I.G. 1992. Famili-Site Interaction in Radiata pine families In New South Wales, Asutralia. Silvae Genetika 41, 1:55-62

Jones, J.M. and J.P. Gibson. 2012. Mating System Analysis of *Alnus maritime* (Sea Side Alder), a Rare Riparian Tree. Castanea 77 (1): 11-20, March 2012. Southern Appalachian Botanical Society.

Kedharnath, S. 1984. Forest tree improvement in India. *Proceedings: Plant Sciences*, *93*(3), pp.401-412.

Kemenhut. 2004. Kelompok dan nama jenis tanaman dalam Gerakan Nasional Rehabilitasi Hutan dan Lahan (GERHAN). Surat Keputusan Menteri Kehutanan: SK 272/Menhut-V/2004 tanggal 22 Juli 2004

Keiding, H., E.B. Lauridsen and H. Wellendorf. 1984. Evaluation of Series of Teak and Gmelina Provenance Trials Selection, Their Assessment and Analysis of observation. Proceeding of a joint Work Conference on Provenance and Genetic Improvement Strategies in Tropical Foreset Trees. 9-14 April 1984:30-69.

Koelling, V.A. and Mauricio, R., 2010. Genetic factors associated with mating system cause a partial reproductive barrier between two parapatric species of Leavenworthia (Brassicaceae). *American journal of botany*, *97*(3), pp.412-422.

Kinho, J., J. Halawane, A. Irawan and Y. Kafiar. Evaluasi pertumbuhan tanaman uji keturunan eboni (*Diospyros rumphii*) umur satu tahun di persemaian. Prosiding SEMNAS Biodiversity Indonesia. Volume 1, Nomor 4, Juli 2015.

Kryn, J.M. 1954. Information Leaflet Foreign Woods. Toon, Burma Cedar, Moulmein Cedar, Thitkado, *Cedrela toona* Roxb.; *Cedrela serrata* Royle and Australia Red Cedar, *Cedrela toona* Roxb. var. Australis C.DC., Family Meliaceae. Rep. No. 1970, U.S. For. Prod. Lab., Madison, Wis.

KSU-KTI. 2015. Pengaturan Hasil Daur tebang sengon 5 tahun. KSU Alas Mandiri-Kutai Timber Indoensia .Public Summary 03/Ps/Kam-Kti/2009. Selasa, 06 Juli 2010

Kundu, S.K. 1999.The mating system and genetic significance of polycarpy in the neem tree (*Azadirachta indica*). Theoretical and Applied Genetics November 1999, Volume 99, Issue 7–8, pp 1216–1220

Kundu, S.K. and O. Luukkanen. 2003, September. Genetic diversity and breeding strategies of the neem (*Azadirachta indica*). In XII World Forestry Congress.

Ledig, F.T. 1992. Human impacts on genetic diversity in forest ecosystems. *Oikos*, pp.87-108.

UNIVERSITAS GADJAH MADA
ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Lemes, M.R. 2000. Population Genetic Structure and Mating System of *Swietenia macrophylla* King (Meliaceae) in the Brazilian Amazon: Implications for Conservation. A thesis submitted to the University of Stirling for the degree of Doctor of Philosophy. Department of Biological Sciences University of StirlingStirling, UK. 167pp

Lemes, M.R., R. Gribel, J. Proctor and D. Grattapaglia. 2003. Population genetic structure of mahagony (*Swieteniamacrophylla*King, Meliaceae) across the Brazilian Amazon, based on variation at microsatellite loci:implication for conservation. MolEcol (12): 2875-2883.

Lemmens, R.H.M.J., I. Soerianegara dan W.C. Wong. 1995. Plant Resources of South East Asia. Timber Trees: Minor Commercial Timbers. 5(2), Prosea, Bogor.

Leksono, B., A. Nirsatmanto, R. Setyo and A. Sofyan. 2007. Uji Perolehan Genetik Kebun Benih Semai Generasi Pertama (F-1) Jenis *Acacia Mangium* Di Tiga Lokasi. Jurnal Penelitian Hutan Tanaman Vol.4 No.1, Mei 2007, 001 – 067.

Leksono, B. 2009. Breeding Zones Based on Genotype Enviroment Interaction in Seedling Seed Orchard of *Eucalyptus pellita* in Indonesia. Journal of Forestry Research Vol.6. No.1, 2009:74-84

Leksono, B., A. Nirsatmanto and A. Sofyan. 2007. Uji Perolehan Genetik Kebun Benih Semai generasi Pertama (F-1) Jenis *Acacia mangium* di Tiga Lokasi. *Jurnal Penelitian Hutan Tanaman*, *4* (1), pp.25-36.

Lee, S.L., R. Wickneswari, M.C. Mahani and A.H. Zakri. 2000. Mating system parameters in a tropical tree species, *Shorea leprosula* Miq. (Dipterocarpaceae), from Malaysian lowland dipterocarp forest. Biotropica 32:693-702.

Lee, S.L. 2000. Mating system parameters of *Dryobalanops aromatica* Gaertn. f. (Dipterocarpaceae) in three different forest types and a seed orchard. *Heredity* (2000) 85:338–345.

Lee, S.L. 2002. Selection of parents for Scots pine breeding population in Britain (Foresty vol 75 (3) 2002:293:303.

Lee, C.T., S.L. Lee, K.K.S. Ng, F.S. Faridah, S.S. Siraj and Norwati, M. 2011. Estimation Of Outcrossing Rates In *Koompassia Malaccensis* From An Open-Pollinated Population In Peninsular Malaysia Using Microsatellite Markers. *Journal of Tropical Forest Science* 23(4): 410–416.

Lemes, M.R., D. Grattapaglia, J. Grogan, J. Proctor and R. Gribel. 2007. Flexible mating system in a logged population of *Swietenia macrophylla* King (Meliaceae): implications for the management of a threatened neotropical tree species. Plant Ecol (2007) 192:169 -179.

Lian, C., M. Miwa and T. Hogetsu. 2001. Outcrossing and paternity analysis of *Pinus densiflora* (Japanese red pine) by microsatellite polymorphism. Heredity, 87: 88-98.

Lin, C.Y. 1978. Index selection for genetic improvement of quantitative characters. Theor. App. Genet. 52:49-56.

UNIVERSITAS GADJAH MADA
ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Lindhart, Y.B. 2002. Variation in woody plants: molecular biology, evolutionary processes and conservation biology. Di dalam: Forestry sciences, Molecular biology of woody plant. Jain SM, Minocha SC (editor). Kluwer Academic Publisher. Netherland.

Li P., X. Zhan, Q. Que, W. Qu, M. Liu, K. Ouyang, J. Li, X. Deng, J. Zhang, B. Liao, R. Pian and X. Chen. 2015. Genetic Diversity and Population Structure of *Toona Ciliata* Roem. Based on Sequence-Related Amplified Polymorphism (SRAP) Markers. *Forests* 2015 (*6)*: 1094 - 1106; ISSN 1999-4907

Li P., X. Zhan, Q. Que, W. Qu, M. Liu, K. Ouyang, J. Li, X. Deng, J. Zhang, B. Liao, R. Pian and X. Chen. 2015. Genetic Diversity and Population Structure of *Toona Ciliata* Roem. Based on Sequence-Related Amplified Polymorphism (SRAP) Markers. *Forests* 2015 (*6)*: 1094 - 1106; ISSN 1999-4907

Li, Y., M. Suontama, R.D. Burdon and H.S. Dungey. 2017. Genotype by environment interactions in forest tree breeding: review of methodology and perspectives on research and application. *Tree Genetics & Genomes*, *13*(3), p.60

Liesebah, H., M.S. Yang and V. Scheck. 2004. Genetic Diversity and Differentiation in A Black Locust (*Robinia Pseudoacacia*) Progeny Test. Forest Genetic 11 (2):151-161.

Libby, W.J. 1973. Domestication strategies for forest trees. Can J For Res 3: 265-276

Liu J., J.M. Jiang and Y.T. Chen. 2014.Genetic diversity of central and peripheral populations of *Toona ciliata* var. *pubescens*, an endangered tree species endemic to China. Genetics and Molecular Research 13 (2): 4579-4590 (2014)

Lorenz, T.C., 2012. Polymerase Chain Reaction: Basic Protocol Plus Troubleshooting and Optimization Strategies. *J. Vis. Exp.* (63):3791-3998.

Lucero, V.C., D.A. Huber, S.E. McKeand, T.L. White and D.L. Rockwood. 2003. Genotype-By-Enveronment Interaction and Deployment Consideration for families From Florida Provenance Loblolly Pine. Forest Genetic 10 (2):85-92.

Lowe, A., S. Harris and P. Ashton. 2004. Genetic diversity and differentiation, in: Ecological Genetics: Design, Analysis and Application. Blackwell, Oxford, UK, 52-100.

Lu, P. and P. Charrette. 2008. Genetic parameter estimates for growth traits of black spruce in northwestern Ontario. Can. J. For. Res. 38: 2994–3001 (2008).

Lynch, M. and B.G. Milligan. 1994. Analysis of population genetic structure with RAPD markers. Mol. Ecol. 3, 91–99.

Ma, X., S.Y. Chen, S.Q. Bai1, X.Q. Zhang, D.X. Li, C.B. Zhang and J.J. Yan. 2012. RAPD analysis of genetic diversity and population structure of *Elymus sibiricus* (Poaceae) native to the southeastern Qinghai-Tibet Plateau, China. Genetics and Molecular Research 11 (3): 2708-2718 (2012).

UNIVERSITAS GADJAH MADA
ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Mangkuwibowo, F., S. Indrioko and A. Nirsatmanto, A., 2018. Interaksi Famili× Lokasi pada Uji Keturunan Generasi Kedua Eucalyptus Pellita. Jurnal Pemuliaan Tanaman Hutan, 12 (1), pp.25-39.

Mashudi, M. Susanto dan Darwo. 2107. Keragaman Dan Estimasi Parameter Genetik Bibit Mahoni Daun Lebar (*Swietenia macropylla* King.) Di Indonesia. Jurnal Penelitian Hutan Tanaman Vol. 14 No. 2, Desember 2017, 115-125

Maskur, Muladno dan B. Tappa. 2007. Identifikasi genetik menggunakan marker mikrosatelit dan hubungannya dengan sifat kuantitatif pada sapi. Media Peternakan 30 (3): 147-155

Matheson, A.C. and C.A. Raymond. 1984. The impact of genotype x environment interaction on Australian Pinus radiata breeding programs. Aust. For. Rest. 1984, 14:11-25

Martawijaya, A., K. Iding, Y.I. Mandang, A.P. Soewanda dan K. Kosasi. 1989. Atlas Kayu Indonesia, Jilid 11, Badan Litbang Kehutanan, Bogor.

Mc Donald, M. 2002. Low Allozyme Diversity in Red Cedar (*Toona ciliata*). Forestry and Forest Products. Australian Tree Resources News Number 7 June 2002.

Mroginski E., H. Y. Rey and L.A. Mroginski. 2003. In Vitro Planlet regenerantion from Australian Red Cedar (*Toona ciliata*). New Forest 2003 (25): 177-184.

Muona, O. 1990. Population genetics in forest tree improvement. In: Brown, A.H.D., M.T. Clegg, A.L. Kahler and B.S. Weir (eds), Plant Population Genetics, Breeding and Genetic Resources. Sinauer Press, Sunderland, MA. USA. pp 282-298

Murni, P., Syamsuardi, Nurainas, Mansyah, E. and Chairul. 2016. Genetic Variability and Out-crossing rate in open pollinated Duku 'Kumpe'(*Lansium parasiticum* (osbeck) K.C.Sahni & Bennet.), a Potential Type ofDuku from Jambi, Indonesia. Der Pharmacia Lettre, 2016, 8 (18):185-191

Muoki, R.C.F., F.N. Wachira, R.S. Pathak and S.M. Kamunya. 2007. Assessment of the mating system of *Camellia sinensis* in biclonal seed orchards based on PCR markers. The Journal of Horticultural Science and Biotechnology. Volume 82, 2007 - Issue 5.

Muchugi, A., G.M. Muluvi, A.J. Simon, F.N. Wachira and R.H. Jamnadass. 2008. Estimates of out crossing rates in natural breeding population of *Warburgia ugandensis* using Amplified Fragment Length Polymorphism (AFLP). African Journal of Biotechnology 7 (2): 39-146.

Muluvi, G.M., J.I. Sprent, D. Odee and W. Powell. 2004. Estimates of out crossing rates in *Moringa oleifera* Amplified Fragment Length Polymorphism (AFLP). African Journal of Biotechnology 3 (2) :146-151.

Murillo, O. 2001. Genotype By Environment Intercation and Genetic gain on Inbalanced *Pinus oocarpa* Provenance Trial. Agronomic Costaricence 25 (1):21-32, 2001.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Namkoong, G. 1989. Population genetics and the dynamics of conservation. In: Knutson L, and A.K. Stoner (eds.), Biotic diversity and germplams preservation, global imperatives. Kluwer Academic Publisher, Dordrecht. pp 161-181

Namkoong, G., R.D. Barnes and J. Burley. 1980. *A philosophy of breeding strategy for tropical forest trees*. Commenwealth Forestry Institute, University of Oxford.

Nei, M.1972. Genetic distance between populations.Am Naturalist 106:283-292.

Nei, M.1978. Estimation of Average Heterozygosity and Genetic Distance from Small Number of Individuals. Genetics, 89: 583–590.

Nei, M. 1987. *Molecular Evolutionary Genetics*. New York (USA): Columbia University Press. pp 192-107.

Nirsatmanto, A., H. Suhaendi and M. Charomaini. 1996. Investigation on family site-interaction of *Acacia mangium* seedling seed orchard established at two location in Indonesia. In: Tropical plantation establishment, improving productivity through genetic practice. Proceeding International Seminar 19-21 December 1996. pp. III-12-18

Nirsatmanto, A., K. Seido, S. Kurinobu, M. Na'iem, E.B. Hardiyanto and Suseno, H. 1996. Analysis of provenance−progenytests of *Eucalyptus urophylla* established at two locations in Indonesia. Pp. 206 - 207 in Dieters MJ *et al*. (Eds.) Tree Improvement for Sustainable Tropical Forestry. Proceedings of QFRI-IUFRO Conference. Caloundra. 27October–1 November 1996. Queensland Forestry Research Institute, Queensland.

Nirsatmanto, A. and S. Kurinobu. 2002. Trend of within-plot selection practiced in two seedling seed orchards of *Acacia mangium* in Indonesia. Journal of Forest Research, 7(2), 49–52.

Nindita, A., C. Umam, S. Fatimah and F. Suwarno. 2018. The Study of Early Selection Method through Vigor and Viability Parameter in *Citrus amblycarpa* (Hassk) under Salinity and Drought Stress Condition. *Journal of Tropical Horticulture, 1*(1), pp.1-6.

Ngah, L. and M.N.A. Ghani. 2014. Genotype and environment interactions in Moe and Mor of *Acacia Mangium*. Journal of Agricultural Research and Development Vol. 5(5). pp. 079-084, October, 201

Nosrati, H. 2012. Genetic variation among different accession of *Lathyrus sativus* (Fabaceae) revealed by RAPDs. Botanica Serbica. 36(1):2012.41-47

Nuijten, E., M. Messmer and E. L. van Bueren. 2016. Concepts and strategies of organic plant breeding in light of novel breeding techniques. *Sustainability, 9* (1), p.18.

Nurjahjaningsih, I.L.G. 2010. Sistem perkawinan di kebun benih *Pinus merkusii* di Jember. Makalah dalam prosiding Ekspose Hasil-Hasil Penelitian Balai Besar Penelitian Bioteknologi dan Pemuliaan Tanaman Hutan: Jogjakarta.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Nurjanningsih, I., M. Qiptiyah, T. Pamungkas, A. Widyatmoko and A. Rimbawanto. 2014. Karakterisasi keragaman genetik populasi jabon putih menggunakan penanda *Random Amplified Polymorphism* DNA. Jurnal Pemuliaan Tanaman Hutan, 8(2), 81–92.

Orloci, L. 1978. Multivariate analysis in vegetation research. The Hague, the Nedherlands: Dr. W. Junk. *In*: Carranza L *et.al.* 1998. Analysis of vegetation structural diversity by Burnaby‟s similarity index. *Plant Ecol*. 138(1):77-87

Ozawa, H., A. Watanabe, K. Uchiyama, Y. Saito and Y. Ide. 2012. Genetic diversity of *Pinus densiflora* pollen flowing over fragmented populations during a mating season. Journal Forestry Research, 17:488-498.

Park, Y.S., G.W. Adams and T.J. Mullin. 1998. Incorporation of new information and technology in breeding and deployment strategies for black spruce. In tree improvement, Science Publisher. Inc. USA. Page 3-24.

Peakall, R. and P.E. Smouse. 2006 GenAlex 6: Genetic Analysis in Exell. Population Genetic Sofware for Teaching and Research. Moleculer Ecology Notes 6:288-295.

Pennington, T.D. and B.T. Styles. 1975. Ageneric monograph of the Meliaceae. Blumea, 22, 419-540.

Pengxin, L. and P. Charrette. 2008. Genetic parameter estimates for growth traits of black spruce (*Picea mariana* (Mill.) in northwestern Ontario. Can. J. For. Res. 38: 2994–3001 (2008).

PFIIP. 2009. Poor farmer Income Improvement through Innovation Project. Kabupaten Temanggung tahun 2009.

Pramono, A.A. dan Danu. 2013. Peta sebaran surian (*Toona sinensis* Roem.) dengan system agroforestry di jawa. Prosiding Seminar Nasional Agroforestri. Agroforestri untuk pangan dan lingkungan yang lebih baik. Malang 21 Mei 2013.

Pramono, A.A.**,** E.R**.** Palupi, I.Z. Siregar dan C. Kusmana. 2016. Bunga Surian (*Toona sinensis* (A. Juss.) M. Roem: Morfologi, Fenologi dan Serangga Pengunjung. Jurnal Perbenihan Tanaman HutanVol.4 No.2, Desember 2016: pp 67-80.ISSN : 2354-8568e-ISSN : 2527-6565

Pratiwi. 2000. Jenis-jenis Pohon Andalan Setempat di Pulau Jawa dan Sumatera Bagian Selatan (Sebaran dan data dasarnya) Info hutan no 123/2000. Pusat Litbang Hutan dan Konservasi Alam. Bogor.

Qin, M,D., A.I. Kan-ren, D.L. Fen and W. Tian-ru. 2006. Propagation of *Toona sinensis* Roem. by Tissue Culture Technology. Journal of Northwest Forestry University 200 6-05.

Rachmatsah, O. and F.R. Wylie. 2005. *Hypsyla Shoot Borers* of Meliaceae In Indonesia. Faculty of Forestry Bogor Agriculture University and Queensland Forestry Research Institute PO Box 631. Indooropilly Qld 4068. Australia.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Rao, H., B. Patterson, B. Potts and R. Vaillancourt. 2008. A microsatellite study on out-crossing rates and contamination in *Eucalyptus globulus* breeding arboretum. J. Forest. Res. 19(2): 136-140.

Ritland, K. and S. Jain. 1981. A model for the estimation of outcrossing rate and gene frequencies using independent loci. Heredity, 47 (1), 35–52.

Ritland, K. 1983. Estimaton of Mating System. In. Tanksley SD, Orton T.J (Eds) Isozymes in Plant Genetic and Breeding. Part A Elsevier Science`Publishers, Amsterdam, pp 289-302.

Ritland, K. 1990. A Series of FORTAN Computer Programs for Estimating Plant Mating System. J. Hered. 81:235-237.

Ritland, K. 2002. Extensions of models for the estimation of mating systems using *n* independent loci. Heredity, 88: 221–228, doi: 10.1038/sj.hdy.6800029.

Ritland, K. 2004.Multilocus mating system program – MLTR version 3.0. University of British Colombia, Vancouver.Available at <http://genetics.forestry.ubc.ca/ ritland/ programs. htlm, Accessed on Sept 3, 2007

RLPS. 2002. Data Potensi Hutan Rakyat**.** www.dephut.go.id/infromasi /rrl/RLPS/ htnrakyt. htm.

Rohlf, F.J. 2000. Numerical Taxonomy and Multivariate Analysis System. User Guide. Departement of Ecology and Evolution, State University of New York.

Rosmain and Zulfahmi. 2013. Genetic Diversity of *Eurycoma longifolia* Jack Based on Random Amplified Polymorphic DNA Marker. JMHT V ol. XIX, (2): 138-144, August 2013. Scientific Article. ISSN: 2087-0469.

Rosvall, O. and T.J. Mullin. 2013. Introduction to breeding strategies and evaluation of alternatives. *Best Practice for Tree Breeding in Europe*, pp.7-27

Roth, B. E., E.J. Jokela, T.A. Martin., D.A. Huber and T.L. White. 2007. Genotype environment interactions in selected loblolly and slash pine plantations in the Southeastern United States. Forest Ecology and Management 238 (2007) 175–188.

Rueangruea, S., S. Tagane, S. Suddee and N. Tetsana. 2015. T*oona calcicola*, a new species and *Reinwardtiodendron humile*, a new record to Thailand. Thai Forest Bull (Bot) 43:79-86. 2015.

Rustikawati, Herison, Catur, Eliyanti, and Sudarsono. 2014. Seleksi Primer Rapd Untuk Ketahanan Terhadap CMV: Penggunaan Strategi BSA *(Bulk Segregant Analysis).* Akta Agrosia, 10 (2). pp. 108-114. ISSN 1410-3354.

Routley, M.B., K. Mavraganis and C.G. Eckert. 1999.Effect of population sizeon the mating system in a self-compatible, autogamous plant, *Aquilegiacanadensis* (Ranunculaceae). *Heredity* 82: 518–528.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Sánchez, L.G.H. 2008. Genetic diversity and mating system analysis of *Cedrela odorata* L. (*Meliaceae*) populations under differ Magister Scientiae en Manejo Conservación de Bosques Naturales Biodiversidadent human dominated landscapes and primary forests. Turrialba, Costa Rica, 74 p.

Saiki, R.K., D.H. Gelfand, S. Stoffel, S.J. Scharf, R. Higuchi, G.T. Horn,K.B. Mullis and H.A. Erlich. 1988. Primerdirected enzymatic amplification of DNA with a thermostableDNA polymerase. Sc~ence2 39: 4 8 7 4 9 1

Sambrook, J., E.F. Fritsch and T. Maniatis. 1989. Molecular cloning: A laboratory manual. Second edition. Volumes 1, 2, and 3. Current protocols in molecular biology. Volumes 1 and 2. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press. (1989). 1626 pp.

Sun, R,F., P. Lin, P. Huang and Y. Zheng, 2016. Moderate Genetic Diversity and Genetic Differentiation in the Relict Tree *Liquidambar formosana* Hance Revealed by Genic Simple Sequence Repeat Markers. Front. Plant Sci., 21 September 2016

Shelbourne, C.J.A. 1972. Genotype-environment : Its Study and its implication in forest tree improvement. Proc. IUFRO Genetic-SABRAO Joint Symposia, Tokyo. 1972

Simon, H. 1996. Metode Inventori Hutan. Edisi 1, Cetak 2. Aditya Media. Yogyakarta.

Soepardi, G. 1983. *Sifat dan Ciri Tanah*. Bogor (ID): IPB Press.

Setyadi, T. 2013. Interaksi famili x lokasi pada uji keturunan generasi ke dua *Acacia mangium* di Sumatera dan Kalimantan. Jurnal Pemuliaan Vol VII (1) Juli 2013, 41-52.

Setiadi, D., M. Susanto dan L. Baskorowati. 2014. Ketahanan Serangan Penyakit Karat Tumor Pada Uji Keturunaan Sengon (*Falcataria Moluccana*) Di Bondowoso, Jawa Timur. Jurnal Pemuliaan Tanaman Hutan, 8 (1), pp.1-13.

Sixto, H, J., M. Salvia, M. Barrio, P. Ciria and I. Canellas. 2011. Genetic variation and genotype-environment interactions in short rotation Populus plantations in southern Europe. New Forests (2011) 42:163–177.

Silva, M.F.G.F., S.M.M. Agostinho, J.R. Paula, J.O. Neto, I.C. Gamboa, E.R. Filho, J. B. Fernades and P.C. Vieira. 1999. Chemistry of *Toona ciliata* and *Cedrela odorata* Graft (Meliaceae). Chemosystematic and Ecological Siginificance. Pure Appl. Chem Vol 71 (6) pp. 1083-1087.

Shiraishi, S. and A. Watanabe. 1995. Identification of chloroplat genome between *Pinus densiflora* Sieb.et.Zucc and P. Thunbergii Parl. Base on the polymorphism in rbeL Gene. Journal of Japan Forest Society 77:429-4326.

Song, B.K., M.M. Clyde, R.Wickneswari and M.N. Normah. 2000. Genetic relatedness among *Lansium domesticum* accessions using RAPD markers. Ann Bot 86: 299-307.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ,¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Sofyan, A., A.H Lukman, I. Muslimin dan Kusdi. 2015. Variasi Genetik Pertumbuhan Uji Keturunan Bambang Lanang (*Michelia champaca* L.) Umur 1 Tahun. Prosiding Seminar Hasil Penelitian Balai Penelitian Teknologi Perbenihan Tanaman Hutan Balai Penelitian Kehutanan Palembang Bandar Lampung, 11 Agustus 2015

Spitters, C.J.T. and A.H.C.M. Schapendonk. 1990. Evaluation of breeding strategies for drought tolerance in potato by means of crop growth simulation. In *Genetic Aspects of Plant Mineral Nutrition* (pp. 151-161). Springer, Dordrecht.

Streiff, R., 1999. Pollen dispersal inferred from paternity analysis in a mixed oak stand of Quercus robur L. and Q. petraea (Matt.) Liebl. *Molecular Ecology*, *8*, pp.831-841.

Suprapto, E. 2010. Hutan Rakyat: Aspek Produksi, Ekologi Dan Kelembagaan. Seminar Nasional Kontribusi Pengurangan Emisi Karbon Dari Kawasan Hutan Yang Dikelola Masyarakat Secara Lestari Dan Berkelanjutan. Seminar Diselenggarakan Oleh Forest Wacth Indonesia, Di Grand Cemara Hotel Jakarta, 29 Juli 2010.

Suciantini. 2015. Interaksi iklim (curah hujan) terhadap produksi tanaman pangan di Kabupaten Pacitan. Prosiding Seminar Nasional Masyarakat Biodiversity Indonesia. Volume 1, Nomor 2, April 2015 Halaman: 358-365

Suginingsih, W., W. Winarni dan E. Handoyo. 2014. Evaluasi Uji Keturunan Legaran (*Alstonia Spectabilis* R. Br) Pada Umur 6 Tahun Di Petak 18 Hutan Pendidikan Wanagama I Gunung Kidul Yogyakarta. Prosiding Seminar Nasional Silvikultur II "Pembaruan Silvikultur Untuk Mendukung Pemulihan Fungsi Hutan Menuju Ekonomi Hijau" *University Club*, Universitas Gadjah Mada Yogyakarta, 28 Agustus 2014.

Suhaya, Y. 2013. Potensi dan Penyebaran serta Karakteristik Fisik, Mekanik dan Anatomi Makro Kayu Surian (*Toona sinensis* Roem.) pada Berbagai Kondisi Ekologi di Jawa Barat. Program Pasca Sarjana Universitas Padjadjaran. Bandung. (Tidak dipublikasikan).

Sulistyawati, P. dan A.Y.P.B.C. Widyatmoko. 2017. Keragaman Genetik Populasi Kayu Merah (*Pterocarpus Indicus* Willd) Menggunakan Penanda *Random Amplified Polymorphism* DNA. Jurnal Pemuliaan Tanaman Hutan Vol. 11 No. 1, Juni 2017, p. 67 – 76

Surip, S. Indrioko, A. Nirsatmanto dan T. Setyaji. 2017. Pengaruh seleksi terhadap perolehan genetik pada uji keturunan generasi pertama (F1) Jabon Merah (*Anthocephalus macrophyllus* Roxb. Havil) di Wonogiri. Jurnal Pemuliaan Tanaman Hutan, Vol 11 No.1, Juni 2017. Halaman 33-44

Suriarahardja, S. dan J. Wasono. 1996. Informasi Jenis Kayu Andalan Setempat (JAS) di Seluruh Indonesia. Balai Teknologi Perbenihan.

Stauffer, A. dan W.T. Adam. 1993. Allozyme Variation and Mating System of Three Dauglas-fir Stand in Switzerland. Silvae genetica 42 (1993). Page 4 - 5

Stener, L. and G. Jansson. 2005. Improvement Of *Betula pendula* By Clonal and Progeny Testing Of phenotypically Selected Trees. Scandinavian Journal of Forest Research, 2005; 20: 292-303.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ,¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Szabo-Len, A.M. and M. Konnert. 2018. Genetic diversity in European beech (Fagus sylvatica L.) seed stands in the Romanian Carpathians. *Annals of Forest Research*, *61*(1), pp.65-80

Tani, N., Y. Tsumura, T. Kado, Y. Taguchi, S.L. Lee, N. Muhammad, K.K.S Ng, S. Numata, S. Nishimura, A.Konuma and T. Okuda. 2009. Paternity analysisbased inference of pollen dispersal patterns, male fecundity variation, and influence of flowering tree density and general flowering magnitude in two dipterocarp species. Annals of Botany,104: 1421-1434.

Thielges, B.A., S.D. Sastrapradja and A. Rimbawanto. 2001. In situ and ex situ conservation of commercial tropical trees. Yogyakarta: Departement of Forest Science, Faculty of Forest, Gadja Mada University.

Tingey, S.V., J.A. Rafalski and M.K. Hanafey. 1994. Genetic analysis with RAPD markers. In: Coruzzi, C. and Puidormenech, P (eds.). Plant Molecular Biology. Springer. Berlin.

UNEP-WCMC. 2007. Mapping of species' natural distribution areas and evaluation of genetic. www.biodiversity international.org/982 Forest Genetic Resources.

Vargas-Mendoza, C.F., I. Ortegón-Campos, D. Marrufo-Zapata, C.M. Herrera and V. Parra-Tabla. 2015. Genetic diversity, outcrossing rate, and demographic history along a climatic gradient in the ruderal plant Ruellia nudiflora (Acanthaceae). *Revista Mexicana de Biodiversidad*, *86*(2), pp.508-520.

Vogler, D. and S. Kalisz. 2001. Sex among the flowers: the distribution of plant mating systems. Evolution, 55: 202-204.

Vellend, M. and M. Geber. 2005. Connection between species diversity and genetic diversity.Ecological letter 8, 767-781.

Wadt, L.H. and P.Y. Kageyama. 2004. Structur Genetic *Piper hispidinervum*. Pesq. Agropec. Brazil. 39(2): 151-15.

Wahyudiningsih, T.S. 2015. Program Pemuliaan Jelutung Rawa (*Dyera lowii* Hook.f.) Disertasi Program Pasca Sarjana Universitas Gadjah Mada (tidak dipubikasikan)

Wang, C.J., S. Cao, Y. Tian, Z. Wang, M. Chen and G. Gong. 2008. Germplasm resources research of *Toona sinensis* with RAPD and isoenzyme analysis. College of Food Engineering & Biotechnology, Tianjin University of Science & Technology People's Republic of China. College of Bioengineering, Tianjin University of Science & Technology, Tianjin, 300457, People's Republic of China. Published online:6 May 2008.

Wang, B.Y., L. Shi, Y.Z. Ruan and J. Deng. 2011. Genetic Diversity and Differentiation in *Dalbergia sisso* as Revealed by RAPD. Genetic Moleculer and Research 10 (1) 114-120.

Wee, A.K.S., C.H. Li, and Y. Hong. 2011. Genetic diversity in natural populations of *Gmelina arborea*: implications for breeding and conservation. New Forests DOI 10.1007/s11056-011-9288-2.

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ‚¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

Weeden, N.F., G.M. Timmerman, M. Hemmat, B.E. Kneen and M.A. Lodhi. 1992. Inheritance and reliability of RAPD markers. Application of RAPD Technologi to Plant Breeding. Join Plant Breeding Symposia Series CSSA/ASHS/AGA. Minneapolis, 1November 1992.

Wels, J. and M. McClelland. 1990. Fingerprinting Genomes Using PCR with Arbitrary Primers. Nucleic Acids Research, 18(24), 7213-7218.

Weng, Y.H., P. Lu, G.W. Adam, M..S Fullarton and K.J. Tosh. 2015. Genetic parameters of growth and stem qualityy for jack pine second generation progeny test in New Brunswick. Ca. J. For Res 45:36-43 (2015):36-42

White, T.L., W.T Adam and D.B. Neale. 2009. Forest Genetics. Chapter 13. Phenotypic Mass Selection-Genetic gain, choice of traits and indirect respon. Page 329-354,

Widyastuti, D.E. 2007. Keragaman genetik dengan penanda RAPD, fenotipa pertumbuhan dan pendugaan heritabilitas pada sengon (*Paraserianthes falcataria* (L.) Nielsen) (Tesis). Bogor: Program Pascasarjana, Institut pertanian Bogor.

Widyatmoko, A.Y.P.B.C. dan Aprianto. 2013. Keragaman Genetik *Gonystylus bancanus* (mig.) Kurz. Berdasarkan Penanda RAPD (*Random Amplified Polymorfic* DNA) *Markers*. Jurnal Pemulian Tanaman Hutan Vol. 7 (1) hal. 53-71.

Willliam, J.G.K., A.R. Kubelik, P.I. Lirak, J.A. Rafalski and S.V. Tingey. 1990. DNA Polymorfic Amplification by Arbitrari Primers are Useful as Genetic Nucleic Acid Res. 18:6531:6536.

Woolaston, R.R., P.J. Kanowski and D.G. Nikles. 1991. Genotype-Environnnment Interaction in Pinus caribaea var. Hondurensis in Queensland, Australia. Silvae Genetica 40, 5/6 (1991): 223 -232

Wright, S. 1965. The interpretation of population structure by *F*-statistics with special regard to systems of mating. *Evolution*, 19, 395–420.Xiao-Hong Z., C. Y. Sheng, K. Bing and Z. Qing. 2001. Effects of phytohormones on shoot multiplication of *Toona sinensis*.Journal of Northwest Forestry University 2001-04. Northwest Sci Tech University of Agriculture and Forestry,Yangling,Shaanxi 712100,China.

Wright, J. 1976. Introduction to Forest Genetics. Academic Press. Inc. London. pp 35 – 78.

Xing, P.Y., T. Liu, Z.Q. Song and X.F. Li. 2016. Genetic diversity of *Toona sinensis* Roem. in China revealed by ISSR and SRAP markers.Genet. Mol. Res. 15 (3): gmr.15038387 Received January 6, 2016 Accepted February 19, 2016. DOI http://dx.doi.org/10.4238/gmr.15038387

Yamada, Y. 1962. Genotype by environment interaction and genetic correlation of same trait under different environment. Genetic 37:498-509

ANALISIS PARAMETER GENETIK DAN PEMANFAATANNYA UNTUK STRATEGI PEMULIAAN SURIAN (Toona sinensis Roem.)
JAYUSMAN, Prof. Dr. Ir. M. Naââ,¬â„¢iem, M.Agr.Sc, Dr. Ir. Eko Bhakti Hardiyanto, Dr. Sapto Indrioko, S.Hut.,M
Universitas Gadjah Mada, 2019 | Diunduh dari http://etd.repository.ugm.ac.id/

You, H.Y., C.J. Chen, H.L. Eng, P.L. Liao and S.T. Huang. 2013. The Effectiveness and Mechanism of *Toona sinensis* Extract Inhibit Attachment of Pandemic Influenza A (H1N1) Virus. Hindawi Publishing Corporation Evidence-Based Complementary and Alternative Medicine. Volume 2013, Article ID 479718, 12 pages. http://dx.doi.org/10.1155/2013/479718.'

Yuan, S.S.F. and Y.C. Shiang. 2006. The Fractionated *Toona sinensis* Leaf Extract Induces Apoptosis of Human Ovarian Cancer Cells and Inhibits Tumor Growth in a Murine Xenograft Model. Gynecol Oncol, 2006. 102 (2): 309:314.

Yulianti., I.Z. Siregar, N. Wijayanto, I.G.K.T. Darma and D. Syamsuwida. 2011. Genetic Variation Of *Melia Azedarach* In Community Forests Of West Java assessed By RAPD. Biodiversitas - Volume 12, Number 2, April 2011. Pages: 64-69.

Zas, R., E. Merlo and F. Lopez. 2004. Genotype x Invironment Interaction in Maritime Pine Families in Galicia, Noethwest Spain. Silvae Genetica 53, 4-2004: 175-182

Zanzibar, M. 2010. Peningkatan Mutu Fisiologis Benih Suren dengan cara priming. Jurnal Standardisasi Volume 12 (1) 2010. Halaman 1-6.

Zobel, B.J. and J. Talbert. 1984. Applied Forest Tree Improvement. John Wiley an Sons, Inc, pages: 505 page