

DAFTAR PUSTAKA

- Abbasi, M., & A. Khaliq. 2016. Nitrogen mineralization of a loam soil supplemented with organic-inorganic amendments under laboratory incubation. *Front. Plant Sci.* 7: 1–9.
- Acerbo, S., R. Kastory, H.Harms, & K. Haider. 1973. Effect of Boron on Synthesis and Transformation of Lignin-. *Z.Pflanzenphysiol*: 306–317.
- Adak, T., A. Singha, K. Kumar, S. K. Shukla, A. Singh, & V. Kumar Singh. 2014. Soil organic carbon, dehydrogenase activity, nutrient availability and leaf nutrient content as affected by organic and inorganic source of nutrient in mango orchard soil. *Journal of Soil Science and Plant Nutrition*. 14(2). 394–406.
- Adinugraha, I., A. Nugroho, & K.P. Wicaksono. 2016. Pengaruh asal bibit bud chip terhadap fase vegetatif tiga varietas tanaman tebu (*Saccharum officinarum* L.). *J. Produksi Tanam*. 4(6): 468–477.
- Ai, N.S., & Y. Banyo. 2011. Konsentrasi klorofil daun sebagai indikator kekurangan air pada tanaman. *J. Ilm. Sains* 15(1): 166.
- Aini, L.N., M. Mulyono, & E. Hanudin. 2016. Mineral mudah lapuk material piroklastik merapi dan potensi keharaannya bagi tanaman. *Planta Trop. J. Agro Sci.* 4(2): 84–94.
- Ajdary, K., D.K. Singh, A.K. Singh, & M. Khanna. 2007. Modelling of nitrogen leaching from experimental onion field under drip fertigation. *Agric. Water Manag.* 89(1–2): 15–28.
- Ali, M.A., A. Abbas, S. Niaz, M. Zulkiffal, & S. Ali. 2009. Morpho-physiological criteria for drought tolerance in Sorghum (*Sorghum bicolor*) at seedling and post-anthesis stages. *Int. J. Agric. Biol.* 11(6): 674–680.
- Alloway, B.J. 1995. Heavy Metals in Soils. Chapman and Hall. London. 368 p.
- Alvarez-campos, O., T. A. Lang, J. H. Bhadha, J. M. Mccray, B. Glaz, & S.H.Daroub. 2018. Agriculture, ecosystems and environment biochar and mill ash improve yields of sugarcane on a sand soil in Florida. *Agriculture, Ecosystems and Environment*. 253: 122–130.
- Andrews, S.S., D.L. Karlen, & C.A. Cambardella. 2004. The soil management assessment framework. *Soil Sci. Soc. Am. J.* 68(6): 1945–1962.
- Andrews, S.S., D.L. Karlen, & J.P. Mitchell. 2002. A comparison of soil quality indexing methods for vegetable production systems in Northern California. *Agric. Ecosyst. Environ.* 90(1): 25–45.

- Annisa, W., & E. Hanudin. 2013. Peran ligan organik terhadap pembentukan oksida besi di tanah sulfat masam. J. Sumberd. Lahan 7(1): 37–46.
- Apriawan, D.C., Irham & J.H. Mulyo. 2015. Analisis produksi tebu dan gula di PT. Perkebunan Nusantara VII (persero). Agro Ekonomi. 26(2): 159–167.
- Apriyanti, H., I.N. Candra, & Elvinawati. 2018. Karakterisasi isotherm adsorpsi dari ion logam besi (Fe) pada tanah di Kota Bengkulu. ALOTROP J. Pendidik. dan Ilmu Kim. 2(1): 14–19.
- Ardiyansyah, B., & Purwono. 2015. Mempelajari pertumbuhan dan produktivitas tebu (*Saccharum officinarum*. L) dengan masa tanam sama pada tipologi lahan berbeda. Bul. Agrohorti 3(3): 350–356.
- Arifiyatun, L., A. Maas, & S. Nuryani Hidayah Utami. 2016. Pengaruh dosis pupuk majemuk NPK + Zn terhadap pertumbuhan, produksi, dan serapan Zn padi sawah di inceptisol, Kebumen. Planta Trop. J. Agro Sci. 4(2): 101–106.
- Arruda, B., M. Rodrigues, A. Soltangheisi, A. E. Richardson, F. D. Andreote, & P. S. Pavinato. 2016. Biological and morphological traits of sugarcane roots in relation to phosphorus uptake. Journal of Soil Science and Plant Nutrition, 16(4), 901–915.
- Askari, M.S., & N.M. Holden. 2014. Indices for quantitative evaluation of soil quality under grassland management. Geoderma 230–231: 131–142.
- Askari, M.S., & N.M. Holden. 2015. Quantitative soil quality indexing of temperate arable management systems. Soil Tillage Res. 150: 57–67.
- Atmojo, S.W. 2003. Peranan Bahan Organik terhadap Kesuburan Tanah dan Upaya Pengelolaannya. Pidato Pengukuhan Guru Besar. Sebelas Maret University Press. Surakarta. 36 p.
- Augustin, C., & L.J. Cihacek. 2016. Relationships between soil carbon and soil texture in the Northern Great Plains. Soil Sci. 181(8): 386–392.
- Aziz, I., T. Mahmood, & K.R. Islam. 2013. Effect of long term no-till and conventional tillage practices on soil quality. Soil Tillage Res. 131: 28–35.
- Badan Penelitian dan Pengembangan Pertanian. 2011. Petunjuk Teknis Evaluasi Lahan untuk Komoditas Pertanian. Balai Besar Penelitian dan Pengembangan Sumberdaya Lahan Pertanian. Bogor. 161 p.
- Bahrani, M.J., M. Shomeili, S. Zande-Parsa, & A. Kamgar-Haghihi. 2009. Sugarcane responses to irrigation and nitrogen in semiarid South Texas. Iran Agric. Res. 27: 17–26.

- Balai Penelitian Tanah. 2009. Petunjuk Teknis Analisis Kimia Tanah, Tanaman, Air dan Pupuk. Balai Penelitian dan Pengembangan Pertanian. Departemen Pertanian.
- Barbosa, L. C., , Z. M. de Souza, H. C. J. Franco, R. Otto, J. R. Neto, A. L. Garside, & J. L. N. Carvalho. 2018. Soil texture affects root penetration in Oxisols under sugarcane in Brazil. *Geoderma Regional*, 13:15–25.
- Bardgett, R.D., T.C. Streeter, L. Cole, & I.R. Hartley. 2002. Linkages between soil biota, nitrogen availability, and plant nitrogen uptake in a mountain ecosystem in the Scottish Highlands. *Appl. Soil Ecol.* 19: 121–134.
- Bassi, D., M. Menossi, & L. Mattiello. 2018. Nitrogen supply influences photosynthesis establishment along the sugarcane leaf. *Sci. Rep.* 8(1): 1–14.
- Beare, M.H., P.F. Hendrix & D.C. Coleman. 1994. Water-stable aggregates and organic matter fractions in conventional and no-tillage soils. *Soil Science Society of America Journal*. 58: 777–786.
- Bell, L.W. 2005. Relative growth rate, resource allocation and root morphology in the perennial legumes, *Medicago sativa*, *Dorycnium rectum* and *D. hirsutum* grown under controlled conditions. *Plant Soil* 270(1): 199–211.
- Bell, M.J., & A.L. Garside, 2005. Shoot and stalk dynamics and the yield of sugarcane crops in tropical and subtropical Queensland, Australia. *Field Crops Research*. 92:231–248.
- Bernardi, A.C. de C., C.G. Werneck, P.G. Haim, M.B. de M. Monte, F. de Souza Barros, *et al.* 2015. Nitrogen, potassium, and nitrate concentrations of lettuce grown in a substrate with KNO₃-enriched zeolite. *Commun. Soil Sci. Plant Anal.* 46(7): 819–826.
- Beza, S., & M. Assen. 2016. Soil carbon and nitrogen changes under a long period of sugarcane monoculture in the semi-arid East African Rift Valley, Ethiopia. *J. Arid Environ.* 132: 34–41.
- Biederbeck, V.O., H.H. Janzen, C.A. Campbell, & R.P. Zentner. 1994. Labile soil organic matter as influenced by cropping practices in an arid environment. *Soil Biol. Biochem.* 26(12): 1647–1656.
- Bigott, A.F., J.W. Hoy, & L.M. Fultz. 2019. Soil properties, microbial communities, and sugarcane yield in paired fields with short- or long-term sugarcane cultivation histories. *Appl. Soil Ecol.* 142: 166–176.
- Blakemore, L.C., P.L. Searle, & B.K. Daly. 1981. *Methods for Chemical Analysis of Soils*. Department of Scientific and Industrial Research, New Zealand.

- Bramley, R., N. Ellis, R. Nable, & A. Garside. 1996. Changes in soil chemical properties under long-term sugar cane monoculture and their possible role in sugar yield decline. *Aust. J. Soil Res.* 34(6): 967–984.
- Braunack, M.V. 1991. The effect of soil physical properties on growth and yield of sugarcane. *Sugar Res. Aust.*: 1–15. <http://elibrary.sugarresearch.com.au/bitstream/handle/11079/514/528.pdf?sequence=1&isAllowed=y>.
- Buckman, H.O. & N.C. Brady. 1982. *The Nature and Properties of Soil*, Terjemahan Sugiman, 1982. *Dasar-Dasar Ilmu Tanah*. Bhatara Karya Aksara. Jakarta.
- Cahyani, S., A. Sudirman, & Abdul Azis. 2016. Respons pertumbuhan vegetatif tanaman tebu (*Saccharum officinarum* L.) ratoon 1 terhadap pemberian kombinasi pupuk organik dan pupuk anorganik. *J. Agro Ind. Perkeb.* 60(2): 4791–4792.
- Cakmak, I., & E.A. Kirkby. 2008. Role of magnesium in carbon partitioning and alleviating photooxidative damage. *Physiol. Plant.* 133(4): 692–704.
- Cambardella, C.A., & E.T. Elliott. 1992. Particulate soil organic-matter changes across a grassland cultivation sequence. *Soil Sci. Soc. Am. J.* 56(3): 777–783.
- Caravaca, F., A. Lax, and J. Albaladejo. 1999. Organic matter, nutrient contents and cation exchange capacity in fine fractions from semiarid calcareous soils. *Geoderma*: 161–176.
- Cardozo, N.P., & P.C. Sentelhas. 2013. Climatic effects on sugarcane ripening under the influence of cultivars and crop age. *Sci. Agric.* 70(6): 449–456.
- Carvalho, J.L.N., T.W. Hudiburg, H. C. J. Franco & E. H. DeLucia. 2017. Contribution of above- and belowground bioenergy crop residues to soil carbon. *GCB Bioenergy*, 9(8), 1333–1343.
- Cavalcanti, R. Q., M. M. Rolim, R. P. de Lima, U. E. Tavares, E. M. R. Pedrosa, & I. F. Gomes. 2019. Soil physical and mechanical attributes in response to successive harvests under sugarcane cultivation in Northeastern Brazil. *Soil and Tillage Research*, 189:140–147.
- Chamuah, G.S., & J.K. Dey. 1982. Determination of cation exchange capacity of woody plant roots using ammonium acetate extractant. *Plant Soil* 68(1): 135–138.
- Chattha, M.U., A. Ali & M. Bilal. 2007. Influence of planting techniques on growth and yield of spring planted sugarcane (*Saccharum officinarum* L.). *Pak. J. Agri. Sci.* 44(3): 3–7.

- Cheong, L.R.N., K.F.N.K. Kwong, & C.C.D. Preez. 2009. Effects of sugar cane (*Saccharum hybrid sp.*) cropping on soil acidity and exchangeable base status in Mauritius. *South African J. Plant Soil* 26(1): 9–17.
- Cherubin, M. R., D. L.Karlen, A. L. C.Franco, C. E. P. Cerri, C. A. Tormena & C.C. Cerri. 2016. A soil management assessment framework (SMAF) evaluation of brazilian sugarcane expansion on soil quality. *Soil Science Society of America Journal*, 0(0). 0.
- Christofoletti, C.A., J.P. Escher, J.E. Correia, J.F.U. Marinho, & C.S. Fontanetti. 2013. Sugarcane vinasse: Environmental implications of its use. *Waste Manag.* 33(12): 2752–2761.
- Coale, F.J., C.A. Sanchez, F.T. Izuno, & A.B. Bottcher. 1993. Nutrient accumulation and removal by sugarcane grown on everglades histosol. *Agron. J.* 85: 310–315.
- Darmawijaya, M.I. 1990. *Klasifikasi Tanah: Dasar Teori Bagi Peneliti Tanah dan Pelaksana Pertanian di Indonesia*. Gadjah Mada University Press. Yogyakarta. 411 p.
- Datta, S.P., R.K. Rattan, & S. Chandra. 2010. Labile soil organic carbon, soil fertility, and crop productivity as influenced by manure and mineral fertilizers in the tropics. *J. Plant Nutr. Soil Sci.* 173(5): 715–726.
- De Moraes, E.R., J.G. Mageste, R. M. Q. Lana, J. L. R. Torres, L.A.D.S. Domingues, E.M. Lemes & L. C. De Lima. 2019. Sugarcane root development and yield under different soil tillage practices. *Revista Brasileira de Ciencia Do Solo*, 43: 1–10.
- Dengia, A., & E. Lantinga. 2016. Impact of long-term conventional cropping practices on some soil quality indicators at Ethiopian wonji sugarcane plantation. *Adv. Crop Sci. Technol.* 04(03).
- Dengiz, O., M. Sağlam, & F. Türkmen. 2015. Effects of soil types and land use - land cover on soil organic carbon density at Madendere watershed. *Eurasian J. Soil Sci.* 4(2): 82–87.
- Dermoredjo, S.K., & K. Noekman. 2006. Analisis penentuan indikator utama pembangunan sektor pertanian di indonesia: pendekatan analisis komponen utama. *SOCA Socioecon. Agric. Agribus.* 6(2): 1–26.
- Devianti, O.K., & I.T.D. Tjahjaningrum. 2017. Studi laju dekomposisi serasah pada hutan pinus di Kawasan Wisata Taman Safari Indonesia II Jawa Timur. *J. Sains dan Seni ITS.* 6(2): 87–91.

- Diana, N.E., Supriyadi & Djumali. 2016. Pertumbuhan, Produktivitas, dan Rendemen Pertanaman Tebu Pertama (Plant Cane) pada Berbagai Paket Pemupukan. *J. Ilmu Pertan. Indones.* 21(3): 159–166.
- Dias, K.G.D.L., P.T.G. Guimarães, A.E.F. Neto, H.R.O.D. Silveira & J.J.D.J. Lacerda. 2017. Effect of magnesium on gas exchange and photosynthetic efficiency of coffee plants grown under different light levels. *Agriculture.* 7(10): 1–11.
- Djaenudin, D., H. Marwan, H. Subagjo, & A. Hidayat. 2011. Petunjuk Teknis Evaluasi Lahan Untuk Komoditas Pertanian. Balai Penelitian Tanah. Balai Besar Litbang Sumberdaya Lahan Pertanian. Bogor.
- Djajadi & A.S. Murdiyati. 2000. Hara dan Pemupukan Tembakau Temanggung. Monograf Balai Penelitian Tanaman Tembakau dan Serat. 5: 32–39.
- Djumali, A.D. Khuluq, & S. Mulyaningsih. 2016. Pertumbuhan dan produktivitas tebu pada beberapa paket tata tanam di lahan kering. *J. Agron. Indones.* 44(2): 211–219.
- Dominy, C.S., R.J. Haynes, & R. Van Antwerpen. 2002. Loss of soil organic matter and related soil properties under long-term sugarcane production on two contrasting soils. *Biol. Fertil. Soils.* 36: 350–356.
- dos Santos, E.A., A.A.F. de Almeida, M.C. da Silva Branco, I.C. dos Santos, D. Ahnert, *et al.* 2018. Path analysis of phenotypic traits in young cacao plants under drought conditions. *PLoS One.* 13(2): 1–16.
- Dotaniya, M.L., S.C. Datta, D.R. Biswas, C.K. Dotaniya, B.L. Meena, *et al.* 2016. Use of sugarcane industrial by-products for improving sugarcane productivity and soil health. *Int. J. Recycl. Org. Waste Agric.* 5(3): 185–194.
- Eleftheriadis, A., F. Lafuente, & M. Turrión. 2018. Effect of land use , time since deforestation and management on organic C and N in soil textural fractions. *Soil Tillage Res.* 183(January): 1–7.
- El-Sharkawi, H.M. 2012. Effect of nitrogen sources on microbial biomass nitrogen under different soil types. *ISRN Soil Sci.* 1–7.
- Endres, L., S.J.S. da Cruz, R.D. Vilela, J.M. dos Santos, G.V. de S. Barbosa, *et al.* 2016. Foliar applications of calcium reduce and delay sugarcane flowering. *Bioenergy Res.* 9(1): 98–108.
- Erariska, S. Bali, & A. Hanifah. 2015. Pertumbuhan tanaman dan hasil umbi daun dewa (*Gynura procumbens back.*) pada berbagai intensitas cahaya dan pemangkasan daun plant. *Vegetalika* 2(1): 123–129.
- Escudero-Almanza, D.J., D.L. Ojeda-Barrios, O.A. Hernández-Rodríguez, E.

- Sánchez Chávez, T. Ruíz-Anchondo, *et al.* 2012. Carbonic anhydrase and zinc in plant physiology. *Chil. J. Agric. Res.* 72(1): 140–146.
- Eyheraguibel, B., J. Silvestre & P. Morard. 2008. Effects of humic substances derived from organic waste enhancement on the growth and mineral nutrition of maize. *Bioresour. Technol.* 99(10): 4206–4212
- Fadilah, A.P., S. Darmanto, & S. Haryanti. 2020. Pengaruh penyiraman air cucian beras fermentasi satu hari dan fermentasi lima belas hari terhadap kadar pigmen fotosintetik dan pertumbuhan vegetatif tanaman sawi hijau (*Brassica juncea* L.) effects of watering for one day fermented rice washing and fift. *Bioma* 22(1).
- Fageria, N.K., A.B. Dos Santos, & M.F. Moraes. 2010. Influence of urea and ammonium sulfate on soil acidity indices in lowland rice production. *Commun. Soil Sci. Plant Anal.* 41(13): 1565–1575.
- Fageria, N.K., V.C. Baligar, & R.B. Clark. 2002. Micronutrients in crop production. *Adv. Agron.* 77: 185–268.
- Fahmi, A. 2011. Dinamika jerapan permukaan kompleks Fe oksida-senyawa humat. *J. Sumberd. Lahan* 5(2): 75–82.
- FAO. 2017. Soil Organic Carbon the Hidden Potential. Food and Agriculture Organization of The United Nations.
- Fard, F. F., B. Mirshekari & R. Amirnia. 2014. Multiple regression analysis for studied traits in intercropping of popcorn and cowpea. *International Journal of Biosciences (IJB)*. 116–120.
- Fiorini, A., R. Boselli, S. Amaducci & Tabaglio, V. 2018. Effects of no-till on root architecture and root-soil interactions in a three-year crop rotation. *European Journal of Agronomy*, 99: 156–166.
- Firdaus, G.M. 2018. The effect of biofertilizer and inorganic fertilizer on the vegetative growth of sugarcane (*Saccharum officinarum*). *J. Appl. Phys. Sci.* 4(1): 1404–1411.
- Firmansyah, I., & N. Sumarni. 2013. Pengaruh dosis pupuk N dan varietas terhadap pH tanah, N-total tanah, serapan N, dan hasil umbi bawang merah (*Allium ascalonicum* L.) pada tanah entisols-Brebes Jawa Tengah (effect of N fertilizer dosages and varieties on soil pH, soil total-N), N U. *J. Hortik.* 23(4): 358–364.
- Foth, H.D. 1994. *Dasar-dasar Ilmu Tanah*. Edisi keenam. Erlangga, Jakarta. 374 p.

- Franco, A.L.C., M.R. Cherubin, P.S. Pavinato, C.E.P. Cerri, J. Six, *et al.* 2015. Soil carbon, nitrogen and phosphorus changes under sugarcane expansion in Brazil. *Sci. Total Environ.* 515–516: 30–38.
- Franco, H.C.J., E. Mariano, A.C.Vitti, C.E.Faroni, R. Otto, *et al.* 2011a. Sugarcane response to boron and zinc in Southeastern Brazil. *Sugar Tech* 13(1): 86–95.
- Franco, H.C.J., R. Otto, C.E.Faroni, A.C. Vitti, E.C.A. d. Oliveira, *et al.* 2011b. Nitrogen in sugarcane derived from fertilizer under Brazilian field conditions. *F. Crop. Res.* 121(1): 29–41.
- Franzluebbers, A.J., F.M. Hons, & D.A. Zuberer. 1994. Long-term changes in soil carbon and nitrogen pools in wheat management systems. *Soil Sci. Soc. Am. J.* 1645: 1639–1645.
- Gardner, F.P., R.B. Pearce & R.L. Mitchell. 1991. *Physiology of Crop Plant*. Alih bahasa. Susilo, H. 1991. UI Press, Jakarta. 428 p.
- Garside, A.L., M.J. Bell, B.G. Robotham, R.C. Magarey, & G.R. Stirling. 2005. Managing yield decline in sugarcane cropping systems. *Int. Sugar J.* 107: 16–26.
- Garusti, G., Y. A. Yogi & N. Nurindah. 2019. Analysis of Tanjung Sugar quality of three sugarcane varieties. *Jurnal Littri*, 25(2), 91–99.
- Ghaemi, M., A. R. Astaraei, H. Emami, M. Nassiri Mahalati & S. H. Sanaeinejad. 2014. Determining soil indicators for soil sustainability assessment using principal component analysis of Astan Quds- east of Mashhad- Iran. *Journal of Soil Science and Plant Nutrition*, 14(4), 987–1004.
- Ghaffar, A. 2013. Yield and Quality of Sugarcane as Influenced by Different Doses of Potash and Its Time of Application. *Pakistan J. Agric. Sci.* 50(3): 345–350.
- Gilkes, R.J., & N. Prakongkep. 2016. How the unique properties of soil kaolin affect the fertility of tropical soils. *Appl. Clay Sci.* 131: 100–106.
- Girmay, G., B.R. Singh, H. Mitiku, T. Borresen, & R. Lal. 2008. Carbon stocks in Ethiopian soils in relation to land use and soil management. *L. Degrad. Dev.* 19(4): 351–367.
- Golchin, A., P. Clarke, J.M. Oades, & J.O. Skjemstad. 1995. The effects of cultivation on the composition of organic matter and structural stability of soils. *Aust. J. Soil Res.* 33(6): 975–993.

- Gonzalez-Prieto, S. J., M.C. Villar, M. Carballas & T. Carballas. 1992. Nitrogen mineralization and its controlling factors in various kinds of temperate humid-zone soils. *Plant and Soil*. 144: 31–44.
- Gopalasundaram, P., A. Bhaskaran & P. Rakkiyappan. 2012. Integrated Nutrient Management in Sugarcane. *Sugar Tech* 14(1): 3–20.
- Goundar, M.S., R.J. Morrison & C. Togamana. 2014. Phosphorus requirements of some selected soil types in the Fiji sugarcane belt. *South Pacific J. Nat. Appl. Sci.* 32(1): 1.
- Guan, D., M. M. Al-Kaisi, Y. Zhang, L. Duan, W. Tan, M. Zhang & Z. Li. 2014. Tillage practices affect biomass and grain yield through regulating root growth, root-bleeding sap and nutrients uptake in summer maize. *Field Crops Research*. 157:89–97.
- Guddadamath, S.G., S.B. Patil, & B.M. Khadi. 2013. Association studies among cane yield and their components in sugarcane (*Saccharum officinarum* L.). *Plant Arch.* 13(2): 789–794.
- Gunawan, G., N. Wijayanto & S.W. Budi. 2019. Karakteristik sifat kimia tanah dan status kesuburan tanah pada agroforestri tanaman sayuran berbasis *Eucalyptus* sp. *Silvikultur Trop. - J. Trop. Silv. Sci. Technol.* 10(2): 63–69.
- Guo, W., H. Nazim, Z. Liang & D. Yang. 2016. Magnesium deficiency in plants: an urgent problem. *The Crop Journal*. 4 (2): 83–91.
- Hadi, M. 2005. Teknik berkebun kelapa sawit. Adicita Karya Nusa. Yogyakarta. 176 p.
- Hadisaputro, S., K. Rochiman, & M. Pdn. 2008. Kajian peran hara nitrogen dan kalium terhadap aktivitas phosphoenolpyruvate carboxylase di dalam daun tebu keprasan varietas M 442-51 dan PS 60 the roles of nitrogen and potassium in the leaves of ratoon crop M 442-51 and PS 60 sugarcane varieties. *J. ILMU DASAR* 9: 62–71.
- Hagos, H., L. Mengistu & Y. Mequanint. 2014. Determining Optimum Harvest Age of Sugarcane Varieties on the Newly Establishing Sugar Project in the Tropical Areas of Tendaho, Ethiopia. *Adv. Crop Sci. Technol.* 02(05): 2–5.
- Hajek, B.F., F. Adams, & J.T. Cope. 1972. Rapid Determination of Exchangeable Bases, Acidity, and Base Saturation for Soil Characterization. *Soil Sci. Soc. Am. Proc* 36: 436-438.
- Hakim, M. 2010. Potensi Sumber Daya Lahan untuk Tanaman Tebu di Indonesia. *Potensi Sumber Daya Lahan untuk Tanam. Tebu di Indones.* 21(1): 5–12.

- Hamarashid, N.H., M.A. Othman, & M.-A.H. Hussain. 2010. Effects of Soil Texture on Chemical Compositions, Microbial Populations and Carbon Mineralization in Soil. *J. Exp. Biol* 6(1): 59–64.
- Hamid, A.M.A., Y.M.I. Dagash, & O.A. Ahmed. 2014. Impact of sulphur fertilizer on sugarcane performance under heavy clay soils “Vertisols”, Sudan. *J. Agric. Environ. Sci.* 3(1): 1–9.
- Hamida, R., & C. Suhara. 2019. Pengaruh Sugarcane Streak Mosaic Virus terhadap anatomi dan kadar klorofil daun beberapa aksesori tebu. *J. Ilmu-ilmu Hayati (Berita Biol)*. 18(1): 37–45.
- Hanafiah, K.A. 2005. *Dasar-Dasar Ilmu Tanah*. Rajagrafindo Persada. Jakarta. 360 p.
- Hannachi, A., Z. E. A. Fellahi, H. Bouzerzour, & A. Boutekrabt. 2013. Correlation, path analysis and stepwise regression in durum wheat (*Triticum Durum* Desf.) under rainfed conditions. *Journal of Agriculture and Sustainability*, 3(2), 122–131.
- Hanudin, E. 2000. *Pedoman Analisis Kimia Tanah*. Jurusan Tanah Fakultas Pertanian. Universitas Gadjah Mada. Yogyakarta.
- Hardjowigeno, S. 2003. *Klasifikasi Tanah dan Pedogenesis*. Akademika Pressindo. Jakarta. 354p.
- Harjanti, R.A., Tohari, & S.N.H. Utami. 2014. Pengaruh takaran pupuk nitrogen dan silika terhadap pertumbuhan awal (*Saccharum officinarum* L.) pada Inceptisol. *Vegetalika* 3(2): 3–4.
- Harrison, D.F., K.C. Cameron, & R.G. McLaren. 1994. Effects of subsoil loosening on soil physical properties, plant root growth, and pasture yield. *New Zeal. J. Agric. Res.* 37(4): 559–567.
- Hartina, F., A.Jannah & A. Maunatin. 2014. Fermentasi tetes tebu dari pabrik gula pagotan madiun menggunakan *Saccharomyces cerevisiae* untuk menghasilkan bioetanol dengan variasi pH dan lama fermentasi. *Alchemy*. 3: 93–100.
- Hartono, D., D. Kastono, & R. Rogomulyo. 2016. Pengaruh jenis bahan tanam dan takaran kompos blotong terhadap pertumbuhan awal tebu (*Saccharum officinarum* L.) effect of the type of planting material and rates of compost filter cake at the early growth of sugarcane (*Saccharum officinarum* L.). *Vegetalika*. 5(2): 14–25.

- He, Z., T. Ohno, B.J. Cade-Menun, M.S. Erich, & C.W. Honeycutt. 2006. Spectral and chemical characterization of phosphates associated with humic substances. *Soil Sci. Soc. Am. J.* 70(5): 1741.
- Hepper, E.N., D.E. Buschiazzo, G.G. Hevia, A. Urioste, & L. Antón. 2006. Clay mineralogy, cation exchange capacity and specific surface area of loess soils with different volcanic ash contents. *Geoderma*. 135: 216–223.
- Herlambang, S., A. Maas, S. N. H. Utami, F. Pertanian, *et al.* 2017. Karakterisasi asam humat dan asam fulvat pada ultisol dengan pemberian limbah segar organik dan pengalengan nenas. *J. Tanah dan Air*. 14: 83–90.
- Holilullah, Afandi, & H. Novpriansyah. 2015. Karakteristik Sifat Fisik Tanah Pada Lahan Produksi Rendah. *J. Agrotek Trop.* 3(2): 278–282.
- Hu, S., D.Coleman, P. Hendrix, & M.H. Beare. 1995. Biotic manipulation effects on soil carbohydrates and microbial biomass in a cultivated soil. *Soil Biol. Biochem.* 27(9): 1127–1135.
- Huber, D.M. & J.B. Jones. 2013. The role of magnesium in plant disease. *Plant and Soil*. 368 (1–2): 73–85.
- Ikhtiyanto, R.E. 2010. Pengaruh Pupuk Nitrogen dan Fosfor terhadap Pertumbuhan Dan Produksi Tebu. IPB, Bogor.
- Indarto. 1996. Produksi gula tebu lahan kering dengan aplikasi dua macam bentuk urea dan perbedaan waktu pemupukan urea tahap pertama. *Jurnal Agrotropika I*. 1: 1–3.
- Indrawanto, C., Purwono, Siswanto, M. Syakir & W. Rumini. 2010. Budidaya dan Pasca Panen Tebu. ESKA Media, Jakarta.
- Iqbal, S.B., F. Muhammad, & I. Tontowi. 2012. Desain proses pengelolaan limbah vinasse dengan metode pemekatan dan pembakaran. *J. Tek. POMITS* 1(1): 1–6.
- Irianto, W., & S. Surmaini. 2002. Analisis potensi dan kebutuhan air untuk menyusun rekomendasi irigasi suplementer tanaman tebu lahan kering. *J. Tanah dan Iklim*: 1–12. < [http : // repository. pertanian. go.id / bitstream/handle/123456789/2423/ Analysis on Water Potential and Requirement for Recommending Supplementary Irrigation on Upland Sugarcane. pdf?](http://repository.pertanian.go.id/bitstream/handle/123456789/2423/Analysis%20on%20Water%20Potential%20and%20Requirement%20for%20Recommending%20Supplementary%20Irrigation%20on%20Upland%20Sugarcane.pdf?Sequence=1) Sequence = 1 >.
- Ismail, I.S. & S.E. Saputro. 1990. Kajian tentang Masa Tanam dan Umur Tebang dari Dua Varietas Unggul Q 90 dan PS 61 di Tanah Ultisol PG. Bunga Mayang. *Majalah Perusahaan Gula*. 26 (4): 7–12.

- James, G. 2004. Sugarcane. Blackwell, Kundli.
- Jansen van Rensburg, H.G., A.S. Claassens, & D.J. Beukes. 2009. Relationships between soil buffer capacity and selected soil properties in a resource-poor farming area in the Mpumalanga Province of South Africa. *South African J. Plant Soil* 26(4): 237–243.
- Jiang, Z.P., Y.R. Li, G.P. Wei, Q. Liao, T.M. Su, *et al.* 2012. Effect of long-term vinasse application on physico-chemical properties of sugarcane field soils. *Sugar Tech* 14(4): 412–417.
- Jindo, K., T. Hernández, C. García, & M.A. Sánchez-Monedero. 2011. Influence of stability and origin of organic amendments on humification in semiarid soils. *Soil Sci. Soc. Am. J.* 75(6): 2178–2187.
- Juarti. 2016. Analisis indeks kualitas tanah andisol pada berbagai penggunaan lahan di desa Sumber Brantas kota Batu. *Jurnal Pendidikan Geografi: Kajian, Teori, dan Praktek dalam Bidang Pendidikan dan Ilmu Geografi*. 21 (2): 131–144.
- Kadarwati, F.T. 2016. Evaluasi Kesuburan Tanah untuk Pertanaman tebu di Kabupaten Rembang, Jawa Tengah. *J. Litri* 22(2): 53–62.
- Kadarwati, T.F. 2020. Effect of different levels of potassium on the growth and yield of sugarcane ratoon in inceptisols. *IOP Conf. Ser. Earth Environ. Sci.* 418(1).
- Karlen, D.L., M.J. Mausbach, J.W. Doran, R.G. Cline, R.F. Harris, *et al.* 1997. Soil quality: a concept, definition, and framework for evaluation (a guest editorial). *Soil Sci. Soc. Am. J.* 61(1): 4.
- Karlen, D.L., S.S. Andrews, B.J. Wienhold, & T.M. Zobeck. 2008. Soil quality assessment : past, present and future. *J. Integr. Biosci.* 6(1): 3–14.
- Katz, J.J., J.R. Norris, L.L. Shipman, M.C. Thurnauer, & M.R. Wasielewski. 1978. Chlorophyll function in the photosynthetic reaction center. *Annu. Rev. Biophys. Bioeng.* 7: 393–434.
- Kawuyo, G.M., & A.C. Wada. 2004. Performance of Some Promising Sugarcane Varieties in the Vertisols and Alluvial Soils at Numan , Nigeria. *Sugar T* 6(4): 311–316.
- Kertonegoro, B. D. 1993. Laporan Pengabdian Masyarakat : Pelestarian Air Pada Tanah Marginal Berpasir Menggunakan Tanah Bertekstur Lebih Halus Yang Dicampurkan. Jurusan Tanah Fakultas Pertanian, Universitas Gadjah Mada. Yogyakarta.
- Khodijah, N.S., R.A. Suwignyo, M.U. Harun, & L. Robiartini. 2018. Hubungan luas

daun terhadap berat kering rumput gajah di berbagai perlakuan di media tailing timah. Jur. Agroekotek 10(1): 279–288.

Konwar, M., & G.D. Baruah. 2013. A possible realization of chlorophyll laser. Optics and Photonics Journal. 3: 385–387.

Kuntohartono, T. 1982. Pedoman Budidaya Tebu Lahan Kering. Lembaga Pendidikan Perkebunan. Yogyakarta.

Kusumawati, A., E. Hanudin, B.H. Purwanto, & M. Nurudin. 2020. Composition of organic C fractions in soils of different texture affected by sugarcane monoculture. Soil Sci. Plant Nutr. 66(1): 206–213.

Lakitan, B. 1996. Fisiologi Pertumbuhan dan Perkembangan Tanaman. Raja Grafindo Persada. Jakarta. 218 p.

Leghari, S.J., N.A. Wahocho, G.M. Laghari, A. HafeezLaghari, G. MustafaBhabhan, *et al.* 2016. Role of nitrogen for plant growth and development : a review. Adv. Environ. Biol. 10(9): 209–219.

Leite, J.M., I.A. Ciampitti, E. Mariano, M.X. Vieira-Megda, & P.C.O. Trivelin. 2016. Nutrient partitioning and stoichiometry in unburnt sugarcane ratoon at varying yield levels. Front. Plant Sci. 7(APR2016).

Leiwakabessy, F.M., U.N. Wahjudin & Suwamo. 2003. Kesuburan Tanah. Jurusan Tanah. Fakultas Pertanian Institut Pertanian Bogor. Bogor.

Leovini, H., D. Kastono, & J. Widada. 2014. Pengaruh pemberian jamur mikoriza arbuskular, jenis pupuk fosfat dan takaran kompos terhadap pertumbuhan bibit tebu (*Saccharum officinarum* L.) pada media pasir pantai. Vegetalika 3(1): 22–34.

Li, H., Y. Han, & Z. Cai. 2003. Nitrogen mineralization in paddy soils of the Taihu Region of China under anaerobic conditions: dynamics and model fitting. Geoderma 115(3–4): 161–175.

Li, X., Z. Rengel, E. Mapfumo & B. Singh. 2007. Increase in pH stimulates mineralization of native organic carbon and nitrogen in naturally salt-affected sandy soils. Plant Soil. 290: 269–282.

Liu, J., Z. Wang, F. Hu, C. Xu, R. Ma, *et al.* 2020. Soil organic matter and silt contents determine soil particle surface electrochemical properties across a long-term natural restoration grassland. Catena. 190(26): 104526.

Lou, Y., J. Wang, & W. Liang. 2011. Impacts of 22-year organic and inorganic N managements on soil organic C fractions in a maize field, northeast China. Catena 87(3): 386–390.

- Lu, C., J. Zhang, Q. Zhang, L. Li, & T. Kuang. 2001. Modification of photosystem II photochemistry in nitrogen deficient maize and wheat plants. *J. Plant Physiol.* 158(11): 1423–1430.
- Lugato, E., F. Morari, S. Nardi, A. Berti, & L. Giardini. 2009. Relationship between aggregate pore size distribution and organic–humic carbon in contrasting soils. *Soil Tillage Res.* 103(1): 153–157.
- Machado, R.M.A., & R.P. Serralheiro. 2017. Soil salinity: Effect on vegetable crop growth. Management practices to prevent and mitigate soil salinization. *Horticulturae* 3(2).
- Mackowiak, C.L., P.R. Grossl, & B.G. Bugbee. 2001. Beneficial effects of humic acid on micronutrient availability to wheat. *Soil Sci. Soc. Am. J.* 65(6): 1744–50.
- Magandi, F.I., & Purwono. 2019. Correlation of Nitrogen Fertilization dosage on Yield and Sugar Content of Sugarcane (*Saccharum officinarum* L.). *Bul. Agrohorti* 7(2): 224–229.
- Maisura, M., M.A. Chozin, I. Lubis, A. Junaedi, & H. Ehara. 2017. Laju Asimilasi Bersih dan Laju Tumbuh Relatif Varietas Padi Toleran Kekeringan Pada Sistem Sawah. *J. Agrium* 12(1).
- Maman, G., S. Idriss, & C. Wortmann. 2018. Crop yield response to fertilizer relative to soil properties in Sub-Saharan Africa. *Soil Science Society of America Journal.* 82(4):862–870.
- Manalu, L.P. 2006. Studi kasus penentuan rendemen tebu di Pabrik Gula BUMN. *J. Keteknikan Pertan.* 20(1).
- Mangansige, C.T., N.S. Ai, & P. Siahaan. 2018. Panjang dan volume akar tanaman padi lokal Sulawesi Utara saat kekeringan yang diinduksi dengan polietilen glikol 8000. *J. MIPA* 7(2): 12.
- Marin, F. R., J. Ignacio, R. Edreira, J. Andrade, & P. Grassini. 2019. Field Crops Research On-farm sugarcane yield and yield components as influenced by number of harvests. *Field Crops Research*, 240:134–142.
- Marriott, E.E., & M. Wander. 2006. Qualitative and quantitative differences in particulate organic matter fractions in organic and conventional farming systems. *Soil Biol. Biochem.* 38(7): 1527–1536.
- Marriott, E.E., & M.M. Wander. 2006. Total and labile soil organic matter in organic and conventional farming systems. *Soil Sci. Soc. Am. J.* 70(3): 950.
- Marschner, H. 1995. Mineral Nutrition of Higher Plants. 2nd Edition. Academic Press. London. 889 p.

- Marschner, P., & Z. Rengel. 2011. Nutrient Availability in Soils. Elsevier Ltd.
- Marzadori, C., L.V. Antisari, C. Ciavatta, & P.Sequi. 1991. Soil organic matter influence on adsorption and desorption of boron. Soil Sci. Soc. Am. J. 55(1975): 1582–1585.
- Masto, R.E., P.K. Chhonkar, D. Singh, & A.K. Patra. 2008. Alternative soil quality indices for evaluating the effect of intensive cropping, fertilisation and manuring for 31 years in the semi-arid soils of India. Environ. Monit. Assess. 136(1–3): 419–435.
- Mastur, M. 2016. Respon Fisiologis Tanaman Tebu Terhadap Kekeringan. Buletin Tanaman Tembakau, Serat & Minyak Industri, 8(2), 98–111.
- Mastur, Syafaruddin, & M. Syakir. 2016. Peran dan pengelolaan hara nitrogen pada tanaman tebu untuk peningkatan produktivitas tebu. Perspektif 14(2): 73.
- Matichenkov, V.V., & D.V. Calvert. 2002. Silicon as a Beneficial Element for Sugarcane. J. Am. Soc. Sugar Cane Technol. 22: 21–29.
- Mayer, Z., Z. Sasvári, V. Szentpéteri, B.P. Rétháti, B. Vajna, et al. 2019. Effect of long-term cropping systems on the diversity of the soil bacterial communities. Agronomy 9(12).
- McCray, J.M., & G. Powell. 2016. Sugarcane yield response to potassium on A Florida Histosol. J. Am. Soc. Sugar Cane Technol. 36: 9–18.
- Meade, G.P., & J.C.P. Chen. 1977. Cane Sugar Handbook. John Wiley & Sons. New York. 947 p.
- Mellis, E.V., J.A. Quaggio, G.R.G. Becari, L.A.J. Teixeira, H. Cantarella, et al. 2016. Effect of micronutrients soil supplementation on sugarcane in different production environments: cane plant cycle. Agron. J. 108(5): 2060.
- Mengel, K. & E.A. Kirkby. 1982. Principle of Plant nutrition 3rd Edition. International Potash Institute. Switzerland. 849 p.
- Minasny, B., & A.B. McBratney. 2018. Limited effect of organic matter on soil available water capacity. Eur. J. Soil Sci. 69(1): 39–47.
- Minhal, F., A. Ma'as, E. Hanudin, & P. Sudira. 2020. Improvement of the chemical properties and buffering capacity of coastal sandy soil as affected by clays and organic by-product application. Soil Water Res. 15(No. 2): 93–100.
- Misra, V., S. Solomon, A. Hashem, E.F. Abd_Allah, A.F. Al-Arjani, et al. 2020. Minimization of post-harvest sucrose losses in drought affected sugarcane using chemical formulation. Saudi J. Biol. Sci. 27(1): 309–317.

- Mitsui, S., & M. Ueda. 1963. Cation exchange capacity of crop roots in relation with ion uptake. *Soil Sci. Plant Nutr.* 9(1): 5–12.
- Mozumder, S., M. Moniruzzaman, & G. Halim. 2007. Effect of N, K and S on the yield and storability of transplanted onion (*Allium cepa* L.) in the hilly region. *J. Agric. Rural Dev.* 5: 58–63.
- Mtambanengwe, F., & P. Mapfumo. 2008. Smallholder farmer management impacts on particulate and labile carbon fractions of granitic sandy soils in Zimbabwe. *Nutr. Cycl. Agroecosystems.* 81(1): 1–15.
- Mubarak, A.R., O.M.E. Elshami, & A.A. Azhari. 2005. Long- and short-term effects of cultivation on properties of a Vertisol under sugarcane plantation. *Soil Tillage Res.* 84: 1–6.
- Mubyarto. 1991. Usaha Tebu dan Indutri Gula di Jawa. LP3E Fakultas Ekonomi UGM. Yogyakarta.
- Muhammad, H., A. Rochim, S. Sabiham & H. Adijuwana. 2000. Serapan maksimum sulfat pada tanah vertisol, inceptisol dan entisol dari kabupaten jeneponto. *Jurnal Tanah Tropika.* 10: 153–159.
- Muindi, E.M. 2019. Understanding soil phosphorus. *Int. J. Plant Soil Sci.* 31(2): 1–18.
- Mukherjee, A., & R. Lal. 2014. Comparison of soil quality index using three methods. *PLoS One.* 9(8).
- Mulyana, W. 2001. Teori dan Praktek Cocok Tanam Tebu dengan Segala Masalahnya. Aneka Ilmu. Semarang.
- Mulyono, D. 2011. Analisis Kesesuaian Lahan dan Evaluasi Jenis Tanah dalam Budidaya Tanaman Tebu untuk Pengembangan Daerah Kabupaten Tegal. *J. Sains dan Teknol. Indones.* 13(2): 116–123.
- Munir, M. 1996. Tanah-Tanah Utama Indonesia. Pustaka Jaya, Jakarta. 346 p.
- Muscolo, A., M. Sidari, E. Attinà, O. Francioso, V. Tugnoli, *et al.* 2007. Biological activity of humic substances is related to their chemical structure. *Soil Sci. Soc. Am. J.* 71(1): 75.
- Muttaqin, L., D. Kastono, & W. Sulistyono. 2016. Pengaruh jarak tanam terhadap pertumbuhan awal lima klon tebu (*Saccharum officinarum* L.) asal bibit mata tunas tunggal di lahan kering alfisol effect of intra-row spacing on early growth of bud chip seedlings of five sugarcane (*Saccharum officinarum* L). *Vegetalika* 5(2): 49–61.
- Mwende, E.M. 2019. Understanding soil phosphorus. *Int. J. Plant Soil Sci.* 31(2): 1–18.

- Nastaro, B., E. Mariano, R. Antunes, P. Cesar, & O. Trivelin. 2019. Plant physiology and biochemistry influence of nitrate - ammonium ratio on the growth , nutrition , and metabolism of sugarcane. *Plant Physiol. Biochem.* 139: 246–255.
- Nelson, P.N., & N. Su. 2010. Soil pH buffering capacity: A descriptive function and its application to some acidic tropical soils. *Aust. J. Soil Res.* 48(3): 201–207.
- Nikmah, N.L., & Anom. 1991. Respon Pertumbuhan Vegetatif dan Kadar Gula Tanaman Tabu (*Saccharum officinarum* L) Terhadap Suplai Nitrogen. 10: 1–5.
- Ningrum, M.K., T. Sumarni, & Sudiarso. 2014. Pengaruh naungan pada teknik pembibitan bud chip tiga varietas tebu (*Saccharum officinarum* L.). *J. Produksi Tanam.* 2(3): 260–267.
- Nogueirol, R. C., C. E. P. Cerri, W. T. L. da Silva, & L. R. F. Alleoni. 2014. Effect of no-tillage and amendments on carbon lability in tropical soils. *Soil & Tillage Research.* 143: 67–76.
- Nurcholis, M. 2005. Some Properties and Problems of Smectite Minerals in Java Soils. *J. Ilmu Tanah dan Lingkungan.* 5(2): 63–70.
- Nurhananto, D.A., & B. Siswanto. 2016. Hubungan Kelas Kesesuaian Lahan Tanaman Tebu dengan Rendemen dan Keuntungan. 16(1): 45–56.
- Nurida, N., & K. Undang. 2009. Perubahan agregat tanah pada ultisols Jasinga terdegradasi akibat pengolahan tanah dan pemberian bahan organik. *J. tanah dan iklim* 30: 37–46. < <https://media.neliti.com/media/publications/134838-ID-none.pdf>. >.
- Nursyamsi, D. 2011. Mekanisme pelepasan K terfiksasi menjadi tersedia bagi pertumbuhan tanaman pada tanah-tanah yang didominasi smektit. *J. Sumberd. Lahan* Vol. 5: 61–74.
- Nursyamsi, D., & Suprihati. 2005. Sifat-sifat Kimia dan Mineralogi Tanah serta Kaitannya dengan Kebutuhan Pupuk untuk Padi (*Oryza sativa*), Jagung (*Zea mays*), dan Kedelai (*Glycine max*) Soil Chemical and Mineralogical Characteristics and Its Relationship and Soybean (*Glycine max*). *Bul. Agron.* 47(33): 40–47.
- Nursyamsi, D., K. Idris, S. Sabiham, D.. Rachim, & A. Sofyan. 2008. Pengaruh asam oksalat, Na⁺, NH₄⁺, dan Fe³⁺ terhadap ketersediaan K tanah, serapan N, P, dan K tanaman, serta produksi jagung pada tanah-tanah yang didominasi smektit. *Indones. Soil Clim. J.* (28): 69–82.

- Oliveira, R.I. De, M. Rodrigo, F. Amaral, C. Soares, F.J. Freire, *et al.* 2016. Nutrient partitioning and nutritional requirement in sugarcane. *Aust. J. Crop Sci.* 10(1): 69–75.
- Pancelli, M.A., R. de M. Prado, R.A. Flores, H.J. de Almeida, L.R. Moda, *et al.* 2015. Growth, yield and nutrition of sugarcane ratoon as affected by potassium in a mechanized harvesting system. *Aust. J. Crop Sci.* 9(10): 915–924.
- Pandey, D.K., S. Kumar, P.K. Singh, & J.S. 2011. The Association of Sugarcane Technologists of India. *Indian J. Sugarcane Technol.* 27: 48–53.
- Panggabean, R.J., M. Meiriani, & C. Hanum. 2017. Respons pertumbuhan bibit bud sets tebu terhadap dosis dan frekuensi pemberian pupuk N, P dan K. *J. Agroekoteknologi* 5(4): 774–779.
- Parlak, M., & A.Ö. Parlak. 2011. Effect of soil compaction on root growth and nutrient uptake of forage crops. *J. Food, Agric. Environ.* 9(3–4): 275–278.
- Patti, P.S., E. Kaya, & C. Silahooy. 2018. Analisis status nitrogen tanah dalam kaitannya dengan serapan N oleh tanaman padi sawah di Desa Waimital, Kecamatan Kairatu, Kabupaten Seram Bagian Barat. *Agrologia.* 2 (1): 51–58.
- Pembengo, W., Handoko, & Suwanto. 2012. Efisiensi penggunaan cahaya matahari oleh tebu pada berbagai tingkat pemupukan nitrogen dan fosfor. *J. Agron. Indones.* 40(3): 211–217.
- Pincus, L.N., P.C. Ryan, F.J. Huertas, & G.E. Alvarado. 2017. The influence of soil age and regional climate on clay mineralogy and cation exchange capacity of moist tropical soils : a case study from Late Quaternary chronosequences in Costa Rica. *Geoderma.* 308: 130–148.
- Prado, R.D.M., G. Caione, & C.N.S. Campos. 2013. Filter cake and vinasse as fertilizers contributing to conservation agriculture. *Appl. Environ. Soil Sci.* 2013: 1–8.
- Pramuhadi, G. 2009. Mekanisasi Usahatani Budidaya Tebu Lahan Kering. *Pangan VIII.* 55: 60–65.
- Prasetyo, B.H. 2007. Perbedaan sifat-sifat tanah vertisol dari berbagai bahan induk. *Jurnal Ilmu-Ilmu Pertanian Indonesia.* 9 (1): 20–31.
- Prasetyo, B.H. 2009. Tanah merah dari berbagai bahan induk di Indonesia: prospek dan strategi pengelolaannya. *J. Sumberd. Lahan* 3(1): 47–60.
- Pruett, R.J. 2016. Kaolin deposits and their uses: Northern Brazil and Georgia, USA. *Appl. Clay Sci.* 131: 3–13.

- Pusat Penelitian Perkebunan Gula Indonesia (P3GI). 2017. Rendemen. <
<https://www.p3gi.co.id/id/artikel/detail/rendemen>> diakses 2 Maret 2017.
- Putri, A.D., S. Sudiarso & T. Islami. 2013. Pengaruh komposisi media tanam pada teknik bud chip tiga varietas tebu (*Saccharum officinarum* L.). Jurnal Produksi Tanaman. 1 (1): 16–22.
- Qongqo, L., & R. Antwerpen. 2000. Effect of Long-Term Sugarcane Production on Physical and Chemical Properties of Soils in KwaZulu-Natal. Proc S Afr Sug Technol Ass. 114–121.
- Rae, A.L., C.P.L. Grof, R.E. Casu, & G.D. Bonnett. 2005. Sucrose accumulation in the sugarcane stem: Pathways and control points for transport and compartmentation. F. Crop. Res. 92(2-3 SPEC. ISS.): 159–168.
- Ram, L.C. 1980. Cation exchange capacity of plant roots in relation to nutrients uptake by shoot and grain as influenced by age. Plant and Soil. 55 (2): 215–222.
- Ramadhan, I.C., Taryono, & R. Wulandari. 2014. Keragaan pertumbuhan dan rendemen lima klon tebu (*Saccharum officinarum* L.) di ultisol, vertisol, dan inceptisol. Vegetalika. 3(4): 77–87.
- Rassam, G., A. Dadkhah, & A.K. Yazdi. 2015. Impact of humic acid on yield and quality of sugar beet (*Beta vulgaris* L.) grown on calcareous soil. Not. Sci. Biol. 7(3): 367–371.
- Ratmini, S. 2014. Peluang peningkatan kadar seng (Zn) pada produk serealia. Prosiding Seminar Nasional Lahan Suboptimal 2014. Palembang. 674–684.
- Raviv, M., S. Medina, A. Krasnovsky, & H. Ziadna. 2004. Organic matter and nitrogen conservation in manure compost for organic agriculture. Compost Sci. Util. 12(1): 6–10.
- Ren, B., X. Li, S. Dong, P. Liu, B. Zhao, & J. Zhang. 2018. Soil physical properties and maize root growth under different tillage systems in the North China Plain. Crop Journal. 6(6):669–676.
- Rerkasem, B., & S. Jamjod. 2004. Boron deficiency in wheat: A review. F. Crop. Res. 89 (2–3): 173–186.
- Ribeiro, M. S., A. T. Netto, T. R. do Couto, J. R. da Silva, F. A. M. M. de Assis Figueiredo, R. J. M. C. Nogueira, D. M. Glenn & E. Campostrini. 2014. Partial rootzone drying in sugarcane (*Saccharum officinarum* L.): effects on gas exchange, growth and water use efficiency. Theoretical and Experimental Plant Physiology, 26(3–4): 251–262.

- Riwandi. 2010. Identifikasi dan Interpretasi Indikator Kesehatan Tanah. Seminar Nasional dan Kongres Masyarakat Konservasi Tanah dan Air Indonesia.
- Riyono, S.H. 2007. Beberapa sifat klorofil fitoplankton. *Oseana*. 32 (1): 23–31.
- Robertson, M. J., N. G. Inman-Bamber, R. C. Muchow, & A. W. Wood. 1999. Physiology and productivity of sugarcane with early and mid-season water deficit. *Field Crops Research*, 64(3), 211–227.
- Rochimah, N.R., S. Soemarno, & A.W. Muhaimin. 2015. Pengaruh perubahan iklim terhadap produksi dan rendemen tebu di Kabupaten Malang. *J. Pembang. dan Alam Lestari* 6(2): 171–180.
- Rosmarkam, A. & N.W. Yuwono. 2002. Ilmu kesuburan tanah. Kanisius. Yogyakarta. 224 p.
- Saleem, M.A., A. Ghaffar, S.A. Anjum, M. Cheema, & M.F. Bilal. 2012. Effect of nitrogen on growth and yield of sugarcane. *J. Am. Soc. Sugar Cane Technol.* 32: 75–93.
- Salisbury, F.B. & C.W. Ross. 1995. Fisiologi Tumbuhan, Biokimia Tumbuhan. Penerbit ITB. Bandung. 173 p.
- Sanches, G. M., P. S. G. Magalhães, & H. C. J. Franco. 2019. Site-specific assessment of spatial and temporal variability of sugarcane yield related to soil attributes. *Geoderma*, 334:90–98.
- Sanjaya, T.P., J. Syamsiah, D.P. Ariyanto, & Komariah. 2014. Pelindian unsur kalium (K) dan natrium (Na) material vulkanik hasil erupsi Gunung Merapi 2010. *Caraka Tani-Jurnal Ilmu-Ilmu Pertan.* 29(2): 87–95.
- Santana, A.C. d. A., E.C.A. de Oliveira, V.S.G. da Silva, R.L. Dos Santos, M.A. da Silva, *et al.* 2020. Critical nitrogen dilution curves and productivity assessments for plant cane. *Rev. Bras. Eng. Agric. e Ambient.* 24(4): 244–251.
- Santoso, B.E. 2011. Analisis Kualitas Nira dan Bahan Alur untuk Pengawasan Pabrikasi di Pabrik Gula. Pusat Penelitian Perkebunan Gula Indonesia (P3GI). Pasuruan.
- Shalsabila, F., S. Prijono, & Z. Kusuma. 2017. Pengaruh aplikasi biochar kulit kakao terhadap kemantapan agregat dan produksi tanaman jagung pada Ultisol Lampung Timur. *J. Tanah dan Sumberd. Lahan* 4(1): 473–480.
- Siddiqi, M.I. 1969. *Sugarcane Cultivation in The Indus Valley*. Bangalore Printing & Publishing Co. Pakistan. 26 p.
- Siddique, M., J. Sultana, & M. Abdullah. 2017. Aggregate stability: an indicator of

- quality and resistivity of Arable Soil. *Asian J. Soil Sci. Plant Nutr.* 1(2): 1–7.
- Simangunsong, S.M., E. Efendi, & S. Safruddin. 2018. Kajian pertumbuhan dan produksi tanaman kangkung (*Ipomoea reptans* Poir) terhadap pemberian berbagai jenis pupuk organik dan pupuk N. *Agrica* 14(2): 100.
- Singh, D.P., J. Beloy, J.K. McInerney, & L. Day. 2012. Impact of boron, calcium and genetic factors on vitamin C, carotenoids, phenolic acids, anthocyanins and antioxidant capacity of carrots (*Daucus carota*). *Food Chem.* 132(3): 1161–1170.
- Singh, H., Y.Singh, & K.K.Vashist. 2005. Evaluation of Pressmud Cake as Source of Phosphorus for Rice-Wheat Rotation. *J. Sustain. Agr.* 26(4): 23–42.
- Singh, K. P., A. Suman, P. N. Singh, & M. Lal. 2007. Yield and soil nutrient balance of a sugarcane plant-ratoon system with conventional and organic nutrient management in sub-tropical India. *Nutrient Cycling in Agroecosystems.* 79(3): 209–219.
- Singh, V.K., & S. Rajan. 2009. Changes in Photosynthetic Rate , Specific Leaf Weight and Sugar Contents in Mango (*Mangifera indica* L .). *Horticulture*: 40–43.
- Singh, V.K., A.K.Shukla, M.S.Gill, S.K.Sharma, & K.N.Tiwari. 2008. Improving sugarcane productivity through balanced nutrition with potassium, sulphur, and magnesium. *Better Crop. IPNI.* 2(1): 12–14.
- Siswanto, P.D., D. Kastono, & N.W. Yuwono. 2019. Pengaruh aplikasi tiga jenis arang dan klon terhadap pertumbuhan vegetatif dan serapan unsur silika (Si) tebu (*Saccharum officinarum* L.) PT. Perkebunan Nusantara X Jengkol Kediri. *Vegetalika* 8(3): 192.
- Sitompul, S. M. & B. Guritno. 1991. *Analisa Pertumbuhan Jilid I. Diktat Kuliah.* Fakultas Pertanian. Universitas Brawijaya. Malang.
- Sitompul, S.M. & B. Guritno. 1995. *Analisa Pertumbuhan Tanaman.* Gadjah Mada University Press. Yogyakarta. 412 p.
- Six, J., H. Bossuyt, S. Degryze, & K. Denef. 2004. A history of research on the link between (micro)aggregates, soil biota, and soil organic matter dynamics. *Soil Tillage Res.* 79(1): 7–31.
- Six, J., R.T. Conant, E.A. Paul, & K. Paustian. 2002. Stabilization mechanisms of soil organic matter: Implications for C-saturation of soils. *Plant Soil* 241: 155–176.

- Smith, D. M., Inman-Bamber, N. G., & Thorburn, P. J. 2005. Growth and function of the sugarcane root system. *Field Crops Research*, 92(2-3 SPEC. ISS.), 169–183.
- Snyman, S. J., C. Baker, B. I. Hockett, S. A. McFarlane, T. Van Antwerpen, S. Berry, J. Omarjee, R. S. Rutherford, & D. A. Watt. 2008. South African Sugarcane Research Institute: Embracing biotechnology for crop improvement research. *Sugar Tech*. 10(1): 1–13.
- Soejono, A.T. 2004. Kajian jarak antarbaris tebu dan jenis tanaman palawija dalam pertanaman tumpangsari. *Ilmu Pertan*. 11(1): 32–41.
- Soil Survey Staff. 2014. Kunci Taksonomi Tanah. Edisi Ketiga, 2015. Balai Besar Penelitian dan Pengembangan Sumberdaya Lahan Pertanian, Badan Penelitian dan Pengembangan Pertanian.
- Solanki, M.K., Z. Wang, F.Y. Wang, C.N. Li, T.J. Lan, *et al*. 2016. Intercropping in sugarcane cultivation influenced the soil properties and enhanced the diversity of vital diazotrophic bacteria. *Sugar Tech* 19(2): 1–12.
- Soon, Y.K., M.A. Arshad, A. Haq & N. Lupwayi. 2007. The influence of 12 years of tillage and crop rotation on total and labile organic carbon in a sandy loam soil. *Soil and Tillage Research*. 95: 34–46.
- Srivastava, A.K. 1992. Cation- exchange capacity of roots in relation to response of fertilizer nutrients in salt- affected soil. *Indian J. Agric. Sci*. 63(3): 200–204.
- Srivastava, A.K., & M.K. Rai. 2012. Sugarcane production: impact of climate change and its mitigation. *Biodiversitas* 13(4): 214–227.
- Stewart, B.A. 1985. *Advances in Soil Science*. Springer Verlag, New York.
- Subardja, D., S. Ritung, M. Anda, Sukarman, E. Suryani, & R.E. Subandiono. 2016. Petunjuk Teknis Klasifikasi Tanah Nasional. Edisi Ke-2. Balai Besar Penelitian dan Pengembangan Sumberdaya Lahan Pertanian, Badan Penelitian dan Pengembangan Pertanian, Bogor. 60 hal.
- Subbarao, G. V., O. Ito, W.L. Berry, & R.M. Wheeler. 2003. Sodium - A Functional Plant Nutrient. *CRC. Crit. Rev. Plant Sci*. 22(5): 391–416.
- Subiyanto, 2017. Analisis Keragaman Parameter Penentu Rendemen Gula Kristal Putih pada Pabrik Gula BUMN. *Majalah Ilmiah Pengakajian Industri*. 11 (1): 1–10.
- Sudiatso, S. 1982. Bertanam Tebu. Departemen Agronomi. Institut Pertanian Bogor, Bogor. Sudiatso, S. 1999. Tanaman bahan baku pemanis dan produksi pemanis. Departemen Budidaya pertanian. Institut Pertanian Bogor, Bogor.

- Sugirahayu, L., & O. Rusdiana. 2011. Perbandingan simpanan karbon pada beberapa penutupan lahan di Kabupaten Paser, Kalimantan Timur berdasarkan sifat fisik dan sifat kimia tanahnya. *Silvikultur Trop. - J. Trop. Silv. Sci. Technol.* 2(3).
- Sumarni, N., R. Rosliani, R.S. Basuki, & Y. Hilman. 2013. Respons tanaman bawang merah terhadap pemupukan fosfat pada beberapa tingkat kesuburan lahan (status P-Tanah). *J. Hortik.* 22(2): 130.
- Supriyadi, A.D. Khuluq, & Djumali. 2018. Pertumbuhan, produktivitas dan hasil hablur klon tebu masak awal-tengah di tanah inceptisol. *J. Agron. Indones.* 46(2): 208.
- Supriyadi, I.A. Mustikaningrum, A. Herawati, P. Purwanto, & S. Sumani. 2018. Soil quality assessment in organic and non organic paddy fields in Susukan, Indonesia. *Bulg. J. Agric. Sci.* 24(5): 777–784.
- Supriyadi, S. 2009. Status unsur-unsur basa (Ca^{2+} , Mg^{2+} , K^{+} , and Na^{+}) di lahan kering Madura. *Agrovigor.* 2(1979 5777): 35–41.
- Surya, J.A., & Y. Nuraini. 2017. Kajian porositas tanah pada pemberian beberapa jenis bahan organik di perkebunan kopi robusta. *J. tanah dan Sumberd. Lahan* 4(1): 463–471.
- Suryanto, P., T. Tohari, E. Putra, & T. Alam. 2017. Soil quality assessment for yield improvement of clove, cacao and cardamom agro-forestry system in Menoreh Mountains Area, Indonesia. *Journal of Agronomy*, 16(4), 160–167.
- Susanti, H., S.A. Aziz, M. Melati, & S. Susanto. 2013. Aplikasi pupuk nitrogen+kalium melalui tanah dan daun terhadap produksi protein dan antosianin pucuk layak jual kolesom (*Talinum triangulare* (Jacq.) Willd). *EnviroScienteeae* 9: 140–146.
- Susila dan Sinaga, B.M. 2005. Pengembangan Industri Gula Indonesia yang Kompetitif Pada Situasi Persaingan yang Adil. *J. Litbang Pertan.* 24(1): 1–9.
- Sutanto, R. 2005. Dasar-Dasar Ilmu Tanah: Konsep dan Kenyataan. Kanisius. Yogyakarta. 208 p.
- Suwardi. 2009. Teknik aplikasi zeolit di bidang pertanian. *J. Zeolit Indones.* 8(1): 33–38.
- Swapna, S.S.M., V. Tong, X. Yi, & Y. Mon. 2016. Devf Sugar Industry in ASEAN CountrieDevelopment of Sugar Industry in ASEAN Countriess. *Sugar Tech.* 18(6): 559–575.

- Takoutsing, B., J.C. Weber, Z. Tchoundjeu, & K. Shepherd. 2016. Soil chemical properties dynamics as affected by land use change in the humid forest zone of Cameroon. *Agrofor. Syst.* 90(6): 1089–1102.
- Tan. K.H. 1994. *Environmental Soil Science*. Marcel Dekker. Inc. New York. 304 p.
- Tangketasik, A., N.M. Wikarniti, N.N. Soniari, & I.W. Narka. 2012. Kadar bahan organik tanah pada tanah sawah dan tegalan di Bali serta hubungannya dengan tekstur tanah. *Agrotrop J. Agric. Sci.* 2(2): 101–107.
- Tariq, M., & C.J.B. Mott. 2007. The Significance of Boron in Plant Nutrition and Enviroment. *J. Agron.* 1–10.
- Taufiq, A., H. Kuntastuti, C. Prahoro, & T. Wardani. 2007. Pemberian kapur dan pupuk kandang pada kedelai di lahan kering masam. *J. Penelit. Pertan. Tanam. Pangan* 26(1): 78–85.
- Teruel, D.A., V. Barbieri, & L.A. Ferraro Jr. 1997. Sugarcane leaf area index modeling under different soil water conditions. *Sci. Agric.* 54(spe): 39–44.
- Tesfaye, W., K. Kibebew, B. Bobe, T. Melesse, & E. Teklu. 2020. Effects of long term sugarcane production on soils physicochemical properties at Finchaa sugar Estate. *J. Soil Sci. Environ. Manag.* 11(1): 30–40.
- Tirado-Corbalá, R., R.G. Anderson, D. Wang, & J.E. Ayars. 2015. Soil carbon and nitrogen stocks of different hawaiian sugarcane cultivars. *Agronomy* 5(2): 239–261.
- Toharisman, A., & Triantarti. 2016. An overview of sugar sector in Indonesia. *Sugar Tech* 18(6): 636–641.
- Trolove, S.N. & J.B. Reid. 2012. What is the critical leaf magnesium concentration to identify magnesium deficiency in meyer lemon New Zealand. *Journal Of Crop And Horticultural Science.* 40 (2): 139–146.
- Tsintskaladze, G., L. Eprikashvili, T. Urushadze, T. Kordzakhia, T. Sharashenidze, *et al.* 2016. Nanomodified natural zeolite as a fertilizer of prolonged activity. *Ann. Agrar. Sci.* 14(3): 163–168.
- USDA. 2009. *Soil Quality Indicators: Physical, Chemical, and Biological Indicators for Soil Quality Assessment and Management*.
- Utomo, B., Y. Nuraini, & W. Widiyanto. 2015. Kajian kemantapan agregat tanah pada pemberian beberapa jenis bahan organik di perkebunan kopi robusta. *J. Tanah dan Sumberd. Lahan* 2(1): 111–117.

- Van Der Heijden, M.G.A., R.D. Bardgett, & N.M. Van Straalen. 2008. The unseen majority: Soil microbes as drivers of plant diversity and productivity in terrestrial ecosystems. *Ecol. Lett.* 11(3): 296–310.
- Vasu, D., S.K. Singh, S.K. Ray, V.P. Duraisami, P. Tiwary, *et al.* 2016. Soil quality index (SQI) as a tool to evaluate crop productivity in semi-arid Deccan plateau, India. *Geoderma*. 282: 70–79.
- Veith, R., & E. Komor. 1993. Regulation of growth, sucrose storage and ion content in sugarcane cells, measured with suspension cells in continuous culture grown under nitrogen, phosphorus or carbon limitation. *Journal of Plant Physiology*. 142(4):414–424.
- Verma, A.K., S.K. Upadhyay, P.C. Verma, S. Solomon, & S.B. Singh. 2011. Functional analysis of sucrose phosphate synthase (SPS) and sucrose synthase (SS) in sugarcane (*Saccharum*) cultivars. *Plant Biol.* 13(2): 325–332.
- Vinhal-Freitas, I.C., G.F. Corrêa, B. Wendling, L. Bobuľská, & A.S. Ferreira. 2017. Soil textural class plays a major role in evaluating the effects of land use on soil quality indicators. *Ecol. Indic.* 74: 182–190.
- Vipin, S.K.S., & K.C.K. Jha. 2016. Effect of Integrated use of bio-compost and nitrogen on productivity and soil properties of sugarcane plant – ratoon system in calcareous soil. *Sugar Tech.*
- Wahyuni, T., H. Kusnadi & B. Honorita. 2017. Status Unsur Hara Karbon Organik dan Nitrogen Tanah Sawah Tiga Kabupaten di Provinsi Bengkulu: Pengembangan Ilmu dan Teknologi Pertanian Bersama Petani Lokal untuk Optimalisasi Lahan Suboptimal. *Prosiding Seminar Nasional Lahan Suboptimal*. 726–730.
- Wal, A., Van Der, & W. De Boer. 2017. Soil Biology & Biochemistry Dinner in the dark : Illuminating drivers of soil organic matter decomposition. *Soil Biol. Biochem.* 105: 45–48.
- Wang, H., T.W. Boutton, W. Xu, G. Hu, P. Jiang, *et al.* 2015. Quality of fresh organic matter affects priming of soil organic matter and substrate utilization patterns of microbes. *Sci. Rep.* 5(May).
- White, P.J., & M.R. Broadley. 2003. Calcium in plants. *Ann. Bot.* 92(4): 487–511.
- Wirawan, B.D.S., E.T.S. Putra, & P. Yudono. 2016. Pengaruh pemberian magnesium, boron dan silikon terhadap aktivitas fisiologis, kekuatan struktural jaringan buah dan hasil pisang (*Musa acuminata*) “Raja Bulu.”

Vegetalika 5(4): 1–14.

- Xiang, Y., J. Ji-Yun, H. Ping, & L. Ming-zao. 2008. Recent advances on the technologies to increase fertilizer use efficiency. *Agric. Sci. China* 7(4): 469–479.
- Xu, J., K. Wang, R. Bell, Y. Yang, & L. Huang. 2001. Soil Boron Fractions and Their Relationship to Soil Properties. *Soil Sci. Soc. Am. J.* 65: 133–138.
- Yadav, R. L., & S. R. Prasad. 1992. Conserving the organik matter content of the soil to sustain sugarcane yield. *Expl Agric.* 28: 57–62.
- Yang, J., Z. He, Y. Yang, P. Stoffella, X. Yang, *et al.* 2007. Use of amendments to reduce leaching loss of phosphorus and other nutrients from a sandy soil in Florida. *Environ. Sci. Pollut. Res.* 14(4): 266–269.
- Yao, R., J. Yang, P. Gao, J. Zhang, & W. Jin. 2013. Determining minimum data set for soil quality assessment of typical salt-affected farmland in the coastal reclamation area. *Soil Tillage Res.* 128: 137–148.
- Zhao, D., K.R. Reddy, V.G. Kakani, J.J. Read, & G.A. Carter. 2003. Corn (*Zea mays* L.) growth, leaf pigment concentration, photosynthesis and leaf hyperspectral reflectance properties as affected by nitrogen supply. *Plant Soil* 257(1): 205–218.
- Zheng, Z., L.E. Parent, & J.A. MacLeod. 2003. Influence of soil texture on fertilizer and soil phosphorus transformations in gleysolic soils. *Can. J. Soil Sci.* 83(4): 395–403.
- Zhou, M.M., & E.T. Gwata. 2015. Location effects and their implications in breeding for sugarcane yield and quality in the midlands region in South Africa. *Crop Sci.* 55(6): 2628–2638.