DAFTAR PUSTAKA

Abdian, P.L., J. J. Caramelo., N. Ausmees., A. Zorreguieta., 2013. RapA2 is a calcium-binding lectin composed of two highly conserved cadherin-like domains that specifically recognize Rhizobium leguminosarum acidic exopolysaccharides. J. Biol. Chem. 288 (4). 2893–2904.

Abdurachman, A., A. Dariah & A.Mulyani, 2008. Strategi dan teknologi pengelolaan lahan kering mendukung pengadaan pangan nasional, J. Litbang Pertanian 27(2):43-49.

Ahmed, S., A.Rafay., S.K. Singh & U.K. Verma., 2010. Response of groundnut varieties to spacing. Indian Journal Agron.31. 248 – 251.

Arora, S., & D. S. Chahal. 2014. Forms of boron in alkaline alluvial soils in relation to soil properties and their contribution to available and total boron pool. Communications in soil science and plant analysis, 45(17), 2247-2257.

Asante, M., B.D.K. Ahiabor., W.K. Atakora. 2020. Growth, nodulation, and yield responses of groundnut (*Arachis hypogaea* L.) as influenced by combined application of Rhizobium inoculant and phosphorus in the Guinea savanna zone of Ghana, Intern. J. Agron.7.

Bailey, D. G., M. V. Lupulescu., R. S. Darling., J. W. Singer., & S. C. Chamberlain. 2019. A review of boron-bearing minerals (excluding tourmaline) in the Adirondack region of New York State. Minerals 9 (10): 644.

Balqies, S.C., S. Prijono, dan I.M. Sudiana. 2018. Pengaruh Zeolit dan Kompos Terhadap Retensi Air, Kapasitas Tukar Kation, dan Pertumbuhan Tanaman Sorgum (*Sorghum Bicolor* (L.) Moench) Pada Ultisol. Jurnal Tanah dan Sumberdaya Lahan 5: 755-764.

Barber, J. L., U. Berger., C. Chaemfa., S. Huber., A. Jahnke., C. Temme., & K. C. Jones. 2007. Analysis of per-and polyfluorinated alkyl substances in air samples from Northwest Europe. Journal of environmental monitoring 9(6): 530-541.

Barrow, N. J. 1989. Testing a mechanistic model. X. The effect of pH and electrolyte concentration on borate sorption by a soil. J. Soil Sci. 40. 427-435.

BassiriRad, H. 2005. Nutrient Acquisition by Plants: An Ecological Perspective.Springer-Verlag. Berlin.

Bell, R., W. McLay., L. Plaskett., D. Dell B & J. F. Loneragan. 1990. Internal boron requirements of green gram (Vigna radiata). In Plant Nutrition - Physiology and Application. Ed. M L van Beu- sichem. pp 275-280. Kluwer Academic Publishers, Dordrecht. The Netherland.

Bell, D., P. Tikuisis., & I. Jacobs. 1992. Relative intensity of muscular contraction during shivering. J. Appl. Physiol. 72: 2336–2342.

Bell, R.W., 1997. Diagnosis and prediction of boron deficiency for plant production. Plant and Soil. 193.(1).

Bergmann, W. 1992. Nutritional Disorders of Plants Colour Atlas. Gustav Fischer Verlag Jena, Stuttgart.

Bertham, R.R.Y.H., E.E. Ningrum., R.T. Adiprasetyo. 2022. Pengaruh pupuk mikro majemuk dan asam humat terhadap ketersediaan p dan hasil padi gogo di lahan pesisir. Jurnal Ilmu Ilmu Pertanian Indonesia. 24(2). 75-81.

Bhupenchandra, I., A. Basumatary., S. Dutta., A.Das., A. K. Choudhary & A. L. Rattan., 2024. Repercussions of fertilization with boron and enriched organic manure on soil chemical characteristics, boron and phosphorus fractions, and French bean productivity in an acidic Inceptisol of eastern Himalaya. Scientia Horticulturae Volume 324 (1).

Bogiani, J.C., T.F.Sampai., C.H. Abreu-Junior & C.A.Rosolem. 2014. Boron uptake and translocation in some cotton cultivars. Plant Soil 375. 241–253.

Bot, A. & J. Benites. 2005. The Importance of Soil Organic Matter, Key to Drought-resistant Soil and Sustained Food Production. Food and Agriculture Organization of the United Nations.

Bradford, G. R. 1966. Boron. In: Chapman HD (ed) Diagnostic Criteria for Plants and Soils. Univ of California, Div Agr Sciences. Pp 33-61.

Brown, H.P., N. Bellaloui., A.M. Wimmer., E.S. Bassil., J. Ruiz., H. Hu., H. Pfeffer., F. Dannel & V. Römheld. 2002. Boron in plant biology. Plant Biol.4. 205–223.

Builes, V. H. R., j. Kusters., E. Thiele & L. A. L. Varon. 2024. Boron Nutrition in Coffee Improves Drought Stress Resistance and, Together with Calcium, Improves Long-Term Productivity and Seed Composition. Agronomy.14. 474.

Chatterjee, C., P. Sinha., S.C. Agarwala., 1990. Interactive effect of boron and phosphorus on growth and metabolism of maize grown in refined sand. Can. J. Plant Sci. 70. 455–460.

Chen, X., M. S. Smith., S. Shabala &M. Yu., 2023. Phytohormones in plant responses to boron deficiency and toxicity. J. Exp. Bot. 74. 743–754.

Cheng, Y., J. Wang., S.X. Chang., Z.C. Cai., C. Muller & J.B. Zhang., 2019. Nitrogen deposition affects both net and gross soil nitrogen transformations in forest ecosystems: A review. Environ. Pollut. 244, 608–616.

Chung, J. B. and R. J. Zasoski., 1994. Ammonium-potassium and ammonium-calcium exchange equilibria in bulk and rhizosphere soil. Soil Sci. Soc. Am. J. 58: 1368–1375.

Clapp, C., E., M.H.B. Hayes., A.J. Simpson and W.L. Kingery. 2005. Chemistry of soil organic matter. In Tabatabai, M. A. and Sparks, D. L. (eds.) Chemical Processes in Soils. Soil Sci. Soc. Am., Inc., Madison.

Coldbach, H. E.,1997. A critical review on current hypotheses concerning the role of boron in higher plants: suggestions for fur- ther research and methodological requirements. J. Yrace and Mi- croprobe Yech. 15, 51 – 91.

Dabessa, A., Z. Abebe., S. Bekele., 2018. Limitations and strategies to enhance biological nitrogen fixation in sub-humid tropics of Western Ethiopia. J. Agric. Biotech 10 (7). 122–131.

Darlita, R.R., B. Joy & R. Sudirja. 2017. Analisis beberapa sifat kimia tanah terhadap peningkatan produksi kelapa sawit pada tanah pasir di perkebunan kelapa sawit Selangkun, Agrikultura, 28(1): 15–20.

Debnath, P., S. K. Pattanaaik., D. Sah., G. Chandra., & A. K. Pandey. 2018. Effect of boron and zinc fertilization on growth and yield of cowpea (*Vina unguiculata* Walp.) in inceptisols of arunachal pradesh. J. of Indian Society of Soil 66 (2):229-234.

Dechen, A. R., Q. A. D. C. Carmello., F. A. Monteiro., & R. C. Nogueirol. 2015. Role of magnesium in food production: an overview. Crop and Pasture Science, 66(12), 1213-1218.

Dhakal, D., S. C. Shah., D. M. Gautam & R. N. Yadav. 2009. Response of cauliflower (*Brassica oleracea var. Botrytis*) to the application of boron and phosphorus in the soils of Rupandehi District. Nepal Agric. Res. J. 9. 56–66.

Dhaliwal, S.S., R.K. Naresh., A. Mandal., R. Singh & M.K. Dhaliwal. 2019. Dynamics and transformations of micronutrients in agricultural soils as influenced by organic matter build-up: A review. Environ. Sustain. Indicat. 1-2.

Ding, G.D., Z.K. Zhao., Y. Liao., Y.F. Hu., L. Shi., Y. Long., F.S. Xu. 2012. Quantitative trait loci for seed yield and yield-related traits, and their responses to reduced phosphorus supply in Brassica napus. Ann. Bot. 109. 747–759.

Dwivedi, P. and R.S. Dwivedi. 2012. Physiology of abiotic stress in plants. Agrobios, Jodhpur, India.

El- Ghamry, A. M., K. M. A. El-Hai., & K. M. Ghoneem. 2009. Amino and humic acids promote growth, yield and disease resistance of faba bean cultivated in clayey soil. Aust. J. Basic Appl. Sci 3(2): 731-739.

FAO (Food and Agricultural Organization). 2021. Report- FAOSTAT Production Year.

Farrasati, R., I. Pradiko., S. Rahutomo., E. S. Sutarta., H. Santoso & F. Hidayat. 2019. C-organik di Perkebunan Kelapa Sawit Sumatera Utara: Status hubungan dengan beberapa sifat kimia tanah. Jurnal Tanah dan Iklim 43: 157-165.

Fatima., Zarrin., M. Zia & M. F. Chaudhary. 2007. Interactive effect of Rhizobium strains and P on soybean yield, N fixation and soil fertility. Pakistan Journal of Botany, 39: 255.

Fernando, L & F.Carlos., 2022. Cotton yield and boron dynamics affected by cover crops and boron fertilization in a tropical sandy soil. Field Crops Research.284.

Gani, A. 2009. Potensi Arang Hayati Biochar Sebagai Komponen Teknologi Perbaikan Produktivitas Lahan Pertanian. Iptek Tanaman Pangan 4(1): 33-48.

Gao, Y., Y. Zhang. X. Ge. Y. Gong. H. Chen. J. Su. B. Xi & W. Tan. 2024. Efficient recovery and characterization of humic acids from municipal and manure composts: A comparative study. Waste Management 172 (2023): 245–255.

Genuino, D.A.D., B.G. Bataller., S.C. Capareda & M.D.G. De Luna. 2017. Application of artificial neural network in the modeling and optimization of humic acid extraction from municipal solid waste biochar. J. Environ. Chem. Eng. 5. 4101–4107.

Glaser B, Lehmann J, Steiner C, Nehls T, Yousaf M, and Zech. 2002 Potential of pyrolyzed organic matter in soil amelioration. In: People's Republic of China Ministry of Water Resources (ed) 12th International Soil Conservation Organization Conference, Beijing, China.

Goldberg, S., 2007. Reactions of boron with soil. Plant and Soil 193: 35-48.

Goldberg, S. & D. L. Suarez. 2014. A new soil test for quantitative measurement of available and adsorbed boron. Soil Sci. Soc. Am. J. 78. 480−485.

Goldsworthy, P. R., & N. M. Fisher. 1984. The Physiology of Tropical Field. John Wiley & Sons All Rights reserved. New York.

García-Sa´nchez, F., S. Simo´n-Grao., J. J. Martínez-Nicol´as., M. Alfosea-Simo´n., C. Liu., C. Chatzissavvidis., J. M. Ca´mara-Zapata. 2020. Multiple stresses occurring with boron toxicity and deficiency in plants. J. Hazard Mater. 397. 122713.

Günes, A.& M. Alpaslan., 2000. Boron uptake and toxicity in maize genotypes in relation to boron and phosphorus supply. J. Plant Nutr. 23: 541–550.

Gupta, U., C. Y.W. James., C.A. Campbell., A.J. Leyshon & W. Nicholaichuk.1985. Boron toxicity and deficiency: a review. Can. J. Soil Sci. 65, 381-409.

Gupta, U. C.,1979. Boron nutrition of crops. Adv. Agron. 31. 273-307.

Han, S., L. S. Chen., H. X. Jiang., B. R. Smith., L. T. Yang., & C. Y. Xie. 2008. Boron deficiency decreases growth and photosynthesis and increases starch and hexoses in leaves of citrus seedlings. J. Plant Physiol. 165: 1331–1341.

Hanafiah, K.A. 2005. Dasar-Dasar Ilmu Tanah. Raja Grafindo Persada, Jakarta.

Hanafiah, K. A. 2014. Dasar-dasar Ilmu Tanah. PT. Raja Grafindo Persada. Jakarta.

Hanum, C. 2014. Pertumbuhan, Hasil, dan Mutu Biji Kedelai dengan Pemberian Pupuk Organik dan Fosfor. Jurnal Agronomi Indonesia 41(3): 209–214.

Harahap, S.S., 2019. Hubungan usia, tingkat pendidikan, kemampuan bekerja dan masa bekerja terhadap kinerja pegawai dengan menggunakan metode pearson correlation. Jurnal Teknovasi.6(2):12-26.

Hardjowigeno, S.1993. Klasifikasi tanah dan pedogenesis. Edisi ke-1 Cetakan ke-1. Akademika Pressindo, Jakarta.

Hardjowigeno, S. 1987. Ilmu Tanah. Mediyatama Sarana Perkasa. Jakarta.

Hasnain, A., S. Mahmood., S. Akhtar., S.A. Malik & N, Bashir. 2011. Tolerance and toxicity levels of boron in mung bean (*Vigna radiata* (L.) Wilczek) cultivars at early growth stages. Pakistan Journal of Botany 43 (2): 1119 – 1125.

Havlin, J.L., J. D, Beaton., S.L.Tisdale, and W,L, Nelson, 1999, Soil Fertility and Fertilizers, An Introduction to Nutrient Management, Sixth Edition, Prentice Hall, Upper Saddle River, New Jersey 07458.

Havlin, J.L., Tisdale, S.L., Nelson, W.L., and J.D Beaton. 2010. Soil Fertility and Fertilizers. (6th edition). Prentice-Hall of India. Prt Ltd. New Delhi.

Hilman, Y & Suwandi 1990, Pengaruh penggunaan pupuk N dan dosis P terhadap pertumbuhan dan hasil tanaman bawang merah. Buletin Penelitian Hortikultura. 19(1).

Hunt, N, and R. Gilkes. 1992. Farm Monitoring Handbook, The University of Western Australia: Nedlands, WA.

Hussain, R.M., 2017. The Effect of phosphorus in nitrogen fixation in legumes. Agric. Res. Technol. Open Access J. 5 (1), 12–14. Jones, C.A., 1983. Effect of soil texture on critical bulk densities for root growth. Soil Sci. Soc. Am. J. 47 (6), 1208–1211.

Ibrahim, N. K., & H. A. K. A. Farttoosi. 2019. Response of mung bean to boron nanoparticles and spraying stages (*Vigna radiata* L.). J. Plant Archives 19 (2): 712 – 715.

Imoukhuede, O.B., J. T. Fasinmirin., G.M. Olayanju & O.T. Faloye. 2024. Growth and yield of groundnut (Arachnis hypogeal) in bituminous soils of Southern Ondo State, Nigeria. Ecological Frontiers.44. 403–413.

Indra, B. B. P., R. T. Purnamasari., & S. H. Pratiwi. 2019. Pengaruh dosis asam humat terhadap pertumbuhan dan hasil tanaman kacang tanah (*Arachis hypogea* L.). Agrosaintifika: Jurnal Ilmu-Ilmu Pertanian 2(1): 98–102.

Irfan, M., M. Abbas., J. A. Shah., N. DepaR., M. Y. Memon & N.A. Sial., 2019. Interactive effect of phosphorus and boron on plant growth, nutrient accumulation and grain yield of wheat grown on calcareous soil. Eur. J. Soil Sci. 8. 17–26.

Kabir, R., S. Yeasmin., A. K. M. M. Islam., & A. Sarkar. 2013. Effect of phosphorus, calcium and boron on the growth and yield of groundnut (*Arachis hypogaea* L.). International Journal of Bio-Science and Bio-Technology 5 (3):51-57.

Karti, P. D. M. H., I. Prihantoro., & M. A. Setiana. 2018. Evaluation of arbuscular mycorrhizal fungi inoculum on production and nutrient content of Pennisetum purpureum. Tropical Animal Science Journal 41(2): 114-120.

Kasno, A. 2009. Respon tanaman jagung terhadap pemupukan fosfor pada Typic Dystrudepts. J Tanah Tropika. 14(2):111-118.

Kaya, C., A.L. Tuna., M. Dikilitas., M. Ashraf., S. Koskeroglu & M. Guneri. 2009. Supplementary phosphorus can alleviate boron toxicity in tomato. Sci. Hortic. 121. 284–288.

Keerati-Kasikorn, P., R. W. Bell., P. Panya., R. Gilmour & J. F. Loneragan. 1993. Comparison of seed yield and quality of peanut {*Arachis hypogaea* L.) cultivare in low fertility soils and their response to boron and complete fertiliser. In Plant Nutrition - from Genet- ic Engineering to Field Practice. Ed. N J Barrow, pp 409-412.

Kumar, V., S. Pandita., R. Kaur, A. Kumar., & R. Bhardwaj. 2022. Biogeochemical cycling, tolerance mechanism and phytoremediation strategies of boron in plants: A critical review. Chemosphere 300: 134505.

Kumar, J.P., B.K. Agarwal., A. Kumar., D.K. Shahi., S.B. Kumar., S.Karmakar., C.S. Singh., S. Verma & M. Denre. 2022. Impact of boron and calcium on growth and yield of groundnut (*Arachis hypogaea* L.) under red and lateritic soils of Jharkhand, India. The Pharma Innovation Journal 2022. 11(3): 314-323

Kurniawan, I., L. Afa & D.N. Yusuf.2022. Respon pertumbuhan kacang tanah (*Arachis hypogaea* L.) Pada berbagai dosis bokashi limbah ampas tahu dan pupuk fosfat. Jurnal Agroteknos. 12 (1): 27-36.

Landi, M., T. Margaritopoulou., I.E. Papadakis., & F. Araniti. 2019. Boron toxicity in higher plants: an update. Planta 250 (4), 1011–1032.

Larco, H., B.C Strik, D.R. Bryla, and D.M. Sullivan. 2013. Mulch and fertilizer management practices for organic production of highbush blueberry. II. Impact on plant and soil nutrients during establishment. HortScience. 48(12): 1484-1495.

Lestari, L. 2021. Perlakuan Kompos Limbah Rumah Tangga Dan POC Limbah Cair Tahu Terhadap Pertumbuhan Produksi Tanaman Bawang Merah (*Allium ascalonicum* L.) Dengan Sistem Vertikultur. Kumpulan Karya Ilmiah Mahasiswa Fakultas sains dan Tekhnologi 1(1): 61-61.

Li, B. H., W. H. Li., M. C. Kui., W. S. Chao, H. P. Jern, C. R. Li., W. J. Chu., & C. L. Wang. 1978. Studies on the cause of sterility of wheat. J. Northeast. Agrie. Coll. 3: 1-19

Li, S., L. Yan., M. Venuste., F. Xu., L. Shi., P. J. White., X. Wang., & G. Ding. 2023. A critical review of plant adaptation to environmental boron stress: Uptake, utilization, and interplay with other abiotic and biotic factors Chemosphere 338:139474.

Liang, J., P. Huo., X. Mo., L. Zhang., X. Fan & S. Sun. 2023. Fostering sustainable banana cultivation: Maximizing red soil performance with lignin-based humic acid liquid fertilizer. Agriculture Communications.1.

Liu, X., S. Xu., J. Zhang., Y. Ding., G. Li., S. Wang., & L. Chen. 2016. Effect of continuous reduction of nitrogen application to a rice-wheat rotation system in the middle-lower Yangtze River region (2013–2015). Field Crops Research 196: 348-356.

Lopez-Lefebre, L.R., R.M. Rivero., P. C. Garcia., E. Sánchez., J. M. Ruiz & L. Romero. 2002. Boron effect on mineral nutrients of tobacco. J. Plant Nutr.25. 509–522.

Marschner, P., 2012. Marschner's Mineral Nutrition of Higher Plants, third ed. Academic.

Matas, M.A., Gonzales-Fontes A & J.J.C. Camacho. 2009. Effect of boron supply on nitrate concentration and its reduction in roots and leaves of tobacco plants. Biologia Plantarum 53 (1): 120-124.

Mattiello, E. M., H. A. Ruiz., I. R. Silva., N. F. Barros., J. C. L. Neves., & M. Behling. 2009. Transporte de boro no solo e sua absorção por eucalipto. Revista Brasileira de Ciências do Solo. 33: 1281-1290.

Mattos, D., F. W.R Hippler., R. M. Boaretto., E.S. Stuchi & J.A. Quaggio.2017. Soil boron fertilization: The role of nutrient sources and rootstocks in citrus production. Journal of Integrative Agriculture. 16(7).

Mikkelsen, B. 2005. Metode Partisipatoris. Yayasan Obor Indonesia. Jakarta.

Mengel, K., & E. A. Kirkby. 1987. Principles of Plant Nutrition. 4th ed. Int. Potash Inst. Worblaufen-Bern. Switzerland.

Munarso, Y. N. 2011. Keragaan Hasil Beberapa Va Rietas Padi Hibrida pada Beberapa Te Knik Pengairan. Indonesian Journal of Agronomy, 39(3): 7783.

Munir, N. 1996. Tanah–Tanah Utama di Indonesia. Dunia Pustaka Jaya. Jakarta.

Nawaz, N., M. S. Nawaz., M. A. Khan., & M. M. Yasin. 2014. Effect of boron on peanut genotypes under rainfed Mattos, D., F. W.R Hippler., R. M. Boaretto., E.S. Stuchi & J.A. Quaggio.2017. Soil boron fertilization: The role of nutrient sources and rootstocks in citrus production. Journal of Integrative Agriculture. 16(7).

Nazir, G., U. Sharma., & P. Kumar. 2016. Boron – its importance in crop production, status in indian soils and crop responses to its application. International Journal of Advanced Research 4(5): 654-660.

Nelwamondo., A.M., M. Maaza & K.C. Mohale. 2024. Symbiotic nitrogen fixation and nutrient acquisition of three groundnut genotypes exposed to different concentrations of magnesium oxide and calcium carbonate nanoparticles. Biocatalysis and Agricultural Biotechnology. 59. 103-246.

Nurlina., I. Syahbanu, M. T. Tamnasi, C. Nabela, dan M. D. Furnata. 2018. Ekstraksi dan penentuan gugus fungsi asam humat dari pupuk kotoran sapi. Indonesian Journal of Pure and Applied Chemistry. 1(1): 30-38.

Nursyamsi, D., K. Idris, S. Sabiham, D.A. Rachim, dan A. Sofyan. 2007. Sifatsifat tanah dominan yang berpengaruh terhadap K tersedia pada tanah-tanah yang didominasi smektit. Jurnal Tanah dan Iklim 26:13-28.

Olivier, R. 2020. Entisol Chemical Properties on the System Organic Agriculture. International Journal of Science and Society 2(3): 177-183.

Ore, O.T., A.O. Adeola., O. Fapohunda., D.T. Adedipe., A.A. Bayode & F.M. Adebiyi., 2023. Humic substances derived from unconventional resources: extraction, properties, environmental impacts, and prospects. Environ. Sci. Pollut. Res. 30.59106–59127.

Padbhushan, R., Kumar, D., 2017. Fractions of soil boron: a review. J. Agric. Sci. 155 (7): 1023–1032.

Pangaribuan, H. L., Wawan & E. Ariani. 2016. Pengaruh Asam Humat Dan Abu TKKS Pada Medium Sub Soil Ultisol Terhadap Pertumbuhan Bibit Kelapa Sawit (*Elaeis guineensis* Jacq.) Di Main Nursery. Jom Faperta 3(2): 1-13.

Patti, P.S., E. Kaya, dan C. Silahooy. 2013. 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.

Pereira, G.L., J. A. Siqueira., Batista-Silva, W., F. B. Cardoso., A. Nunes-Nesi., & W. L. Araújo. 2021. Boron: more than an essential element for land plants? Front. Plant Sci. 2234.

Pourranjbari, S.S., M.K. Souri & M. Moghaddam. 2019. Effects of different magnesium levels on some morphophysiological characteristics and nutrient elements uptake in Khatouni melons (*cucumis melo var. inodorus*). J. Plant Nutr. 42(1). 27-39.

Pratiwi, H., 2011. Pengaruh kekeringan pada berbagai fase tumbuh kacang tanah. Bul. Palawija No. 22: 71–78.

Quamruzzaman., J. Ullah., F. Karim., N. Islam., J. Rahman & D. Sarkar. 2018. Reproductive development of two groundnut cultivars as influenced by boron and light. Scient Direct. 289–293.

Reeve, E & J.W. Shive. 1944. Potassium-boron and calcium-boron relationships in plant nutrition. Soil Sci. 57. 1–14.

Rehman, A. U., M. Farooq., A. Rashid., F. Nadeem., S. Stuerz., F. Asch., R. W. Bell & K. H. Siddique. 2018. Boron nutrition of rice in different production systems. A review. Agronomy for Sustainable Development 38(3): 25.

Rerkasem, B., and J. F. Loneragan., 1994. Boron deficiency in two wheat genotypes in a warm, subtropical region. Agron Journal.

Robertson, G.A & B.C. Loughman.1974. Reversible effects of boron on the absorption and incorporation of phosphate in Vicia faba L. New Phytol. 73: 291–298.

Roidah, I. S. 2013. Manfaat penggunaan pupuk organik untuk kesuburan tanah. Jurnal UniversitasTuluagung Bonorowo 1: 30- 42.

Rostaman, T., & A. Kasno. 2018. Pengaruh aplikasi asam humat terhadap peningkatan produktivitas hasil jagung pada tanah inceptisol. Prosiding Karya Tulis Ilmiah Tingkat Nasional. 111–118.

Rukmi, A., P. Ramadhanil., M. Paulus., Sifat Fisik dan Kimia Tanah Pada Berbagai Ketinggian Tempat di Habitat boni (*Diospyros celebica* Bakh,). Jurnal Warta Rimba. 5(1): 31.

Saghaiesh, S. P., M. K. Souri., & M. Moghaddam. 2019. Characterization of nutrients uptake and enzymes activity in Khatouni melon (*Cucumis melo var. inodorus*) seedlings under different concentrations of nitrogen, potassium and phosphorus of nutrient solution. J. Plant Nutr. 1-8.

Sangeetha, S. K., S. Umamaheswari., M. Reddy., & N. S Kalkura. 2016. Flavonoids: Therapeutic Potential of Natural Pharmacological Agents. Int. J. Pharm. Sci. Res. 7: 3924–3930.

Sari, V. P., Y. Yulnafatmawita., & G. Gusmini. 2021. Pengukuran Erosi Tanah di Bawah Tanaman Aren (*Arenga pinnata* Merr) pada Tiga Tingkatan Umur Tanaman di Kecamatan Lintau Buo Utara, Sumatra Barat. Agrikultura, 32(1): 63-71.

Sarno., A. Saputra, Rugayah., & M. A. Pulung. 2015. Pengaruh pemberian asam humat (berasal dari batubaramuda) melalui daun dan pupuk p terhadap pertumbuhan dan produksi tanaman tomat (*Lycopersicum esculentum* Mill) J. Agrotek Tropika 3(2): 192-198.

Shafique, M., A. Ranjha., M. Yaseen., S. M. Mehdi., & A. Hannan. 2008. Comparison of freundlich and langmuir adsorption equations for boron adsorption on calcareous soils. J. Agric. Res. 46: 141-148.

Shao, Y., Bao, M., Huo, W., Ye, R., Liu, Y., Lu, W., 2022. Production of artificial humic acid from biomass residues by a non-catalytic hydrothermal process. J. Clean. Prod. 335, 130302.

Siddiqui, M. H.,M. H. Al-Whaibi., A.M. Sakran., H.M. Ali., M.O. Basalah., and M. Faisal., 2012. Calcium-induced amelioration of boron toxicity in radish. J. Plant Growth Regul. 32. 61–71.

Shireen, F., M. A. Nawaz., C. Chen., Q. Zhang., Z. Zheng., H. Sohail., Z. Bie., 2018. Boron: functions and approaches to enhance its availability in plants for sustainable agriculture. Int. J. Mol. Sci. 19 (7): 1856.

Silalahi, F., A. Zainabun. Hairul Basri. 2019. Kajian Sifat Fisika Tanah pada Lahan Budidaya Sub DAS Krueng Jreu Kabupaten Aceh Besar. Jurnal Ilmiah Mahasiswa Pertanian, 4(2).

Singh, A.L. 1994. Micronutrient nutrition and crop productivity in groundnut. In: Singh, K., and S.S. Purohit. (eds). Plant productivity under environmental stress. Agro Botan. Publications, Bikaner, India. p. 67-72.

Siregar, A., dan I. Marzuki. 2011 Efisiensi pemupukan urea terhadap serapan dan peningkatan produksi padi sawah (*Oryza sativa* L.). Jurnal Budidaya Pertanian. 7(2): 107-112.

Siregar, B. 2017. Analisa kadar C-Organik dan perbandingan C/N tanah di lahan tambak Kelurahan Sicanang Kecamatan Medan Belawan. Jurnal Warta Dharmawangsa. (53): 1-14.

Soil Survey Staff. 2010. Soil Taxonomy a Basic System of Soil Classification for Making and Interpreting Soil Surveys Eleventh Edition. United States Department of Agriculture. Washington DC. Pp 754.

Sudirja R. 2007. Respons beberapa sifat Kimia Inceptisol asal rajamandala dan hasil bibit Kakao melalui pemberian pupuk organik dan pupuk hayati. lembaga penelitian Universitas Padjadjaran. Bandung.

Sulardi, T., & A. M. Sany. 2018. Uji pemberian limbah padat pabrik kopi dan urin kambing terhadap pertumbuhan dan produksi tanaman tomat (*Lycopersicum esculatum*). Journal of Animal Science and Agronomy panca budi, 3(2).

Spark, D. L. 2003. Environmental Soil Chemistry. Second Edition. University of Delaware. Academic Press. Pp 345.

Stevenson, F. J. 1982. Humus Chemistry Genesis, Composition, Reaction. Jhon. Willey and Sons. New York.

Stockman, U., B. Minasny., & A. B. McBratney. 2014. How fast does soil grow?. Geoderma 216: 48e61.

Sugianto, H., L. Darsana & Pardono. 2014. Penggunaan boron untuk meningkatkan pertumbuhan, hasil, dan kandungan minyak kacang tanah. J. Agrosains 16 (2): 29 – 32.

Sukarno, G. 1995. Pengaruh Pola Tanam dan Penambahan Bahan OrganikTerhadap Aliran Permukaan, Erosi dan Beberapa Perubahan Sifat Fisik Tanah. Agrijournal 3(1):15-23.

Sukaryorini, P., A.M. Fuad, dan S. Santoso. 2017. Pengaruh macam bahan organik terhadap ketersediaan amonium (NH^+), C-organik dan populasi mikroorganisme pada tanah entisol. Berkala Ilmiah Agroteknologi-PLUMULA 5(2): 99-106.

Sumarno, S. Hartati., & H. Widjianto. 2010. Kajian macam pupuk organik dan dosis pupuk p terhadap hasi kacang tanah (*Arachis hypogaea* L.) di tanah entisol. Sain Tanah 1 (1): 1-6.

Sutarto, I. V., Harnoto & S. A. Rais. 1988. Kacang Tanah. Balai Penelitian Tanaman Pangan Bogor. Pp 47.

Tariq, M & C.J.B. Mott. 2007. Effect of applied calcium-boron ratio on the availability of each to radish (*Raphanus sativus* L.). Sarhad J. Agric.23 :357.

Taru, V.B., I.Z. Kyagya., S. I Mshelia & E. F. Adebayo. 2008. Economic efficiency of resource use in groundnut production in Adamawa state of Nigeria post primary schools management board yola, Adamawa state, Nigeria. World J. Agric. Sci. 4. 896–900.

Taufiq, A., 2014. Identifikasi Masalah Keharaan Tanaman Kacang Tanah. Balai Penelitian Tanaman Aneka Kacang dan Umbi Badan Penelitian dan Pengembangan Pertanian, Malang.

Tekulu, K., G. Taye & D. Assefa. 2020. Effect of starter nitrogen and phosphorus fertilizer rates on yield and yield components, grain protein content of groundnut (*Arachis Hypogaea* L.) and residual soil nitrogen content in a semiarid north Ethiopia. Heliyon.6.

Trustinah., E. Guhardja., & W. Gunarso. 1987. Identifikasi fase pertumbuhan beberapa empat varietas kacang tanah (*Arachis hypogaea* L. Merr.). Penelitian Palawija 2(2):68-74.

Trustinah, 2016. Morfologi dan Pertumbuhan Kacang Tanah. Balai Penelitian Aneka Kacang dan Umbi. Momograf Balikabi No.13.

Uluisik, I., H. C. Karakaya., & A. Koc. 2018. The importance of boron in biological systems. Journal of Trace Elements in Medicine and Biology 45: 156–162.

Utami, S. N. H., dan S. Handayani. 2003. Sifat kimia entisol pada sistem pertanian organik. Ilmu Pertanian 10 (2): 63-69.

Utomo, M., Sudarsono.B. Rusman. T. Sabrina. J. Lumbanraja, & Wawan, 2016, Ilmu Tanah Dasar-dasar dan Pengelolaan. Prenadamedia Group: Jakarta.

Veeramani, P., & K. Subrahmaniyan. 2011. Nutrient management for sustainable groundnut productivity in India. A review Int. J. Eng. Sci. Technol 3 (11): 8138-8153.

Vera-Maldonado, P., F. Aquea., M. Reyes-Díaz., P. Cárcamo-Fincheira., B. Soto-Cerda., A. Nunes-Nesi., & F. Inostroza-Blancheteau. 2024. Role of boron and its interaction with other elements in plants. Frontiers in Plant Science, 15.

Victolika, H., Sarno., & Y. C. Ginting, Y.C. 2014. Pengaruh Pemberian Asam Humat dan K terhadap Pertumbuhan dan Produksi Tanaman Tomat (*Lycopersicum esculentum* Mill). Jurnal Agrotek Tropika, 2(2): 297–301.

Wang, Y., and W. Wu. 2017. Regulation of potassium transport and signaling in plants. Current Opinion in Plant Biology, 39: 123-128.

Widowati., E. Astutik., & Nogo. 2007. Efisiensi pemupukan K dengan bokhasi tinja pada cabai besar. Buana Sains. 7(2): 177-185.

Wu, H., Zeng, G., Liang, J., Chen, J., Xu, J., Dai, J., Li, X., Chen, M., Xu, P., Zhou, Y., Li, F., Hu, L., Wan, J., 2016. Responses of bacterial community and functional marker genes of nitrogen cycling to biochar, compost and combined amendments in soil. Appl. Microbiol. Biotechnol. 100(19):8583–8591.

Yermiyahu U., R. Keren & Chen Y 1995 Boron sorption by soil in the presence of composted organic matter. Soil Sci. Soc. Amer. J. 59. 405-4.

Yoneyama, T. 1991. Uptake assimilation, and trans location of nitrogen by crops. JARQ. 25(2).

Zhang, Z., H. Liao & W.J. Lucas., 2014. Molecular mechanisms underlying phosphate sensing, signaling, and adaptation in plants. J. Integr. Plant Biol. 56.192–220.

Zhang, D.D., H. Zhao., L. Shi & F. S. Xu., 2014. Physiological and genetic responses to boron deficiency in Brassica napus: a review. Soil Sci. Plant Nutr. 60. 304–313.