

## DAFTAR PUSTAKA

- Abdullah, L., & Permana, I. G. (2021). Kandungan dan Serapan Mineral Pucuk Indigofera zollingeriana dari Tanaman dengan Kerapatan Tanam Berbeda: Mineral Content and Uptake of Indigofera zollingeriana on Different Planting Densities. *Jurnal Ilmu Nutrisi dan Teknologi Pakan*, 19(2), 49–58. <https://doi.org/10.29244/jintp.19.2.49-58>
- Abror, M., Miftakhurrohmat, A., & Arifin, S. (2023). Pengkayaan CaCl<sub>2</sub> pada Nutrisi Hidroponik untuk Meningkatkan Hasil Tanaman Kailan (*Brassica oleracea* L.). *Jurnal Ilmu Pertanian Indonesia*, 28(4), 685–689. <https://doi.org/10.18343/jipi.28.4.685>
- Afnan, M. Z., Fitriandini, M. S., & Firmansyah, M. E. (2022). Potential of Forest Bird Diversity and Abundance in Tretes Waterfall, Wonosalam as an Avitourism Location. *Jurnal Biologi Tropis*, 22(1), 158–172. <https://doi.org/10.29303/jbt.v22i1.3152>
- Agustina, D. K. (2008). Studi vegetasi pohon di Hutan Lindung RPH Donomulyo BKPH Sengguh KPH Malang. *Universitas Islam Negeri Maulana Malik Ibrahim Malang*, 133.
- Ahmed, N., Zhang, B., Bozdar, B., Chachar, S., Rai, M., Li, J., Li, Y., Hayat, F., Chachar, Z., & Tu, P. (2023). The power of Mg: Unlocking the potential for increased yield, quality, and stress tolerance of horticultural crops. *Frontiers in Plant Science*, 14, 1285512. <https://doi.org/10.3389/fpls.2023.1285512>
- Ainun, N., Maneepong, S., & Suraninpong, P. (2018). Effects of Photoradiation on the Growth and Potassium, Calcium, and Mg Uptake of Lettuce Cultivated by Hydroponics. *Journal of Agricultural Science*, 10(6), 253. <https://doi.org/10.5539/jas.v10n6p253>
- Alfayed, D., Dharmono, & Riefani, M. K. (2022). Kajian Etnobotani Mahoni (*Swietenia mahagoni*) Di Kawasan Desa Sabuhur Kabupaten Tanah Laut. *NECTAR: Jurnal Pendidikan Biologi*, 3(1), 1–8.
- Alrababah, Mohammad Ali, Bataineh, M. N., Suwaileh, M. M., & Al Horani. (2007). Arboreal Diversity and Aboveground Biomass in a Semi-arid Mediterranean Forest Ecosystem: Case of Kufur-khal Natural Reserve. *Jordan Journal of Agricultural Sciences*, 3(4), 363–375.
- Anam, S., Hartanti, D. A. S., Chusnah, M., Puspaningrum, D. Y., Hasbullah, K. A. W., Pertanian, R., Biosistem, D., Kh, U., & Hasbullah, A. W. (2023). UJI KANDUNGAN FLAVONOID DAN TANIN PADA EKSTRAK DAUN DAN KULIT POHON KAYU MAHONI (*Swietenia mahagoni*). *Jurnal Buana Sains*, 23(1), p. B. O., & Kabrick, J. M. (2023). Stand-Density Effects on | Carbon Dynamics in Secondary *Pinus* and *Quercus* Forests of USA. *Forest Science*, 69(2), 213–227. [/10.1093/forsci/fxac053](https://doi.org/10.1093/forsci/fxac053)



- Aritonang, A. B., & Apindiati, R. K. (2024). *Macro Mineral Profile of Several Species of Brown Macroalgae from Lemukutan Waters as Biostimulant Candidates*. 12(1), 280–287.
- Arumsari, T., & Suwanto. (2018). Pengaruh Pupuk N dan Jarak Tanam terhadap Pertumbuhan dan Produksi Talas Belitung (*Xanthosoma sagittifolium* (L.) Schott). *Bul. Agrohorti*, 6(1), 120–130.
- Astutik, D., Suryaningndari, D., & Raranda, U. (2019). Hubungan Pupuk K dan Kebutuhan Air terhadap Sifat Fisiologis, Sistem Perakaran dan Biomassa Tanaman Jagung (*Zea mays*). *Jurnal Citra Widya Edukasi*, 11(1), 67–76.
- Atmaja, I. S. W. (2017). PENGARUH UJI MINUS ONE TEST PADA PERTUMBUHAN VEGETATIF TANAMAN MENTIMUN. *Jurnal Logika*, 19(1), 63–68.
- Attia, H., Rebah, F., Ouhibi, C., Saleh, M. A., Althobaiti, A. T., Alamer, K. H., Ben Nasri, M., & Lachaâl, M. (2022). Effect of Potassium Deficiency on Physiological Responses and Anatomical Structure of Basil, *Ocimum basilicum* L. *Biology*, 11(11), 1557. <https://doi.org/10.3390/biology11111557>
- Ayamba, B. E., Abaidoo, R. C., Opoku, A., & Ewusi-Mensah, N. (2023). Mechanisms for nutrient interactions from organic amendments and mineral fertilizer inputs under cropping systems: A review. *PeerJ*, 11, e15135. <https://doi.org/10.7717/peerj.15135>
- Azurianti, A., Wulansari, R., Athallah, F. N. F., & Prijono, S. (2022). The Relation Study of Soil Nutrient to Productivity of productive Tea Plants in Pagar Alam Tea Plantation, South Sumatra. *Jurnal Tanah Dan Sumberdaya Lahan*, 9(1), 153–161. <https://doi.org/10.21776/ub.jtsl.2022.009.1.17>
- Bai, R., Bai, C., Han, X., Liu, Y., & Yong, J. W. H. (2022). The significance of calcium-sensing receptor in sustaining photosynthesis and ameliorating stress responses in plants. *Frontiers in Plant Science*, 13, 1019505. <https://doi.org/10.3389/fpls.2022.1019505>
- Basri, A., Ardhyta Arista Putri Jurusan Kehutanan Fakultas Kehutanan dan Ilmu Lingkungan UHO JIEA Mokodompit, A., & Bumi Tri Dharma Anduonohu Kendari, K. (2023). *Jurnal Kehutanan Indonesia*. 4.
- Bauke, S. L., Amelung, W., Bol, R., Brandt, L., Brüggemann, N., Kandeler, E., Meyer, N., Or, D., Schnepf, A., Schloter, M., Schulz, S., Siebers, N., Von Sperber, C., & Vereecken, H. (2022). Soil water status shapes nutrient cycling in agroecosystems from micrometer to landscape scales. *Journal of Plant Nutrition and Soil Science*, 185(6), 773–792. <https://doi.org/10.1002/jpln.202200357>
- Bechtaoui, N., Rabiou, M. K., Raklami, A., Oufdou, K., Hafidi, M., & Jemo, M. (2021). Phosphate-Dependent Regulation of Growth and Stresses Management in Plants. *Frontiers in Plant Science*, 12, 679916. <https://doi.org/10.3389/fpls.2021.679916>
- l., Singh, H., Singh, N., & Singh, S. P. (2014). Effect of zinc and Mg field, quality and removal of nutrients in wheat (*Triticum aestivum*). *Journal of Agronomy*, 59(2), 276–280. <https://doi.org/10.59797/ija.v59i1.4532>



- Chen, Q., Song, Y., An, Y., Lu, Y., & Zhong, G. (2024). Soil Microorganisms: Their Role in Enhancing Crop Nutrition and Health. *Diversity*, 16(12), 734. <https://doi.org/10.3390/d16120734>
- Craine, J. M., & Dybzinski, R. (2013). Mechanisms of plant competition for nutrients, water and light. *Functional Ecology*, 27(4), 833–840. <https://doi.org/10.1111/1365-2435.12081>
- Damanhuri, D., Widodo, T. W., & Fauzi, A. (2022). Pengaturan Keseimbangan N dan Mg untuk Meningkatkan Pertumbuhan dan Produksi Jagung (*Zea Mays L.*). *Jurnal Ilmiah Inovasi*, 22(1), 10–15. <https://doi.org/10.25047/jii.v22i1.2842>
- Diniz, É. S., Rodríguez-Penedo, E., Grau-Andrés, R., Vayreda, J., & Fernández-Martínez, M. (2025). Optimal set of leaf and aboveground tree elements for predicting forest functioning. *Biogeosciences*, 22(8), 2115–2132. <https://doi.org/10.5194/bg-22-2115-2025>
- Dong, T., Zhang, Yunxiang, Zhang, Yuanbin, & Zhang, S. (2016). Continuous planting under a high density enhances the competition for nutrients among young *Cunninghamia lanceolata* saplings. *Annals of Forest Science*, 73(2), 331–339. <https://doi.org/10.1007/s13595-015-0518-1>
- Du, X., Wang, Z., Lei, W., & Kong, L. (2021). Increased planting density combined with reduced N rate to achieve high yield in maize. *Scientific Reports*, 11(1), 358. <https://doi.org/10.1038/s41598-020-79633-z>
- Dukic, E., Van Maldegem, K. A., Shaikh, K. M., Fukuda, K., Töpel, M., Solymosi, K., Hellsten, J., Hansen, T. H., Husted, S., Higgins, J., Sano, S., Ishijima, S., & Spetea, C. (2023). Chloroplast Mg transporters play essential but differential roles in maintaining Mg homeostasis. *Frontiers in Plant Science*, 14, 1221436. <https://doi.org/10.3389/fpls.2023.1221436>
- Essel, B., Abaidoo, R. C., Opoku, A., & Ewusi-Mensah, N. (2021). Mechanisms Underlying Nutrient Interaction of Compost and Mineral Fertilizer Application in Maize (*Zea mays L.*) Cropping System in Ghana. *Frontiers in Soil Science*, 1, 630851. <https://doi.org/10.3389/fsoil.2021.630851>
- Farhat, N., Elkhouni, A., Zorrigh, W., Smaoui, A., Abdelly, C., & Rabhi, M. (2016). Effects of Mg deficiency on photosynthesis and carbohydrate partitioning. *Acta Physiologiae Plantarum*, 38(6), 145. <https://doi.org/10.1007/s11738-016-2165-z>
- Fatchullah, D. (2017). Pengaruh Kerapatan Tanaman terhadap Pertumbuhan dan Hasil Benih Kentang (*Solanum Tuberosum L.*) Generasi Satu (G1) Varietas Granola. *Planta Tropika: Journal of Agro Science*, 5(1), 15–22. <https://doi.org/10.18196/pt.2017.067.15-22>
- Feng, D., Wang, X., Gao, J., Zhang, C., Liu, H., Liu, P., & Sun, X. (2023). Exogenous calcium: Its mechanisms and research advances involved in plant stress . *Frontiers in Plant Science*, 14, 1143963. <https://doi.org/10.3389/fpls.2023.1143963>
- R., Uriarte, M., Valencia, R., Wright, S. J., Garwood, N. C., & Kraft, 8). Topography and neighborhood crowding can interact to shape th and distribution in a diverse Amazonian forest. *Ecology*, 99(10), <https://doi.org/10.1002/ecy.2441>



- Galindo-Castañeda, T., Lynch, J. P., Six, J., & Hartmann, M. (2022). Improving Soil Resource Uptake by Plants Through Capitalizing on Synergies Between Root Architecture and Anatomy and Root-Associated Microorganisms. *Frontiers in Plant Science*, 13, 827369. <https://doi.org/10.3389/fpls.2022.827369>
- Gao, C., Li, M., & Li, D. (2023). Root architecture and visualization model of cotton group with different planting spacing under local irrigation. *Frontiers in Plant Science*, 14, 1080234. <https://doi.org/10.3389/fpls.2023.1080234>
- Gmbh, K. S. K., Ouat, I. P. I., International, I., & Ebert, G. (2009). *Potassium nutrition and its effect on quality and post harvest properties of potato K + S KALI GmbH Introduction Introduction K nutrition in potato K + S KALI GmbH Introduction Introduction K nutrition in potato K + S KALI GmbH*. (November), 5–7.
- Hapsari, A. S., Sugandi, D., Ridwana, R., & Himayah, S. (2022). Analisis Vegetasi Mangrove di Kawasan Hutan Mangrove Karangsong, Kabupaten Indramayu, Jawa Barat. *Jurnal Perikanan Dan Kelautan*, 12(1), 78. <https://doi.org/10.33512/jpk.v12i1.14800>
- Hardianto, A., Dewi, P. U., Feriansyah, T., Sari, N. F. S., & Rifiana, N. S. (2021). Pemanfaatan Citra Landsat 8 Dalam Mengidentifikasi Nilai Indeks Kerapatan Vegetasi (NDVI) Tahun 2013 dan 2019 (Area Studi: Kota Bandar Lampung). *Jurnal Geosains Dan Remote Sensing*, 2(1), 8–15. <https://doi.org/10.23960/jgrs.2021.v2i1.38>
- Hastiana, Y. (2014). Community Structure of Riparian Community of Sematang Borang River of South Sumatera. *EKSAKTA*, 2(14), 6–10.
- Hastuti, D. P., Supriyono, S., & Hartati, S. (2018). Pertumbuhan dan Hasil Kacang Hijau (*Vigna radiata*, L.) pada Beberapa Dosis Pupuk Organik dan Kerapatan Tanam. *Caraka Tani: Journal of Sustainable Agriculture*, 33(2), 89. <https://doi.org/10.20961/carakatani.v33i2.20412>
- Hauer-Jákli, M., & Tränkner, M. (2019). Critical Leaf Mg Thresholds and the Impact of Mg on Plant Growth and Photo-Oxidative Defense: A Systematic Review and Meta-Analysis From 70 Years of Research. *Frontiers in Plant Science*, 10, 766. <https://doi.org/10.3389/fpls.2019.00766>
- Havlin, J., & Heiniger, R. (2020). Soil Fertility Management for Better Crop Production. *Agronomy*, 10(9), 1349. <https://doi.org/10.3390/agronomy10091349>
- Hayata, H., Nursanti, I., & Kriswibowo, P. (2020). Pengaruh Jarak Tanam Yang Berbeda Terhadap Pertumbuhan Dan Produksi Kelapa Sawit (*Elaeis guineensis* Jacq). *Jurnal Media Pertanian*, 5(1), 22. <https://doi.org/10.33087/jagro.v5i1.92>
- Hayes, P. E., Clode, P. L., Oliveira, R. S., & Lambers, H. (2017). Proteaceae from phosphorus-impoverished habitats preferentially allocate phosphorus to photosynthetic cells: An adaptation improving phosphorus-use efficiency. *Plant*, 4(1), 605–619. <https://doi.org/10.1016/j.pbi.2016.11.005>
- I, M., Awais, M., Khan, B., Abd-Ur-Rahman, H., Ahmed, R., Toor, H. M. (2020). Effect of heavy metal (Ni) on plants and soil: A review. *Journal of Applied Research*, 6(7), 313–318.
- ng, Yang, Wen, X., Wang, Yu, Li, T., Chen, G., Zhao, K., Li, X., & 22). Response Strategies of Root System Architecture to Soil



- Environment: A Case Study of Single-Species Cupressus funebris Plantations. *Frontiers in Plant Science*, 13, 822223. <https://doi.org/10.3389/fpls.2022.822223>
- Hendry, F., Hartono, & Retnadi, J. H. (2015). *Komparasi Indeks Vegetasi Untuk Estimasi Stok Karbon Hutan Mangrove Kawasan Segoro Anak Pada Kawasan Taman Nasional Alas Purwo Banyuwangi , Jawa Timur ( Comparison of Vegetation Indices for Mangrove Carbon Stock Estimation*.
- Hu, M., Yang, Y., Fan, M., Huang, K., Wang, L., Lv, T., Yi, X., Chen, L., & Fang, Y. (2023). Inter- and Intra-Population Variation of Foliage Calcium and Mg in Two Chinese Pine Species. *Plants*, 12(3), 562. <https://doi.org/10.3390/plants12030562>
- Iddrisu, A.-Q., Hao, Y., Issifu, H., Getnet, A., Sakib, N., Yang, X., Abdallah, M. M., & Zhang, P. (2024). Effects of Stand Density on Tree Growth, Diversity of Understory Vegetation, and Soil Properties in a Pinus koraiensis Plantation. *Forests*, 15(7), 1149. <https://doi.org/10.3390/f15071149>
- Ishfaq, M., Wang, Y., Yan, M., Wang, Z., Wu, L., Li, C., & Li, X. (2022). Physiological Essence of Mg in Plants and Its Widespread Deficiency in the Farming System of China. *Frontiers in Plant Science*, 13, 802274. <https://doi.org/10.3389/fpls.2022.802274>
- Jaya, S. (2020). Pengaruh Ukuran Perusahaan (Firm Size) dan Profitabilitas (ROA) Terhadap Nilai Perusahaan (Firm Value) Pada Perusahaan Sub Sektor Property dan Real Estate di Bursa Efek Indonesia (BEI). *Jurnal Manajemen Motivasi*, 16(1), 38. <https://doi.org/10.29406/jmm.v16i1.2136>
- Jayara, A. S., Kumar, R., Pandey, P., Singh, S., Shukla, A., Singh, A., Pandey, S., Meena, R. L., & Reddy, K. K. (2023). Boosting nutrient use efficiency through fertilizer use management. *Applied Ecology and Environmental Research*, 21(4), 2931–2952. [https://doi.org/10.15666/aeer/2104\\_29312952](https://doi.org/10.15666/aeer/2104_29312952)
- Jiang, W., Wang, K., Wu, Q., Dong, S., Liu, P., & Zhang, J. (2013). Effects of narrow plant spacing on root distribution and physiological N use efficiency in summer maize. *The Crop Journal*, 1(1), 77–83. <https://doi.org/10.1016/j.cj.2013.07.011>
- Jones, C., & Jacobsen, J. (2005). Plant Nutrition and Soil Fertility. *Nutrient Management Module*, 2(11), 1–11.
- Kalsoom, M., Ur Rehman, F., Shafique, T., Junaid, S., Khalid, N., Adnan, M., Zafar, I., Abdullah Tariq, M., Raza, M. A., Zahra, A., & Ali, H. (2020). BIOLOGICAL IMPORTANCE OF MICROBES IN AGRICULTURE, FOOD AND PHARMACEUTICAL INDUSTRY: A REVIEW. *Innovare Journal of Life Sciences*, 8(6), 1–4. <https://doi.org/10.22159/ijls.2020.v8i6.39845>
- Kantikowati, E., Karya, & Iqfini Husnul Khotimah. (2022). PERTUMBUHAN DAN HASIL JAGUNG MANIS (Zea mays SACCHARATA STURT) VARIETAS PARAGON AKIBAT PERLAKUAN JARAK TANAM DAN JUMLAH BENIH. *AGRO TATANEN*. *Jurnal Ilmiah Pertanian*, 4(2). <https://doi.org/10.55222/agrotatanen.v4i2.828>
- Kantikowati, E. (2024). Determination of the effect of Mg applications on yield, and chlorophyll content in cotton. *Ege Üniversitesi Ziraat Fakültesi Dergisi*, 461–474. <https://doi.org/10.20289/zfdergi.1470053>
- Kantikowati, E., Dhalwal, S. S., Yadav, S. S., Sadawarti, M. J., Singh, I. R., Yadav, K., Shivansh, Prasad, D., Singh, Atul, & Afreen, (2024). Sustainable nutrient management balancing soil health and food



- security for future generations. *Applied Food Research*, 5(2), 101087. <https://doi.org/10.1016/j.afres.2025.101087>
- Khan, F., Siddique, A. B., Shabala, S., Zhou, M., & Zhao, C. (2023). Phosphorus Plays Key Roles in Regulating Plants' Physiological Responses to Abiotic Stresses. *Plants*, 12(15), 2861. <https://doi.org/10.3390/plants12152861>
- Koneri, R., & Pontororing, H. (2016). Assay of Mahagony (*Swietenia macrophylla*) Seed Extract on Larvae of *Aedes aegyptias* Dengue Hemorrhagic Fever Vector. *The Indonesian Journal of Public Health*, 12(4), 216–223.
- Kuniga, T. (2020). Modification of the Light Environment Influences the Production of Horticultural Crops. *Japan Agricultural Research Quarterly: JARQ*, 54(4), 285–291. <https://doi.org/10.6090/jarq.54.285>
- Kurniawan, E., Ginting, Z., & Nurjannah, P. (2017a). Pemanfaatan Urine Kambing Pada Pembuatan Pupuk Organik Cair Terhadap Kualitas Unsur Hara Makro (npk). *Jurnal UMJ*, 1(2), 1-10.
- Kurniawan, E., Ginting, Z., & Nurjannah, P. (2017b). PEMANFAATAN URINE KAMBING PADA PEMBUATAN PUPUK ORGANIK CAIR TERHADAP KUALITAS UNSUR HARA MAKRO (NPK).
- Lei, H., Zhou, F., Cai, Q., Wang, X., Du, L., Lan, T., Kong, F., & Yuan, J. (2024). Effects of Planting Density and N Management on Light and N Resource Utilization Efficiency and Yield of Summer Maize in the Sichuan Hilly Region. *Agronomy*, 14(7), 1470. <https://doi.org/10.3390/agronomy14071470>
- Leiwakabessy, F. M. (2003). *Kesuburan Tanah*. Institut Pertanian Bogor.
- Leonika, A., Nugroho, Y., & Rudy, G. S. (2021). PENGARUH KERAPATAN TEGAKAN TERHADAP SIFAT FISIK TANAH PADA BERBAGAI TUTUPAN LAHAN DI KHDTK MANDIANGIN ULM. *Jurnal Sylva Scienteeae*, 4(4), 608. <https://doi.org/10.20527/jss.v4i4.3935>
- Li, G., Liang, Y., Liu, Q., Zeng, J., Ren, Q., Guo, J., Xiong, F., & Lu, D. (2024). Enhancing production efficiency through optimizing plant density in maize–soybean strip intercropping. *Frontiers in Plant Science*, 15, 1473786. <https://doi.org/10.3389/fpls.2024.1473786>
- Liang, Q., Chen, H., Chen, Yanli, Kumar, S., Chang, H., Wu, J., Chen, Yue, Liu, Y., Wang, Q., & Zhu, G. (2024). Appropriate Planting Density Can Improve the Storage Root Yield and Commercial Features of Sweet Potato (*Ipomoea batatas* L.) by Optimizing the Photosynthetic Performance. *Agronomy*, 14(11), 2579. <https://doi.org/10.3390/agronomy14112579>
- Liu, H., Gu, H., Ye, C., Guo, C., Zhu, Y., Huang, H., Liu, Y., He, X., Yang, M., & Zhu, S. (2021). Planting Density Affects *Panax notoginseng* Growth and Ginsenoside Accumulation by Balancing Primary and Secondary Metabolism. *Frontiers in Plant Science*, 12, 628294. <https://doi.org/10.3389/fpls.2021.628294>
- J., & Chen, J. M. (2017). Separating overstory and understory leaf for global needleleaf and deciduous broadleaf forests by fusion of MISR data. *Biogeosciences*, 14(5), 1093–1110. <https://doi.org/10.5194/bg-14-1093-2017>
- 5). *Vegetation Ecology*. Blackwell Publish-ing.



- Magfiroh, N., Lapanjang, I. M., & Made, U. (2017). PENGARUH JARAK TANAM TERHADAP PERTUMBUHAN DAN HASIL TANAMAN PADI (*Oryza sativa* L.) PADA POLA JARAK TANAM YANG BERBEDA DALAM SISTEM TABELA. *Jurnal Agrotekbis*, 5(2), 212–221.
- Majasalmi, T., & Rautiainen, M. (2020). The impact of tree canopy structure on understory variation in a boreal forest. *Forest Ecology and Management*, 466, 118100. <https://doi.org/10.1016/j.foreco.2020.118100>
- Maryantika, M., Muhamad Jaelani, L., & Setiyoko, A. (2011). Analisa Perubahan Vegetasi Ditinjau Dari Tingkat Ketinggian Dan Kemiringan Lahan Menggunakan Citra Satelit Landsat Dan Spot 4. *Journal of Geodesy and Geomatics*, 7(1).
- Mastur, ., Syafaruddin, ., & Syakir, M. (2015). Peran dan Pengelolaan Hara N pada Tanaman Tebu Untuk Peningkatan Produktivitas Tebu. *Perspektif: Review Penelitian Tanaman Industri*, 14(2), 73. <https://doi.org/10.21082/p.v14n2.2015.73-86>
- Medeiros, P. L., Silva, G. G. C., Oliveira, E. M. M., Ribeiro, C. O., Silva, J. M. S., & Pimenta, A. S. (2020). Efficiency of nutrient use for biomass production of a *Eucalyptus* clone as a function of planting density in short-rotation cropping. *Australian Forestry*, 83(2), 66–74. <https://doi.org/10.1080/00049158.2020.1774958>
- Mega Nurzihan, Y., Rinzani, A., Kamaluddin, M. R., Ridwana, R., & Somantri, L. (2023). Analisis Indeks Kerapatan Vegetasi di Desa Cihanjuang Rahayu Menggunakan Citra Satelit Sentinel-2A dengan Metode MSARVI. *Jurnal Pendidikan Geografi Undiksha*, 11(3), 223–233. <https://doi.org/10.23887/jjpg.v11i3.66790>
- Nadal, M., Carriquí, M., Badel, E., Cochard, H., Delzon, S., King, A., Lamarque, L. J., Flexas, J., & Torres-Ruiz, J. M. (2023). Photosynthesis, leaf hydraulic conductance and embolism dynamics in the resurrection plant *Barbacenia purpurea*. *Physiologia Plantarum*, 175(5), e14035. <https://doi.org/10.1111/ppl.14035>
- Nemetschek, D., Derroire, G., Marcon, E., Aubry-Kientz, M., Auer, J., Badouard, V., Baraloto, C., Bauman, D., Le Blaye, Q., Boisseaux, M., Bonal, D., Coste, S., Dardevet, E., Heuret, P., Hietz, P., Levionnois, S., Maréchaux, I., McMahan, S. M., Stahl, C., ... Fortunel, C. (2024). Climate anomalies and neighbourhood crowding interact in shaping tree growth in old-growth and selectively logged tropical forests. *Journal of Ecology*, 112(3), 590–612. <https://doi.org/10.1111/1365-2745.14256>
- Obour, P. B., Jensen, J. L., Lamandé, M., Watts, C. W., & Munkholm, L. J. (2018). Soil organic matter widens the range of water contents for tillage. *Soil and Tillage Research*, 182, 57–65. <https://doi.org/10.1016/j.still.2018.05.001>
- Oliveira, C. H., Silva, E. D. B., Ferreira, E. A., Pereira, G. A. M., & (2016). Accumulation of nutrients and growth in castor bean plants. (4), 549–556. <https://doi.org/10.15361/1984-5529.2016v44n4p549->
- A., Čermak, P., Diels, J., Elsen, A., Kusá, H., Piccoli, I., Poesen, J., its, M., Toth, Z., & Wyseure, G. (2021). Soil Water Retention as Management Induced Changes of Soil Organic Carbon: Analysis of



- Long-Term Experiments in Europe. *Land*, 10(12), 1362. <https://doi.org/10.3390/land10121362>
- Papadakis, I. E., Antonopoulou, C., Sotiropoulos, T., Chatzissavvidis, C., & Therios, I. (2023). Effect of Mg on Mineral Nutrition, Chlorophyll, Proline and Carbohydrate Concentrations of Sweet Orange (*Citrus sinensis* cv. Newhall) Plants. *Applied Sciences*, 13(14), 7995. <https://doi.org/10.3390/app13147995>
- Parwati, W. D. U., Nadeak, F. H., & Kautsar, V. (2024). Analisis Pertumbuhan dan Produktivitas Kelapa Sawit pada Variasi Kerapatan Tanam. *Jurnal Agro Industri Perkebunan*, 12(2), 105–116. <https://doi.org/10.25181/jaip.v12i2.3535>
- Pereira, G., Clode, P. L., Oliveira, R. S., & Lambers, H. (2018). Eudicots from severely phosphorus-impoverished environments preferentially allocate phosphorus to their mesophyll. *New Phytologist*, 218(3), 959–973. <https://doi.org/10.1111/nph.15043>
- Pithaloka, S. A., Sunyoto, S., Kamal, M., & Hidayat, K. F. (2015). PENGARUH KERAPATAN TANAMAN TERHADAP PERTUMBUHAN DAN HASIL BEBERAPA VARIETAS SORGUM (*Sorghum bicolor* (L.) Moench). *Jurnal Agrotek Tropika*, 3(1), 56–63. <https://doi.org/10.23960/jat.v3i1.1948>
- Pohon, P., Untuk, M., Di, P., & Sukaharja, D. (2024). *Hasni Riyas Alfina, Syaiful Syaiful PENANAMAN POHON MAHONI UNTUK PENGHIJAUAN DI DESA SUKAHARJA CIOMAS. 268–277.*
- Poorter, H., Niinemets, Ü., Ntagkas, N., Siebenkäs, A., Mäenpää, M., Matsubara, S., & Pons, ThijsL. (2019). A meta-analysis of plant responses to light intensity for 70 traits ranging from molecules to whole plant performance. *New Phytologist*, 223(3), 1073–1105. <https://doi.org/10.1111/nph.15754>
- Postma, J. A., Hecht, V. L., Hikosaka, K., Nord, E. A., Pons, T. L., & Poorter, H. (2021). Dividing the pie: A quantitative review on plant density responses. *Plant, Cell & Environment*, 44(4), 1072–1094. <https://doi.org/10.1111/pce.13968>
- Pouta, P., Kulha, N., Kuuluvainen, T., & Aakala, T. (2022). Partitioning of Space Among Trees in an Old-Growth Spruce Forest in Subarctic Fennoscandia. *Frontiers in Forests and Global Change*, 5, 817248. <https://doi.org/10.3389/ffgc.2022.817248>
- Pragg, B., Lakshani, M. M. T., Deepagoda, T. K. K. C., Cameron, K., Di, H., Clough, T. J., Carrick, S., Elberling, B., & Smits, K. (2024). Identification of plant soil water and soil aeration corequisites: A management tool. *Soil Science Society of America Journal*, 88(6), 2078–2089. <https://doi.org/10.1002/saj2.20772>
- Putri, G. A., Zubadi, A., & Anugrahwati, D. R. (2024). Pertumbuhan dan Hasil Ratan Beberapa Varietas Sorgum (*Sorghum Bicolor* (L) Moench) pada Percobaan di Rumah Kaca. *Jurnal Ilmiah Mahasiswa Agrokomplek*, 3(3), 213–218. <https://doi.org/10.29303/jima.v3i3.5278>
- Shen, Y., Xu, M., Yang, Q., Shen, X., Yu, D., Zhang, P., Ding, C., & Wang, J. (2024). Planting density effect on poplar growth traits and soil nutrient and response of microbial community, assembly and function. *BMC Ecology and Evolution*, 24(1), 1035. <https://doi.org/10.1186/s12870-024-05648-7>
- Sánchez-Rico, M., Fariñas, M. R., Schwarzkopf, T., & García-Núñez, J. (2024). Light penetration and topography shape juvenile tree species



- assemblies in the understory of the tropical Andean cloud forest. *Journal of Tropical Ecology*, 40, e21. <https://doi.org/10.1017/S0266467424000178>
- Rahman, F. A., Rizki, A. S., Arianto, T., & Sulistijorini. (2025). Analisis Kompetisi Intraspesifik dan Interspesifik Tumbuhan Bawah Tegakan di Hutan Kampus IPB Dramaga Jawa Barat. *Jurnal Ilmu Pendidikan dan Sains: Visioedusains*, 1(1), 26–32. <https://doi.org/10.71024/visioedusains.2025.v1i1.5>
- Rahmawati, A., Pratiwi, Y. E., & Rochmah, O. (2025). Application of Principal Component Analysis on Factors Causing Inflation in West Kalimantan. *Komputasi: Jurnal Ilmiah Ilmu Komputer Dan Matematika*, 22(2), 83–89. <https://doi.org/10.33751/komputasi.v19i2.5260>
- Reed, J., Tonen, M. R., & Sunderland, T. C. H. (2020). *Operationalizing integrated landscape approaches in the tropics*. Center for International Forestry Research (CIFOR). <https://doi.org/10.17528/cifor/007800>
- Ren, J., Fang, S., Wang, Q.-W., Liu, H., Lin, F., Ye, J., Hao, Z., Wang, X., & Fortunel, C. (2023). Ontogeny influences tree growth response to soil fertility and neighbourhood crowding in an old-growth temperate forest. *Annals of Botany*, 131(7), 1061–1072. <https://doi.org/10.1093/aob/mcac146>
- Rianditya, O. D., & Hartatik, S. (2022). PENGARUH PEMBERIAN PUPUK P TERHADAP PERTUMBUHAN VEGETATIF TANAMAN TEBU VAR. BULULAWANG HASIL MUTASI. *Berkala Ilmiah Pertanian*, 5(1), 52. <https://doi.org/10.19184/bip.v5i1.29677>
- Robles, P. F., Salgado, M. M., Blu, R. O., & Janssens, M. (2016). Compost and humic substance effects on soil parameters of *Vitis vinifera* L cv Thompson seedless. *Scientia Agropecuaria*, 7, 291–296. <https://doi.org/10.17268/sci.agropecu.2016.03.17>
- Romera, F. J., Lan, P., Rodríguez-Celma, J., & Pérez-Vicente, R. (2021). Editorial: Nutrient Interactions in Plants. *Frontiers in Plant Science*, 12, 782505. <https://doi.org/10.3389/fpls.2021.782505>
- Rongpipi, S., Barnes, W. J., Siemianowski, O., Del Mundo, J. T., Wang, C., Freychet, G., Zhernenkov, M., Anderson, C. T., Gomez, E. W., & Gomez, E. D. (2023). Measuring calcium content in plants using NEXAFS spectroscopy. *Frontiers in Plant Science*, 14, 1212126. <https://doi.org/10.3389/fpls.2023.1212126>
- Rustiana, R., Suwardji, S., & Suriadi, A. (2021). Pengelolaan Unsur Hara Terpadu Dalam Budidaya Tanaman Porang (Review). *Jurnal Agrotek Ummat*, 8(2), 99. <https://doi.org/10.31764/jau.v8i2.5229>
- Shao, B., Zhang, Y., Vincenzi, E., Berman, S., Violet-Chabrand, S., Marcelis, L. F. M., Li, T., & Kaiser, E. (2024). Photosynthesis and photoprotection in top leaves respond faster to irradiance fluctuations than bottom leaves in a tomato canopy. *of Experimental Botany*, 75(22), 7217–7236. <https://doi.org/10.1093/jxb/erae357>
- (2024). Respons Pertumbuhan dan Produksi Sawi (*Brassica juncea* L.) terhadap Pupuk Organik Cair. In *Skripsi*. Universitas Sumatera Utara.
- S. (2014). Jenis-Jenis Vegetasi Riparian. *LPPM Bidang Sains Dan* 1(1), 7–12.



- Simarmata, N., Wikantika, K., Tarigan, T. A., Aldyansyah, M., Tohir, R. K., Fauziah, A., & Purnama, Y. (2021). Analisis Transformasi Indeks Ndvi, NdwI Dan Savi Untuk Identifikasi Kerapatan Vegetasi Mangrove Menggunakan Citra Sentinel Di Pesisir Timur Provinsi Lampung. *JURNAL GEOGRAFI Geografi Dan Pengajarannya*, 19(2), 69–79. <https://doi.org/10.26740/jggp.v19n2.p69-79>
- Siswanto, B. (2019). Sebaran Unsur Hara N, P, K Dan Ph Dalam Tanah. *Buana Sains*, 18(2), 109. <https://doi.org/10.33366/bs.v18i2.1184>
- Sutanto, R. (2002). *Penerapan Pertanian Organik Masyarakat dan Pengembangannya*. Kansius.
- Tanjung, H. U., Tata, H. L., & Triadiati. (2023). The growth of mahogany seedlings (*Swietenia macrophylla* King.) in various planting media and shade intensity. *IOP Conference Series: Earth and Environmental Science*, 1271(1), 012023. <https://doi.org/10.1088/1755-1315/1271/1/012023>
- Toor, M. D., Adnan, M., Rehman, F. U., Tahir, R., Saeed, M. S., Khan, A. U., & Pareek, V. (2021). Nutrients and Their Importance in Agriculture Crop Production: A Review. *Indian Journal of Pure & Applied Biosciences*, 9(1), 1–6. <https://doi.org/10.18782/2582-2845.8527>
- Tsai, H., Chiang, J., McEwan, R. W., & Lin, T. (2018). Decadal effects of thinning on understory light environments and plant community structure in a subtropical forest. *Ecosphere*, 9(10), e02464. <https://doi.org/10.1002/ecs2.2464>
- Tsujimoto, Y., Rakotoson, T., Tanaka, A., & Saito, K. (2019). Challenges and opportunities for improving N use efficiency for rice production in sub-Saharan Africa. *Plant Production Science*, 22(4), 413–427. <https://doi.org/10.1080/1343943X.2019.1617638>
- Tully, K., & Ryals, R. (2017). Nutrient cycling in agroecosystems: Balancing food and environmental objectives. *Agroecology and Sustainable Food Systems*, 41(7), 761–798. <https://doi.org/10.1080/21683565.2017.1336149>
- Villa, B. D., Petry, M. T., Santos, M. S. N. D., Martins, J. D., Lago, I., Moura, M. B. D., Eggers, H. S., Melo, G. L., Tonetto, F., Ferrazza, C. M., Oliveira, J. A. D., Werle, R., & Castro, R. P. (2022). Effects of Minimum and Maximum Limits of Solar Radiation and Its Temporal and Geographic Interactions. *Journal of Agricultural Science*, 14(8), 173. <https://doi.org/10.5539/jas.v14n8p173>
- Wahrudin, U., Atikah, S., Habibah, A. Al, Paramita, Q. P., Tampubolon, H., Sugandi, D., & Ridwana, R. (2019). Pemanfaatan Citra Landsat 8 Untuk Identifikasi Sebaran Kerapatan Vegetasi di Pangandaran. *Geodika: Jurnal Kajian Ilmu Dan Pendidikan Geografi*, 3(2), 90. <https://doi.org/10.29408/geodika.v3i2.1790>
- Wang, Q., Li, S., Li, J., & Huang, D. (2024). The Utilization and Roles of N in Plants. *Forests*, 15(7), 1191. <https://doi.org/10.3390/f15071191>
- Wang, Y., Cao, X., & Lv, Y. (2024). Assessing the Relationship between Crown Size, and Neighboring Tree Species Diversity in Mixed and Broad Forests Using Crown Size Competition Indices. *Forests*, <https://doi.org/10.3390/f15040633>
- Widada, D., Jella Howu Howu Zendrato, Joy Blesswan Endiyanti Mendrofa, Tra Gulo, & Natalia Kristiani Lase. (2025). Pola Pertumbuhan Akar Bag: Implikasinya pada Penyerapan Nutrisi dan Ketahanan Hidup.



- Flora: Jurnal Kajian Ilmu Pertanian dan Perkebunan*, 2(1), 70–81.  
<https://doi.org/10.62951/flora.v2i1.215>
- Wirayuda, H., Sakiah, S., & Ningsih, T. (2023). Kadar K pada Tanah dan Tanaman Kelapa Sawit (*Elaeis guineensis* Jacq) pada Lahan Aplikasi dan Tanpa Aplikasi Tandan Kosong Kelapa Sawit. *Tabela Jurnal Pertanian Berkelanjutan*, 1(1), 19–24. <https://doi.org/10.56211/tabela.v1i1.168>
- Xiong, D., & Nadal, M. (2020). Linking water relations and hydraulics with photosynthesis. *The Plant Journal*, 101(4), 800–815. <https://doi.org/10.1111/tpj.14595>
- Xu, Z., Fan, F., Lin, Q., Guo, S., Li, S., Zhang, Y., Feng, Z., Wang, X., Rensing, C., Cao, G., Wu, L., & Cao, S. (2025). Effects of Different Stand Densities on the Composition and Diversity of Soil Microbiota in a *Cunninghamia lanceolata* Plantation. *Plants*, 14(1), 98. <https://doi.org/10.3390/plants14010098>
- Yu, Z., Wang, C., Zou, H., Wang, H., Li, H., Sun, H., & Yu, D. (2022). The Effects of Aerated Irrigation on Soil Respiration and the Yield of the Maize Root Zone. *Sustainability*, 14(8), 4378. <https://doi.org/10.3390/su14084378>
- Yulipriyanto, H. (2010). *Biologi Tanah dan Strategi Pengelolaannya*. Graha Ilmu.
- Zhang, F., Zhang, D., Li, L., Zhang, Z., Liang, X., Wen, Q., Chen, G., Wu, Q., & Zhai, Y. (2023). Effect of Planting Density on Canopy Structure, Microenvironment, and Yields of Uniformly Sown Winter Wheat. *Agronomy*, 13(3), 870. <https://doi.org/10.3390/agronomy13030870>
- Zhang, R., & Tielbörger, K. (2020). Density-dependence tips the change of plant–plant interactions under environmental stress. *Nature Communications*, 11(1), 2532. <https://doi.org/10.1038/s41467-020-16286-6>
- Zhang, Z., Xu, S., Wei, Q., Yang, Y., Pan, H., Fu, X., Fan, Z., Qin, B., Wang, X., Ma, X., & Xiong, S. (2022). Variation in Leaf Type, Canopy Architecture, and Light and N Distribution Characteristics of Two Winter Wheat (*Triticum aestivum* L.) Varieties with High N-Use Efficiency. *Agronomy*, 12(10), 2411. <https://doi.org/10.3390/agronomy12102411>
- Zhao, Y., Wang, X., Chen, F., Li, J., Wu, J., Sun, Y., Zhang, Y., Deng, T., Jiang, S., Zhou, X., & Liu, H. (2023). Soil organic matter enhances aboveground biomass in alpine grassland under drought. *Geoderma*, 433, 116430. <https://doi.org/10.1016/j.geoderma.2023.116430>
- Zhou, T., Wang, L., Li, S., Gao, Y., Du, Y., Zhao, L., Liu, W., & Yang, W. (2019). Interactions Between Light Intensity and Phosphorus Nutrition Affect the P Uptake Capacity of Maize and Soybean Seedling in a Low Light Intensity Area. *Frontiers in Plant Science*, 10, 183. <https://doi.org/10.3389/fpls.2019.00183>

