

DAFTAR PUSTAKA

- Abbas, F., J. Du, H. Chen, M. Azeem, dan R. Fan. 2025. Soil aggregate stability assessment based on ultrasonic agitation: Limitations and recommendations after sixty years (1964–2023). *Pedosphere*. 35: 67-83.
- Amalina, F., A.S. Abd Razak, S. Krishnan, H. Sulaiman, A.W. Zularisam, dan M. Nasrullah 2022. Biochar production techniques utilizing biomass waste-derived materials and environmental applications. *Journal of Hazardous Materials Advances*. 7: 1-12.
- APG (The Angiosperm Phylogeny Group). 2016. An update of the angiosperm phylogeny group classification for the orders and families of flowering plants: APG IV. *Botanical Journal of the Linnean Society*. 181: 1-20.
- Arwenyo, B., J. J. Varco, A. Dygert, S. Brow, C. U. Pittman, dan T. MIsna. 2023. Contribution of modified P-enriched biochar on pH buffering capacity of acidic soil. *Journal of Environmental Management*. 339: 1-11.
- Badan Riset dan Inovasi Nasional (BRIN). (2025). Kabupaten Banyumas Sulap Sampah Menjadi Uang. <https://brin.go.id/drid/posts/kabar/kabupaten-banyumas-sulap-sampah-berubah-uang>. Diakses tanggal 21 Januari 2025.
- Balai Besar Litbang Sumberdaya Lahan Pertanian (BBSDLP). 2009. Identifikasi dan Karakterisasi Lahan Rawan Longsor dan Rawan Erosi di Dataran Tinggi untuk Mendukung Keberlanjutan Pengelolaan Sumberdaya Lahan Pertanian. Balai Besar Litbang Sumberdaya Lahan Pertanian. Bogor.
- Bhandari, B. P., dan S. Dhakal. 2020. Compositional analysis and phase relations of soil mass from the active landslides of Babai River watershed, Siwalik zone of Nepal. *Engineering Geology*. 278: 1-11.
- Bhat, Bashir H., et al. 2022. Seed Germination and Seedling Growth: A Comprehensive Overview. *Seed Biology*. Springer. 1–34.
- Bhogal, A., F. A. Nicholson, A. Rollett, M. Taylor, A. Litterick, M. J. Whittingham, dan J. R. Williams. 2018. Improvements in the Quality of Agricultural Soils Following Organic Material Additions Depend on Both the Quantity and Quality of the Materials Applied. *Frontiers in Sustainable Food Systems*. 2: 1-13.

- Bijay-Singh, dan T. B. Sapkota. 2023. The effects of adequate and excessive application of mineral fertilizers on the soil. *Encyclopedia of Soils in the Environment*, Second Edition. 3: 369-381.
- Blake, G. R. 2015. *Methods of Soil Analysis, Part 1: Physical and Mineralogical Properties, Including Statistics of Measurement and Sampling*. Wiley. United States.
- Blanco-Canqui, H. 2017. Biochar and soil physical properties. *Soil Science Society of America Journal*. 81: 687 – 711.
- Bondi, C., M. Castellini, dan M. Iovino. 2024. Temporal variability of physical quality of a sandy loam soil amended with compost. *Biologia*. 80: 1221 – 1232.
- Bong, C. P. C., I. Y. Lim, C. T. Lee, P. Y. Lee, dan Y. van Fan. 2021. Integrating compost and biochar towards sustainable soil management. *Chemical Engineering Transactions*. 86: 1345 – 1350.
- Brady, N. C., dan R. R. Weil. 2017. *The Nature and Properties of Soils*. Pearson. London.
- Chagas, C. S., W. D. Junior, S. B. Bhering, B. C. Filho. 2016. Spatial prediction of soil surface texture in a semiarid region using random forest and multiple linear regressions. *Catena*. 139: 232-240.
- Chakraborty, M., R. Singh, A. Awasthi, V. Kumar, A. Kumar, dan S. Kaur. 2025. Assessment of greenhouse gas emission in Delhi landfills: analyzing factor affecting emissions and environmental implications. *Journal of Material Cycles and Waste Management*. 27: 330-342.
- Chen, Q., J. Xie, L. Li, dan C. Du. 2025. Partial substitution of chemical fertilizer with organic fertilizer: a promising circular economy approach for improvement soil physical and chemical properties and sustainable crop yields. *Frontiers in Plant Science*. 16: 1-10.
- Dai, L., R. Fu, X. Guo, Z. Hu, dan G. Cao. 2021. Alpine shrub had a stronger soil water retention capacity than the alpine meadow on the northeastern Qinghai-Tibetan Plateau. *Ecological Indicators*. 133: 1-13.
- De Lima, R. P., M. M. Rolim, M. P. S. Toledo, dan C. A. Tormena. 2022. Texture and degree of compactness effect on the pore size distribution in weathered tropical soils. *Soil & Tillage Research*. 215: 1-9.

- Dimoyiannis, D. 2012. Wet aggregate stability as affected by excess carbonate and other soil properties. *Land Degredation and Development*. 23: 450-455.
- Don, C. V., R. Prietz, A. Heidkamp, dan A. Freibauer. 2015. Field-based soil-texture estimates could replace laboratory analysis. *Geoderma*. 267: 215-219.
- Dong, S., A. B. Bismark, S. Li, dan C. Li. 2024. Ammonium polyphosphate promotes maize growth and phosphorus uptake by altering root properties. *Plants*. 13: 1-8.
- Dresboll, D.B., dan K. Thorup-Kristensen. 2005. Structural differences in wheat (*Triticum aestivum*), hemp (*Cannabis sativa*) and *Miscanthus* (*Miscanthus ogiformis*) affect the quality and stability of plant based compost. *Scientia Horticulturae*. 107: 81-89.
- FAO. 2015. World Reference Base for Soil Resources 2014. World Soil Resources Reports No. 106. Food and Agriculture Organization of The United Nations, Rome, Italy.
- Fedrico, A. M., D. Miccoli, A. Murianni, dan C. Vitone. 2018. An indirect determination of the specific gravity of soil solids. 239: 22-26.
- Feng, X., X. Zhou Y. Pei, dan Y. Xie. 2012. Study of effect on soil salinity and respiration intensity by the straw compost. *Advanced Materials Research*. 518: 245-248.
- Fiqriansyah, M., S. A, Putri, R. Syam, A.S. Rahmadani, dan T. N. S. Frianie. 2021. Teknologi budidaya tanaman jagung (*Zea mays*) dan sorgum (*Sorghum bicolor* (L.) *Moench*).
- Glab, T., K. Gondek, dan M. Mierzwa-Hersztek. 2025. Enhancing soil physical quality with compost amendments: effects of particle size and additives. *Agronomy*. 15(2): 1-18.
- Gul, S., Whalen, J.K., Thomas, B.W., Sachdeva, V., & Deng, H. 2015. Physico-chemical properties and microbial responses in biochar-amended soils: mechanisms and future directions. *Agriculture, Ecosystems & Environment*. 206: 46–59.
- Gumbara, R. H., Darmawan, dan B. Sumawinata. 2019. A comparison of cation exchange capacity of organic soils determined by ammonium acetate solutions buffered at some pHs ranging between around field pH and 7.0. *IOP Conference Series: Earth and Environmental Science*. 393: 1-6.
- Guo, G., Y. Kong, Y. Xu, dan J. Lin. 2024. Soil organic matter components and sesquioxides integrally regulate aggregate stability and size distribution under

- erosion and deposition conditions in southern China. *Journal of Hydrology*. 639: 1-10.
- Gupta, P., J. Alam, dan M. Muzzammil. 2020. A simulation and experimental approach for flow through stratified porous media perpendicular to bedding plane. *Water and Energy International*. 63: 59-72.
- Hanudin, E., Iskyati, W. and Yuwono, N.W. 2021. Improving Nutritional Value of Cow Manure with Biomass Ash and Its Response to the Growth and K-Ca Absorption of Mustard on Inceptisols. *IOP Conference Series: Earth and Environmental Science*. 752:012015.
- Horak, J., T. Kotus, L. Tokova, E. Aydin, D. Igaz, dan V. Simansky. 2021. A sustainable approach for improving soil properties and reducing n₂o emissions is possible through initial and repeated biochar application. *Agronomy*. 11: 1-17.
- Hu, S., M Z. Fu, Y. Sun, dan G. Zeng. 2024. Impact of plant-based soil amendments on improvement of mortgaged farmland. *Bangladesh Journal of Botany*. 53: 823 – 833.
- Ingle, M., and A. Duhan. 2019. Effect of Organic Manures on Seed Germination and Seedling Growth: A Review. *International Journal of Chemical Studies*. 7: 1869–1874.
- Iqbal, J., G. Sarwar, S. G. Shah, N. Sabah, M. A. Tahir, dan S. Muhammad. 2022. Evaluating the combined effect of compost and mineral fertilizers on soil health, growth and mineral acquisition in maize (*Zea Mays L.*). *Pakistan Journal of Botany*. 54: 1793-1801.
- Jabro, J. D., dan W. B. Stevens. 2022. Pore Size Distribution Derived from Soil–Water Retention Characteristic Curve as Affected by Tillage Intensity. *Water*. 14: 1-10.
- Jassey, A., Asriyana, A., Fajriati, I., & Permana, H. 2022. Study of characteristics of solid waste and potential reduction using the 3R concept (reduce, reuse, recycle). *IOP Conference Series: Earth and Environmental Science*. 1098: 012010.
- Jote, Chali Abate. 2023. The Impacts of Using Inorganic Chemical Fertilizers on the Environment and Human Health. *Organic & Medicinal Chemistry International Journal*. 13: 1-8.

- Kalhoru, S. A., X. Xu, W. Chen, dan K. Ding. 2017. Effects of different land-use systems on soil aggregates: A case study of the Loess Plateau (Northern China). *Sustainability*. 9: 1-8.
- Kim, Y. J., J. Hyun, S. Y. Yoo, dan G. Yoo. 2021. The role of biochar in alleviating soil drought stress in urban roadside greenery. *Geoderma*. 404: 1-10.
- Klimas, E., A. Szymańska-Pulikowska, B. Gorgka, dan P. Wiczorek. 2016. Presence of plant hormones in composts made from organic fraction of municipal solid waste. *Journal of Elementology*. 21: 1043-1053.
- Kusumajati, D. A., L. N. Abd Razak, S. F. Anggraeni, R. A. Ma'arifah, dan D. N. Rohman. 2023. Training on making organic compost in the compost bag method as a solution for waste handling in urban environments. *Journal of Hazardous Materials Advances*. 7: 725-732.
- Kuzucu, M. 2019. Effects of organic fertilizer application on yield, soil organic matter and porosity on Kilis oil olive variety under arid conditions. *Eurasian Journal of Forest Science*. 7: 77-83.
- Lal, R., dan M. K. Shukla. 2007. *Principles of Soil Physics*. The Ohio State University. Columbus.
- Lehmann, J., & Kleber, M. 2015. The contentious nature of soil organic matter. *Nature*. 528: 60-68.
- Li, M., W. Sun, Y. Wang, D. Sun, dan Y. Tan. 2021. Air permeability of biochar-amended clay cover. *Arabian Journal of Geosciences*. 14: 732-744.
- Li, Q., J. Zhang, J. Ye, Y. Liu, Y. Lin, Z. Yi, dan Y. Wang. 2024. Biochar affects organic carbon composition and stability in highly acidic tea plantation soil. *Journal of Environmental Management*. 370: 1-13.
- Liu, C., F. Tong, L. Yan, dan S. Hao. Effect of porosity on soil-water retention curves: theoretical and experimental aspects. *Geofluids*. 1: 1-8.
- Lumbantoruan, A. I. S, Sulardi, dan D. A. Luta. 2024. *Uji Beberapa Pupuk Organik dan Sistem Aplikasi Terhadap Pertumbuhan dan Produksi Jagung Hibrida (Zea Mays)*. UNPAB Press. Medan.
- Lv, R., Y. Wang, Q. Wang, Y. Wen, dan Q. Shang. 2023. Rice straw biochar alters inorganic nitrogen availability in paddy soil mainly through abiotic processes. *Journal of Soils and Sediments*. 23: 568 – 581.

- Mohee, R., dan A. Mudhoo. 2005. Analysis of the physical properties of an in-vessel composting matrix. *Powder Technology*. 155: 92-99.
- Mondragón-Sánchez, A., L. E. Medina-Orozco, A. Sánchez-Duque, dan Y. Verónica Núñez-Oregel. 2021. Effect of the application of biochar in the corn yield in Michoacan, Mexico. *Terra Latinoamericana*. 39: 1-7.
- Moussaoui, L. S., & Bobst, T. 2022. Adoption of organic waste sorting behavior at home: who recycles and which barriers exist for non-recyclers? A representative survey. *Environmental Challenges*. 8:1-11.
- Murphy, B. 2015. Key soil functional properties affected by soil organic matter — Evidence from published literature. *IOP Conference Series: Earth and Environmental Science*. 25: 1-5.
- Muslim, R.Q., Kricella, P., Purwanto, S. and Ritung, S. 2020. Characteristics of Inceptisols derived from basaltic andesite from several locations in volcanic landform. *Journal of Soil Science and Agroclimatology*. 17:115-120.
- Nikitin, A. 2018. Assesment of sandy soil water permeability methods. *MATEC*. 196: 1-10.
- Nimmo, J. R., S. Katuwal, dan M. Lucas. 2023. Porosity and pore-size distribution. *Encyclopedis of Soils in the Environment, Second Edition*. 2: 5-16.
- Notohadiprawiro, T. 1991. *Tanah dan Lingkungan*. UGM Press. Yogyakarta.
- Nugroho, D., et al. 2020. Analisis Spasial Tingkat Kerawanan Tanah Longsor di Kecamatan Wagir, Kabupaten Malang dengan Sistem Informasi Geografis. *Jurnal Geosaintek*. 9: 80-87.
- Panglai, M., N. Vignozzi, dan S. Pellegrini. 2004. Soil structure and the effect of management practices. *Soil and Tillage Research*. 79: 131–143.
- Paoadopoulos, A. 2011. Soil aggregates, structure, and stability. *Encyclopedia of Earth Sciences Series*. 4: 736-740.
- Parawansa, A. K. 2024. *Tanaman Jagung untuk Petani dan Masyarakat*. Tahta Media Group. Jakarta.
- Peltre, C., T. Nyord, S. Bruun, L.S. Jensen, dan J. Magid. 2015. Repeated soil application of organic waste amendments reduces draught force and fuel consumption for soil tillage. *Agriculture, Ecosystems and Environment*. 211: 94-101.

- Peng, S., H. Shen, J. Yuan, C. Wei, dan T. Guo. Impacts of arbuscular mycorrhizal fungi on soil aggregation dynamics of neutral purple soil. *Shengtai Xuebao/ Acta Ecologica Sinica*. 31: 498 – 505.
- Peterson, G. A., dan J. F. Power. 2015. *Soil, Crop, and Water Management*. Wiley. United State.
- Phooi, C. L., E. A. Azman, dan R. Ismail. 2022. Do it Yourself: Humic Acid. *Pertanika Journal of Tropical Agricultural Science*. 45: 547 – 564.
- Poeplau, C., T. Riefling, M. Schiedung, dan R. Anluf. 2024. Land use and soil property effects on aggregate stability assessed by three different slaking methods. *Eur J Soil Sc*. 75: 1-16.
- Preene, M., dan W. Powrie. 2019. Assessment of permeability for design of groundwater control systems. *Groundwater and hydrology*. 3: 1-9.
- Priti, J., N. L. Pamwar, T. Gupta, dan C. Agrawal. 2023. Role of biochar in agriculture to enhance crop productivity: an overview. *Biointerface Research in Applied Chemistry*. 13: 1-21.
- Qinyue, Y., R. Kumar, W. Liu, dan M. Jiang. 2025. Mechanism of water retention and gas flux in unsaturated soils amended with four different pyrolyzed plant based biomass. *Soil Use and Management*. 41: 20-35.
- Qiu, R., Y. Miao, M. Zhang, dan H. Sun. 2018. Modeling and verification of maize biomass based on linear regression anaysis. *Transactions of the Chinese Society of Agricultural Engineering*. 34: 131-137.
- Rabbi, S. M. F., C. R. Warren, B. Swarbrick, B. Minasny, A. B. McBratney, dan I. M. Young. 2024. Microbial decomposition of organic matter and wetting–drying promotes aggregation in artificial soil but porosity increases only in wet-dry condition. *Geoderma*. 447: 1-10.
- Rashid, M., S. Kanwal, S. Ghafar, K. Nawwal, S. Ajmal, dan S. Rasib. 2021. Assessment of soil texture on *Triticum aestivum* growth. *Eng. Proc*. 12: 1-4.
- Ren, L., H. Yang, J. Li, dan Y. Han. 2025. Soil aggregates and organic carbon affected by bio-fertilizer in greenhouse soil. *Communications in Soil Science and Plant Analysis*. 56: 784 – 799.

- Robinson, D. A., S. P. Friedman, A. Thomas, D. Hirmas, P. L. Sullivan, dan A. Nemes. 2025. Soil bulk density and porosity connecting macro- and micro-scales through geometry. *Earth-Science Reviews*. 268: 1-20.
- Sadeli, A. 2022. Utilization of organic waste as compost fertilizer and its effect on the growth of red spinach (*Amaranthus tricolor* L.). *IOP Conference Series: Earth and Environmental Science*. 977: 012130.
- Sasetyaningtyas, D. 2020. <https://sustaination.id/mengenal-jenis-dan-wadahkomposter/> diakses pada Minggu, 4 Mei 2025 pukul 18.56 WIB.
- Satriyo, B. 2015. Model Geoplanologi dalam Perencanaan Tata Ruang Daerah Rawalo, Banyumas, Jawa Tengah. *Riset Geologi dan Pertambangan*. 25: 63-70.
- Schnee, L. S., H. Koehler, A. Ngakou, dan T. Eickhorst. 2021. Long-term impact of single biochar and compost application on soil aggregation. *IOP Conf. Series: Earth and Environmental Science*. 648: 1-13.
- Setianingsih, T. E. 2024. Optimalisasi *slurry* dan baglog terhadap peningkatan kualitas kompos. *Berkala Ilmiah Pertanian*. 7: 217-224.
- Shan, L., L. Qi-quan, W. Chang-quan, L. Bing, G. Xue-song, L. Yi-ding, dan W. De-yong. 2019. Spatial variability of soil bulk density and its controlling factors in an agricultural intensive area of Chengdu Plain, Southwest China. *Journal of Integrative Agriculture*. 18: 290-300.
- Shanmugam, V., S. N. Sreenivasan, R. A. Menshan, dan O. Das. 2022. A review on combustion and mechanical behaviour of pyrolysis biochar. *Materials Today Communications*. 31: 1-11.
- Soetopo, R. 1999. Pemanfaatan Limbah Padat untuk Kompos, Jamur dan Cacing. Pelatihan Production Supervisor dalam Implementasi Teknologi Lingkungan Lanjut pada Industri Pulp dan Kertas. Bandung.
- Stubbs, C. J., R. Larson, dan D. D. Cook. 2022. Maize stalk stiffness and strength are primarily determined by morphological factors. *Scientific Reports*. 12: 1-11.
- Sun F., dan S. Lu. 2014. Biochars improve aggregate stability, water retention, and pore-space properties of clayey soil. *Journal of Plant Nutrition and Soil Science*. 17: 26 – 33.

- Syarifinnur, Y. Nuraini, dan B. Prasetya. 2022. Effect of application compost and vermicompost from market waste on soil chemical properties and plant growth. *Journal of Degraded and Mining Lands Management*. 9: 3379-3386.
- Torabian, S., M. Zahedi, and A. H. Khoshgoftar. 2011. Effects of Foliar Spray of Micronutrients on Growth and Yield of Sweet Corn (*Zea mays* L.). *Agricultural Sciences*. 2: 201–206.
- USDA-NRSC. 2014. Soil health – guide for educators. United States Departement of Agriculture. Washington, DC.
- Utomo, R B., dan M. I. Muttaqijn. 2023. Studi Komparasi Pengelolaan Sampah di Kabupaten Banyumas Dengan Kota Tangerang. *Jurnal Pembangunan Kota Tangerang*. 1: 106–124.
- Vargas, L. Y., W. Zhang, dan A. I. Cheema. 2024. Effects of compost-based amendments from sewage sludge and food waste on sandy soil and rosette bok choy's growth. 2024. *Water, Air, and Soil Pollution*. 235: 1-14.
- Wahyurini, E., Supriyanta, B., & Suprihanti, A. 2022. Teknik Budidaya Dan Keragaman Genetik Jagung Manis. In Lembaga Penelitian dan Pengabdian Kepada Masyarakat UPN “Veteran” Yogyakarta. Yogyakarta.
- Wain Ng, C. W., dan D. Peprah-Manu. 2023. Pore structure effects on the water retention behaviour of a compacted silty sand soil subjected to drying-wetting cycles. *Engineering Geology*. 313: 1-15.
- Wang, N., dan T. Zhang. 2024. Soil pore structure and its research methods: A review . *Soil and Water Research*. 19: 1-24.
- Wencan, J., D. Zhou, dan Y. Wang. 2021. Effects of clay content on pore structure characteristics of marine soft soil. *Water*. 13: 1-19.
- Wu, H., C. Lai, G. Zeng, J. Liang, J. Chen, dan J. Xu. 2017. The interactions of composting and biochar and their implications for soil amendment and pollution remediation: a review. *Critical Reviews in Biotechnology*. 37: 54 – 764.
- Yan, W., dan R. Cudmani. 2024. A novel framework for deriving water retention behavior of multimodal unsaturated soils based on pore size distribution data. *Acta Geotechnica*. 19: 8071-8088.

- Yargicuglu, E. N., dan K. R. Reddy. 2015. Characterization and surface analysis of commercially available biochars for geoenvironmental applications. *Geotechnical Special Publication*. 256: 2637-2646.
- Yaulilahua-Huacho, R., L. A. Sumarriva-Bustinza, L. I. R. Gutierrez-Deza, dan M. M. Ordoñez-Santoyo. 2024. *Journal of Experimental Biology and Agricultural Sciences*. *Journal of Experimental Biology and Agricultural Sciences*. 12: 573-587.
- Yu, M., J. Cai, dan L. Xue. 2019. Responses of fine root morphology of *Cinnamomum camphora* seedlings to nitrogen and phosphorus additions and planting density. *Shengtai Xuebao*. 39: 7641 – 7648.
- Zaffar m., dan L. S. Gao. 2015. Pore size distribution of clayey soils and its correlation with soil organic matter. *Pedosphere*. 25: 240-249.
- Zeng, X., Y. Li, K. Huang, Z. Lin, J. Su, dan T. Gao. 2022. Influence of hygroscopicity on the determination of soil specific gravity. 39: 1125-1134.
- Zgorelec, Z., B. Grahovac, A. Percin, V. Jurkovic, dan L. Gandjaeva. 2019. Comparison of two different KTK determination methods regarding the soil properties. *Agric. Conspec. Sci*. 84: 151-158.
- Zhang, A., X. X. Wang, D. Zhang, dan H. Li. 2023. Localized nutrient supply promotes maize growth and nutrient acquisition by shaping root morphology and physiology and mycorrhizal symbiosis. *Soil and Tillage Research*. 225: 1-12.
- Zhang, J., C. Jiang, Q. Hao, dan D. Xie. 2012. Effect of tillage systems on light fraction carbon in a purple paddy soil. *Acta Ecologica Sinica*. 32: 4379-4387.
- Zhang, J., F. Chi, D. Wei, B. Zhou, dan S. Cai. 2019. Impacts of long-term fertilization on the molecular structure of humic acid and organic carbon content in soil aggregates in black soil. *Scientific Reports*. 9: 1-7.
- Zhao, B., Y. Wang, L. Li, L. Ma, Y. Deng, dan Z. Xu. 2023. Adjusting pH of the secondary composting materials to further enhance the lignocellulose degradation and promote the humification process. *Sustainability*. 15: 1-14.
- Zhao, L., L. S. Li, H. J. Cai, dan C. Zhang. 2018. Organic amendments influence soil water depletion, root distribution, and water productivity of summer maize in the Guanzhong Plain of Northwest China. *Water*. 10: 1-13.

Zhu, J., dan J. P. Lynch. 2004. The contribution of lateral rooting to phosphorus acquisition efficiency in maize (*Zea mays*) seedlings. *Functional Plant Biology*. 31: 949 – 958.