

DAFTAR PUSTAKA

- Ahmed, H. A., Yu-Xin, T. dan Qi-Chang, Y., 2020. Optimal control of environmental conditions affecting lettuce plant growth in a controlled environment with artificial lighting: A review. *South African Journal of Botany*, 130, 75–89. Available from: <https://doi.org/10.1016/j.sajb.2019.12.018>.
- Akossou, A. Y. J., 2013. Impact of data structure on the estimators R-square and adjusted R-square in linear regression. *International Journal of Mathematics and Computation*, (January 2013). Available from: <http://www.ceser.in/ceserp/index.php/ijmc/article/view/2579>.
- Alfahira, N., Triyanto, D. dan Nirmala, I., 2021. Sistem Monitoring dan Kendali Tanaman Hidroponik Indoor Farming Menggunakan Led Grow Light Berbasis Website. *Coding : Jurnal Komputer dan Aplikasi*, 09 (03), 456–467.
- Alrajhi, A. A., Alsahli, A. S., Alhelal, I. M., Rihan, H. Z., Fuller, M. P., Alsadon, A. A. dan Ibrahim, A. A., 2023. The Effect of LED Light Spectra on the Growth, Yield and Nutritional Value of Red and Green Lettuce (*Lactuca sativa*). *Plants*, 12 (3), 1–14.
- Ariany, S. P., Sahiri, N. dan Syakur, A., 2013. Pengaruh Kuantitas Cahaya Terhadap Pertumbuhan Dan Kadar Antosianin Daun Dewa (*Gynura pseudochina* (L.) DC) secara In Vitro. *Agrotekbis*, 1 (5), 413–420. Available from: <https://www.neliti.com/publications/243746/pengaruh-kuantitas-cahaya-terhadap-pertumbuhan-dan-kadar-antosianin-daun-dewagy>.
- Aulia, S., Ansar, A. dan Putra, G. M. D., 2019. Pengaruh intensitas cahaya lampu dan lama penyinaran terhadap pertumbuhan tanaman kangkung (*ipomea reptans* poir) pada sistem hidroponik indoor. *Jurnal Ilmiah Rekayasa Pertanian dan Biosistem*, 7 (1), 43–51.
- Avgoustaki, D. D. dan Xydis, G., 2020. *How energy innovation in indoor vertical farming can improve food security, sustainability, and food safety?*. 1 ed. Advances in Food Security and Sustainability. Elsevier Inc. Available from: <http://dx.doi.org/10.1016/bs.af2s.2020.08.002>.
- BPS, 2020. Produksi tanaman selada di Indonesia. *Pusat Data dan Sistem Informasi Pertanian*.
- Burattini, C., Mattoni, B. dan Bisegna, F., 2017. The Impact of Spectral Composition of White LEDs on Spinach (*Spinacia oleracea*) Growth and Development. *Energies*, 10 (12).
- Carney, M. J., 2016. LED Lighting in Controlled Environment Agriculture Energy Evaluation , Measurement and Validation, 2015 (May).
- Chen, X. li, Xue, X. zhang, Guo, W. zhong, Wang, L. chun dan Qiao, X. jun, 2016. Growth and nutritional properties of lettuce affected by mixed irradiation of white and supplemental light provided by light-emitting diode. *Scientia Horticulturae*, 200, 111–118. Available from: <http://dx.doi.org/10.1016/j.scienta.2016.01.007>.
- Chidburee, A., Norikuni, O., Sueyoshi, K. dan Ohyama, T., 2007. Effects of Red Light on Growth , Photosynthesis and Food Reserves in Curcuma Effects of

- Red Light on Growth , Photosynthesis and Food Reserves in *Curcuma alismatifolia* Gagnep, (August 2017).
- Dou, H., Niu, G., Gu, M. dan Masabni, J. G., 2017. Effects of light quality on growth and phytonutrient accumulation of herbs under controlled environments. *Horticulturae*, 3 (2), 1–11.
- Ekawati, R., 2018. Pertumbuhan dan produksi pucuk kolesom pada intensitas cahaya rendah. *Kultivasi*, 16.
- Ekoanindiyo, F. A., 2011. Pemodelan Sistem Antrian Dengan Menggunakan Simulasi. *Dinamika Teknik*, V (1), 72–85.
- FAOSTAT, 2022. Macro Indicators.. Available from: <https://www.fao.org/faostat/en/#data/MK>.
- Fariudin, R., Sulistyaningsih, E. dan Waluyo, S., 2013. Growth and Yield of Two Cultivars of Lettuce (*Lactuca Sativa*, L.) in Aquaponics in Gourami and Tilapia Fishpond. *Vegetalika*, 2 (1), 66–81. Available from: <https://jurnal.ugm.ac.id/jbp/index>.
- Fu, W., Li, P., Wu, Y. dan Tang, J., 2012. Effects of different light intensities on anti-oxidative enzyme activity, quality and biomass in lettuce. *Horticultural Science*, 39 (3), 129–134.
- Gao, D., Li, M., Zhang, J., Song, D., Sun, H., Qiao, L. dan Zhao, R., 2021. Improvement of chlorophyll content estimation on maize leaf by vein removal in hyperspectral image. *Computers and Electronics in Agriculture*, 184 (March), 106077. Available from: <https://doi.org/10.1016/j.compag.2021.106077>.
- Hakim, A. L., 2020. Urban farming metode teknologi inovasi batu pada pertanian perkotaan. *Urban Farming Solusi Pertanian Perkotaan*, 1–23.
- Hakim, M. A. R., Sumarsono, S. dan Sutarno, S., 2019. Pertumbuhan dan produksi dua varietas selada (*Lactuca sativa* l.) pada berbagai tingkat naungan dengan metode hidroponik. *Journal of Agro Complex*, 3 (1), 15.
- Indrasti, D., Andarwulan, N., Hari Purnomo, E. dan Wulandari, N., 2019. Suji Leaf Chlorophyll: Potential and Challenges as Natural Colorant. *Jurnal Ilmu Pertanian Indonesia*, 24 (2), 109–116.
- Kang, J. H., KrishnaKumar, S., Atulba, S. L. S., Jeong, B. R. dan Hwang, S. J., 2013. Light intensity and photoperiod influence the growth and development of hydroponically grown leaf lettuce in a closed-type plant factory system. *Horticulture Environment and Biotechnology*, 54 (6), 501–509.
- Khafid, A., Nurchayati, Y. dan Suedy, S. W. A., 2021. Kandungan Klorofil dan Karotenoid Daun Salam (*Syzgium polyanthum* (Wight) Walp.) pada Umur yang Berbeda. *Buletin Anatomi dan Fisiologi*, 6 (1), 74–80.
- Kim, J., Kang, W. H. dan Son, J. E., 2020. Interpretation and evaluation of electrical lighting in plant factories with ray-tracing simulation and 3D plant modeling. *Agronomy*, 10 (10).
- Kitajima, K. dan Hogan, K. P., 2003. Increases of chlorophyll a/b ratios during acclimation of tropical woody seedlings to nitrogen limitation and high light. *Plant, Cell and Environment*, 26 (6), 857–865.
- Komala, D. F., 2017. Otomatisasi Pengendalian Pencahayaan Untuk Tanaman Selada (*Lactuca Sativa* L.) Dengan Sistem Tanam Hidroponik Di Dalam

- Greenhouse. *BMC Public Health*, 5 (1), 1–8. Available from: <https://ejournal.poltektegal.ac.id/index.php/siklus/article/view/298%0Ahttp://repositorio.unan.edu.ni/2986/1/5624.pdf%0Ahttp://dx.doi.org/10.1016/j.jana.2015.10.005%0Ahttp://www.biomedcentral.com/1471-2458/12/58%0Ahttp://ovidsp.ovid.com/ovidweb.cgi?T=JS&P>.
- Kozai, T., 2013. Resource use efficiency of closed plant production system with artificial light: Concept, estimation and application to plant factory. *Proceedings of the Japan Academy Series B: Physical and Biological Sciences*, 89 (10), 447–461.
- Křístková, E., Ivana, D., Lebeda, A., Vinter, V. dan Novotna, A., 2008. Description of morphological characters of lettuce (*Lactuca sativa* L.) genetic resources. *Horticultural Science*, 35, 113–129.
- Kumari, K. dan Yadav, S., 2018. Linear regression analysis study. *Journal of the Practice of Cardiovascular Sciences*, 4, 33.
- Lal, N. dan Sachan, P., 2017. Effect of different Visible Light wavelengths on Seed Germination and Photosynthetic Pigment Contents in *Vigna unguiculata* Effect of Different Visible Light Wavelengths on Seed Germination and Photosynthetic Pigment Contents in *Vigna unguiculata* (L.) Walp. *Article in Indian Journal of Biology*, 4 (December), 132–136. Available from: <http://dx.doi.org/10.21088/ijb.2394.1391.4217.10>.
- Li, Long, J., Yan, Y., Luo, J., Xu, Z. dan Liu, X., 2020. Addition of white light to monochromatic red and blue lights alters the formation, growth, and dormancy of in vitro-grown solanum tuberosum l. microtubers. *HortScience*, 55 (1), 71–77.
- Li, Y., Wu, L., Jiang, H., He, R., Song, S., Su, W. dan Liu, H., 2021. Supplementary far-red and blue lights influence the biomass and phytochemical profiles of two lettuce cultivars in plant factory. *Molecules*, 26 (23).
- Liu, N., Ji, F., Xu, L. dan He, D., 2019. Effects of LED light quality on the growth of pepper seedling in plant factory. *International Journal of Agricultural and Biological Engineering*, 12 (5), 44–50.
- Macedo, A. F., Leal-Costa, M. V., Tavares, E. S., Lage, C. L. S. dan Esquibel, M. A., 2011. The effect of light quality on leaf production and development of in vitro-cultured plants of *Alternanthera brasiliana* Kuntze. *Environmental and Experimental Botany*, 70 (1), 43–50.
- Maclean, H., Dochain, D., Waters, G., Dixon, M., Chaerle, L. dan Van Der Straeten, D., 2010. *Identification of simple mass balance models for plant growth - Towards food production on manned space missions*. IFAC Proceedings Volumes (IFAC-PapersOnline). IFAC. Available from: <http://dx.doi.org/10.3182/20100707-3-BE-2012.0028>.
- Maghfiroh, J., 2017. Pengaruh Intensitas Cahaya Terhadap Pertumbuhan Tanaman. *Prosiding Seminar Nasional Pendidikan Biologi dan Biologi*, 51–58. Available from: [http://seminar.uny.ac.id/sembiouny2017/sites/seminar.uny.ac.id/sembiouny2017/files/B 7a.pdf](http://seminar.uny.ac.id/sembiouny2017/sites/seminar.uny.ac.id/sembiouny2017/files/B%207a.pdf).
- Marisa, M., Carudin, C. dan Ramdani, R., 2021. Otomatisasi Sistem Pengendalian

- dan Pemantauan Kadar Nutrisi Air menggunakan Teknologi NodeMCU ESP8266 pada Tanaman Hidroponik. *Jurnal Teknologi Terpadu*, 7 (2), 127–134.
- Martono, C. I., Sarwito, S. dan Kusuma, I. R., 2016. Analisa Tekno Ekonomis Penerapan Light Emitting Diode (LED) pada Sistem Penerangan di Kapal Penangkap Ikan, 5 (2).
- Meriaty, Arvita Sihaloho dan Kiki Dwi Pratiwi, 2021. Pertumbuhan dan Hasil Tanaman Selada (*Lactuca*, 4 (2), 75–84.
- Morrow, R. C., 2008. LED Lighting in Horticulture, 43 (7), 1947–1950.
- Naomi, A., Pertiwi, J., Permatasari, P. A. dan Dini, S. N., 2018. Keefektifan Spektrum Cahaya Terhadap Pertumbuhan Tanaman Kacang Hijau (*Vigna Radiata*), 4 (2), 93–102.
- Nurdianna, D., Bandriyati, R., Putri, A. dan Harjoko, D., 2018. Penggunaan Beberapa Komposisi Spektrum Led Pada Potensi Dan Hasil Hidroponik Indoor Selada Keriting Hijau, 20 (1), 1–6.
- Nurdin, I. dan Sugiman, S., 2018. Penerapan Kombinasi Metode Ridge Regression (RR) dan Metode Generalized Least Square (GLS) untuk Mengatasi Masalah Multikolinearitas dan Autokorelasi Info Artikel. *Jurnal MIPA*, 41 (1), 58–68.
- Olle, M. dan Viršile, A., 2013. The effects of light-emitting diode lighting on greenhouse plant growth and quality. *Agricultural and Food Science*, 22 (2), 223–234.
- Orlando, M., Trivellini, A., Incrocci, L., Ferrante, A. dan Mensuali, A., 2022. The Inclusion of Green Light in a Red and Blue Light Background Impact the Growth and Functional Quality of Vegetable and Flower Microgreen Species. *Horticulturae*, 8 (3).
- Pennisi, G., Sanyé-Mengual, E., Orsini, F., Crepaldi, A., Nicola, S., Ochoa, J., Fernandez, J. A. dan Gianquinto, G., 2019. Modelling environmental burdens of indoor-grown vegetables and herbs as affected by red and blue LED lighting. *Sustainability (Switzerland)*, 11 (15).
- Piekutowska, M., Niedbała, G., Piskier, T., Lenartowicz, T., Pilarski, K., Wojciechowski, T., Pilarska, A. A. dan Czechowska-Kosacka, A., 2021. The application of multiple linear regression and artificial neural network models for yield prediction of very early potato cultivars before harvest. *Agronomy*, 11 (5).
- Pitaloka, N. D., Zahra, A. M., Nugroho, E., Simatupang, H. K., Sinaga, A. N. K., Annisa, H. N. dan Rahmawati, L., 2023. The Effect of Light-Emitting Diode, Planting Medium, and Nutrient Concentration on the Plant Growth and Chlorophyll Content of Lemon Basil, 667–677.
- Pratama, A. J. dan Laily, A. N., 2015. Analisis Kandungan Klorofil Gandasuli (*Hedychium gardnerianum* Shephard ex Ker-Gawl) pada Tiga Daerah Perkembangan Daun yang Berbeda. *Prosiding KPSDA*, 1 (1), 216–219.
- Qurnia, A., Sukestiyarno, Y. dan Agoestanto, A., 2017. Batasan Prasyarat Uji Normalitas dan Uji Homogenitas pada Model Regresi Linear. *Unnes Journal of Mathematics*, 6 (2), 168–177. Available from: <http://journal.unnes.ac.id/sju/index.php/ujm>.

- Rizkiana, A., Nugroho, A. P., Irfan, M. A., Sutiarso, L. dan Okayasu, T., 2019. Crop growth prediction model at vegetative phase to support the precision agriculture application in plant factory. *AIP Conference Proceedings*, 2202 (July).
- Salvi, A. P. D. dan Karwe, P. M. V., 2014. Sustainable and safer indoor farming of produce using new technologies: challenges and opportunities., (May), 1–31. Available from: <https://iufost.org/news/urban-food-production-new-sib>.
- Samuolienė, G., Viršilė, A., Haimi, P. dan Miliauskienė, J., 2020. Photoresponse to different lighting strategies during red leaf lettuce growth. *Journal of Photochemistry and Photobiology B: Biology*, 202 (April 2019), 111726. Available from: <https://doi.org/10.1016/j.jphotobiol.2019.111726>.
- Santoso, J., Suhardjono, H. dan Wattimury, A., 2020. The Study of Color Spectrum Curs Value Against Sunlight Color and Artificial Light for Plant Growth, 2020, 11–22.
- Sari, E. K., 2020. Penetapan Kadar Klorofil dan Karotenoid Daun Sawi (*Brassica*) Menggunakan Metode Spektrofotometri UV-Vis. *Fullerene Journal of Chemistry*, 5 (1), 49.
- Sarkar, A. dan Majumder, M., 2015. Opportunities and Challenges in Sustainability of Vertical Eco-Farming: A Review. *Journal of Advanced Agricultural Technologies*, 2.
- Schober, P. dan Schwarte, L. A., 2018. Correlation coefficients: Appropriate use and interpretation. *Anesthesia and Analgesia*, 126 (5), 1763–1768.
- Sergejeva, D., Alsina, I., Duma, M. dan Dubova, L., 2018. Evaluation of different lighting sources on the growth and chemical composition of lettuce Evaluation of different lighting sources on the growth and chemical composition of lettuce, (May 2020).
- Setiasih, N. H., Triyono, S., Tusi, A. dan Suhandy, D., 2016. Pengaruh daya lampu neon terhadap pertumbuhan tanaman pak choy (*Brassica rapa* L .) pada sistem hidroponik indoor. *Jurnal Teknik Pertanian Lampung*, 5 (2), 93–100.
- Simatupang, H. K., Zahra, A. M., Sutiarso, L., Sinaga, A. N. K., Pahlawan, M. F. R., Annisa, H. N., Nugroho, E., Pitaloka, N. D. dan Rahmawati, L., 2023. Investigating the response of green and red spinach microgreen yield and chlorophyll content in varied light-emitting diode and plant nutrient. *IOP Conference Series: Earth and Environmental Science*, 1168 (1).
- Sirait, J., 2008. Luas Daun , Kandungan Klorofil dan Laju Pertumbuhan Rumput pada Naungan dan Pemupukan yang Berbeda. *Jitv*, 13 (2), 109–116.
- Spalholz, H., Perkins-Veazie, P. dan Hernández, R., 2020. Impact of sun-simulated white light and varied blue:red spectrums on the growth, morphology, development, and phytochemical content of green- and red-leaf lettuce at different growth stages. *Scientia Horticulturae*, 264 (January), 109195. Available from: <https://doi.org/10.1016/j.scienta.2020.109195>.
- Susilowati, S. H., 2016. Fenomena Penuaan Petani dan Berkurangnya Tenaga Kerja Muda serta Implikasinya bagi Kebijakan Pembangunan Pertanian. *Forum penelitian Agro Ekonomi*, 34 (1), 35.
- Sutrisno, S. dan Wulandari, D., 2018. Multivariate Analysis of Variance

- (MANOVA) untuk Memperkaya Hasil Penelitian Pendidikan. *AKSIOMA : Jurnal Matematika dan Pendidikan Matematika*, 9 (1), 37.
- Tarr, S. T., Valle de Souza, S. dan Lopez, R. G., 2023. Influence of Day and Night Temperature and Radiation Intensity on Growth, Quality, and Economics of Indoor Green Butterhead and Red Oakleaf Lettuce Production. *Sustainability (Switzerland)*, 15 (1).
- Tesfa, T., Asres, D. dan Woreta, H., 2018. Lettuce (*Lactuca sativa* L.) Yield and Yield Components as Affected by Mulching at Teda, Central Gondar, Ethiopia. *International Journal of Scientific Research and Management*, 6 (09), 190–194.
- Ulum, B., 2018. *Pengaruh Konsentrasi Nutrisi Dan Inokulasi Agen Hayati Pada Pertumbuhan Dan Hasil Selada Romaine (Lactuca Sativa L. Var. Longifolia) Melalui Sistem* Available from: <http://repository.ub.ac.id/161810/>.
- W. Febriyono, A. R., 2014. The Application of Compost and Addition of Organic Matter on Lettuce Growth and Yield in Ultisols. *Paper Knowledge . Toward a Media History of Documents*, 25 (1), 71–85.
- Wahyudi, Indrawan, A., Mansur, I. dan Pamoengkas, P., 2010. Tebang Pilih Tanam Jalur : Pemodelan Pertumbuhan Tanaman Meranti Pada Jalur Tanam. *Jurnal Ilmu Pertanian Indonesia*, 15 (1), 34–40.
- Wakahara, T. dan Mikami, S., 2011. Adaptive Nutrient Water Supply Control of Plant Factory System by Reinforcement Learning. *Journal of Advanced Computational Intelligence and Intelligent Informatics*, 15, 831–837.
- Wijaya, A. dan Fajriani, S., 2022. Pertumbuhan Dan Hasil Selada (*Lactuca sativa* L.) Pada Metode Hidroponik Sistem Sumbu Dengan Kerapatan Naungan Dan Konsentrasi Nutrisi Yang Berbeda. *Produksi Tanaman*, 010 (10), 541–549.
- Wimudi, M., 2021. Pengaruh Cahaya Matahari Terhadap Pertumbuhan Tanaman Kacang Hijau (*Vigna radiata* L.), 1, 587–592.
- Winardi, B., 2018. Penghematan Biaya Listrik Dengan Memanfaatkan Lampu LED Di Rumah Tangga, 381–385.
- Wulandari, S., 2020. *Reaksi Terang dan Gelap: Dua Tahapan Fotosintesis Tanaman*.
- Xu, Y., Yang, M., Cheng, F., Liu, S. dan Liang, Y., 2020. Effects of LED photoperiods and light qualities on in vitro growth and chlorophyll fluorescence of *Cunninghamia lanceolata*. *BMC Plant Biology*, 20 (1), 1–12.
- Yan, J., Gao, Y., Yu, Y., Xu, H. dan Xu, Z., 2020. A prediction model based on deep belief network and least squares SVR applied to cross-section water quality. *Water (Switzerland)*, 12 (7).
- Yang, C., 2013. Scientia Horticulturae The effects of red , blue , and white light-emitting diodes on the growth , development , and edible quality of hydroponically grown lettuce (*Lactuca sativa*. *Scientia Horticulturae*, 150, 86–91. Available from: <http://dx.doi.org/10.1016/j.scienta.2012.10.002>.
- Yost, M. A., Kitchen, N. R., Sudduth, K. A., Sadler, E. J., Drummond, S. T. dan Volkmann, M. R., 2017. Long-term impact of a precision agriculture system on grain crop production. *Precision Agriculture*, 18 (5), 823–842.
- Yudina, L., Sukhova, E., Gromova, E., Mudrilov, M., Zolin, Y., Popova, A.,

- Nerush, V., Pecherina, A., Grishin, A. A., Dorokhov, A. A. dan Sukhov, V., 2023. Effect of Duration of LED Lighting on Growth, Photosynthesis and Respiration in Lettuce. *Plants*, 12 (3), 1–22.
- Yustiningsih, M., 2019. Intensitas Cahaya dan Efisiensi Fotosintesis pada Tanaman Naungan dan Tanaman Terpapar Cahaya Langsung, 4 (2).
- Zhang, M., Whitman, C. M. dan Runkle, E. S., 2019. Manipulating growth, color, and taste attributes of fresh cut lettuce by greenhouse supplemental lighting. *Scientia Horticulturae*, 252 (April), 274–282. Available from: <https://doi.org/10.1016/j.scienta.2019.03.051>.
- Zhong, Y., Wang, L., Ma, Z. dan Du, X., 2022. Physiological responses and transcriptome analysis of *Spirodela polyrhiza* under red, blue, and white light. *Planta*, 255.
- Zhu, M., Geng, S., Chakravorty, D., Guan, Q., Chen, S. dan Assmann, S. M., 2020. Metabolomics of red-light-induced stomatal opening in *Arabidopsis thaliana*: Coupling with abscisic acid and jasmonic acid metabolism. *The Plant journal : for cell and molecular biology*, 101 (6), 1331–1348.
- Zou, J., Zhou, C. B., Xu, H., Cheng, R. F., Yang, Q. C. dan Li, T., 2020. The effect of artificial solar spectrum on growth of cucumber and lettuce under controlled environment. *Journal of Integrative Agriculture*, 19 (8), 2027–2034. Available from: [http://dx.doi.org/10.1016/S2095-3119\(20\)63209-9](http://dx.doi.org/10.1016/S2095-3119(20)63209-9).