



DAFTAR PUSTAKA

- Abtew, W., & Melesse, A. (2013). Vapor Pressure Calculation Methods. In *Evaporation and Evapotranspiration* (pp. 53–62). Springer Netherlands. https://doi.org/10.1007/978-94-007-4737-1_5
- Addicott, J. E. (2020). *The Precision Farming Revolution*. Springer Singapore. <https://doi.org/10.1007/978-981-13-9686-1>
- Ahmed, H. A., Li, Y., Shao, L., & Tong, Y. (2022a). Effect of light intensity and air velocity on the thermal exchange of indoor-cultured lettuce. *Horticulture, Environment, and Biotechnology*, 63(3), 375–390. <https://doi.org/10.1007/s13580-021-00410-6>
- Ahmed, H. A., Li, Y., Shao, L., & Tong, Y. (2022b). Effect of light intensity and air velocity on the thermal exchange of indoor-cultured lettuce. *Horticulture, Environment, and Biotechnology*, 63(3), 375–390. <https://doi.org/10.1007/s13580-021-00410-6>
- Ahmed, H. A., Yu-Xin, T., & 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. <https://doi.org/10.1016/j.sajb.2019.12.018>
- Airman, D. P., & Houter, G. (1990). Influence of radiation and humidity on transpiration: Implications for calcium levels in tomato leaves. *Journal of Horticultural Science*, 65(3), 245–253. <https://doi.org/10.1080/00221589.1990.11516053>
- Amitrano, C., Rousphael, Y., De Pascale, S., & De Micco, V. (2021). Modulating Vapor Pressure Deficit in the Plant Micro-Environment May Enhance the Bioactive Value of Lettuce. *Horticulturae*, 7(2), 32. <https://doi.org/10.3390/horticulturae7020032>
- Aqeel-ur-Rehman, Abbasi, A. Z., Islam, N., & Shaikh, Z. A. (2014). A review of wireless sensors and networks' applications in agriculture. *Computer Standards & Interfaces*, 36(2), 263–270. <https://doi.org/10.1016/j.csi.2011.03.004>
- Avgoustaki, D. D., & Xydis, G. (2020). How energy innovation in indoor vertical farming can improve food security, sustainability, and food safety? In *Advances in Food Security and Sustainability* (Vol. 5, pp. 1–51). Elsevier Ltd. <https://doi.org/10.1016/bs.af2s.2020.08.002>
- Azman Maricar, M. (2019). Analisa Perbandingan Nilai Akurasi Moving Average dan Exponential Smoothing untuk Sistem Peramalan Pendapatan pada Perusahaan XYZ. *Jurnal Sistem Dan Informatika (JSI)*, 13(2), 36–123.
- Badan Pusat Statistik. (2023). *LAPORAN PEREKONOMIAN INDONESIA 2023*. <https://www.bps.go.id/publication/2023/09/21/a62efbad86d18bc35581c33a/laporan-perekonomian-indonesia-2023.html>
- Bantis, F., Smirnakou, S., Ouzounis, T., Koukounaras, A., Ntagkas, N., & Radoglou, K. (2018). Current status and recent achievements in the field of horticulture with the use of light-emitting diodes (LEDs). *Scientia*



- Horticulturae*, 235, 437–451.
<https://doi.org/10.1016/j.scienta.2018.02.058>
- Baumbauer, D. A., Schmidt, C. B., & Burgess, M. H. (2019). Leaf Lettuce Yield Is More Sensitive to Low Daily Light Integral than Kale and Spinach. *HortScience*, 54(12), 2159–2162.
<https://doi.org/10.21273/HORTSCI14288-19>
- Bayat, L., Arab, M., Aliniaiefard, S., Seif, M., Lastochkina, O., & Li, T. (2018). Effects of growth under different light spectra on the subsequent high light tolerance in rose plants. *AoB PLANTS*, 10(5).
<https://doi.org/10.1093/aobpla/ply052>
- Brechner, M., Both, A. J., & CEA Staff. (2013). *Cornell CEA: Hydroponic Lettuce Handbook*. Cornell University.
- Carruthers, T. J. B., Longstaff, B. J., Dennison, W. C., Abal, E. G., & Aioi, K. (2001). Measurement of light penetration in relation to seagrass. In *Global Seagrass Research Methods* (pp. 369–392). Elsevier.
<https://doi.org/10.1016/B978-044450891-1/50020-7>
- Carvalho, D. R. A., Torre, S., Kraniotis, D., Almeida, D. P. F., Heuvelink, E., & Carvalho, S. M. P. (2015). Elevated air movement enhances stomatal sensitivity to abscisic acid in leaves developed at high relative air humidity. *Frontiers in Plant Science*, 6.
<https://doi.org/10.3389/fpls.2015.00383>
- Collier, G. F., & Tibbitts, T. W. (1984). Effects of Relative Humidity and Root Temperature on Calcium Concentration and Tipburn Development in Lettuce. *Journal of the American Society for Horticultural Science*, 109(2), 128–131. <https://doi.org/10.21273/JASHS.109.2.128>
- Erickson, B., & Fausti, S. W. (2021). The role of precision agriculture in food security. *Agronomy Journal*, 113(6), 4455–4462.
<https://doi.org/10.1002/agj2.20919>
- FAO Framework for the Urban Food Agenda*. (2019). FAO.
<https://doi.org/10.4060/ca3151en>
- Faust, J. E., & Logan, J. (2018). Daily Light Integral: A Research Review and High-resolution Maps of the United States. *HortScience*, 53(9), 1250–1257. <https://doi.org/10.21273/HORTSCI13144-18>
- Fondriest Environmental, Inc. (2014, March 21). *Solar Radiation and Photosynthetically Active Radiation*. Fundamentals of Environmental Measurements. <https://www.fondriest.com/environmental-measurements/parameters/weather/photosynthetically-active-radiation>
- Fukuda, H., & Wada, T. (2019). Characteristics of Vegetable Growing in Plant Factories and Technical Issues. In *Plant Factory Using Artificial Light* (pp. 25–31). Elsevier. <https://doi.org/10.1016/B978-0-12-813973-8.00004-X>
- Gholipoor, M., Prasad, P. V. V., Mutava, R. N., & Sinclair, T. R. (2010). Genetic variability of transpiration response to vapor pressure deficit among sorghum genotypes. *Field Crops Research*, 119(1), 85–90.
<https://doi.org/10.1016/j.fcr.2010.06.018>



- Hernández, R. (2022). Plant responses to the environment. In *Plant Factory Basics, Applications and Advances* (pp. 181–194). Elsevier. <https://doi.org/10.1016/B978-0-323-85152-7.00022-7>
- Hurewitz, J., & Janes, H. W. (1983). Effect of Altering the Root-Zone Temperature on Growth, Translocation, Carbon Exchange Rate, and Leaf Starch Accumulation in the Tomato. *Plant Physiology*, 73(1), 46–50. <https://doi.org/10.1104/pp.73.1.46>
- Inoue, T., Sunaga, M., Ito, M., Yuchen, Q., Matsushima, Y., Sakoda, K., & Yamori, W. (2021). Minimizing VPD Fluctuations Maintains Higher Stomatal Conductance and Photosynthesis, Resulting in Improvement of Plant Growth in Lettuce. *Frontiers in Plant Science*, 12. <https://doi.org/10.3389/fpls.2021.646144>
- ISO/EIC 17025. (2005). *Persyaratan Umum Kompetensi Laboratorium Pengujian dan Laboratorium Kalibrasi*.
- Jay, H., & Render, B. (2015). *Manajemen Operasi: Manajemen Keberlangsungan dan Rantai Pasokan* (9th ed.). Penerbit Salemba Empat.
- Jones Jr., J. B. (2004). *Hydroponics A Practical Guide for the Soilless Grower Second Edition* (2nd ed.). CRC Press. <https://doi.org/10.1201/9780849331671>
- Jung, C., & Arar, M. (2023). Natural vs. Artificial Light: A Study on the Influence of Light Source on Chlorophyll Content and Photosynthetic Rates on Indoor Plants. *Buildings*, 13(6), 1482. <https://doi.org/10.3390/buildings13061482>
- Kitaya, Y. (2019). Plant Factory and Space Development, “Space Farm.” In *Plant Factory Using Artificial Light* (pp. 363–379). Elsevier. <https://doi.org/10.1016/B978-0-12-813973-8.00030-0>
- Kitaya, Y., Tsuruyama, J., Kawai, M., Shibuya, T., & Kiyota, M. (2000). Effects of Air Current on Transpiration and Net Photosynthetic Rates of Plants in a Closed Plant Production System. In *Transplant Production in the 21st Century* (pp. 83–90). Springer Netherlands. https://doi.org/10.1007/978-94-015-9371-7_13
- Kozai, T. (2022a). Role and characteristics of PFALs. In *Plant Factory Basics, Applications and Advances* (pp. 25–55). Elsevier. <https://doi.org/10.1016/B978-0-323-85152-7.00014-8>
- Kozai, T. (2022b). Terms related to PFALs. In *Plant Factory Basics, Applications and Advances* (pp. 11–23). Elsevier. <https://doi.org/10.1016/B978-0-323-85152-7.00007-0>
- Kozai, T., Amagai, Y., Lu, N., Hayashi, E., Ibaraki, Y., Takagaki, M., Shinohara, Y., & Maruo, T. (2022). Toward commercial production of head vegetables in plant factories with artificial lighting. In *Plant Factory Basics, Applications and Advances* (pp. 417–434). Elsevier. <https://doi.org/10.1016/B978-0-323-85152-7.00019-7>
- Kozai, T., & Niu, G. (2016a). Introduction. In *Plant Factory* (pp. 3–5). Elsevier. <https://doi.org/10.1016/B978-0-12-801775-3.00001-9>



- Kozai, T., & Niu, G. (2016b). Role of the Plant Factory With Artificial Lighting (PFAL) in Urban Areas. In *Plant Factory* (pp. 7–33). Elsevier. <https://doi.org/10.1016/B978-0-12-801775-3.00002-0>
- Kurnia, A., & Arief, D. S. (2015). KALIBRASI MIKROMETER SEKRUP EKSTERNAL DENGAN MENGACU PADA STANDAR JIS B 7502-1994 DI LABORATORIUM PENGUKURAN TEKNIK MESIN UNIVERSITAS RIAU. In *Jom FTEKNIK* (Vol. 2, Issue 2).
- Lanoue, J., Leonardos, E. D., & Grodzinski, B. (2019). Artificial Lighting Technologies for Agricultural Production. In *Comprehensive Biotechnology* (pp. 818–832). Elsevier. <https://doi.org/10.1016/B978-0-444-64046-8.00468-7>
- Lee, H., Park, S. W., Pham, M. D., Hwang, H., & Chun, C. (2020). Effect of the light spectrum of white LEDs on the productivity of strawberry transplants in a plant factory with artificial lighting. *Horticulture Environment and Biotechnology*, 61(6), 971–979. <https://doi.org/10.1007/s13580-020-00284-0>
- Lee, J. G., Choi, C. S., Jang, Y. A., Jang, S. W., Lee, S. G., & Um, Y. C. (2013). Effects of air temperature and air flow rate control on the tipburn occurrence of leaf lettuce in a closed-type plant factory system. *Horticulture, Environment, and Biotechnology*, 54(4), 303–310. <https://doi.org/10.1007/s13580-013-0031-0>
- Lieth, J. H., & Oki, L. R. (2019). Irrigation in Soilless Production. In *Soilless Culture* (pp. 381–423). Elsevier. <https://doi.org/10.1016/B978-0-444-63696-6.00009-8>
- Loconsole, D., Cocetta, G., Santoro, P., & Ferrante, A. (2019). Optimization of LED Lighting and Quality Evaluation of Romaine Lettuce Grown in An Innovative Indoor Cultivation System. *Sustainability*, 11(3), 841. <https://doi.org/10.3390/su11030841>
- Matsuda, R., Ito, H., & Fujiwara, K. (2021). Effects of Artificially Reproduced Fluctuations in Sunlight Spectral Distribution on the Net Photosynthetic Rate of Cucumber Leaves. *Frontiers in Plant Science*, 12. <https://doi.org/10.3389/fpls.2021.675810>
- Monteith, J. L., & Unsworth, M. H. (2013). *Principles of Environmental Physics*. Elsevier. <https://doi.org/10.1016/C2010-0-66393-0>
- Mukhamedova, K. R., Cherepkova, N. P., Korotkov, A. V., Dagasheva, Z. B., & Tvaronavičienė, M. (2022). Digitalisation of Agricultural Production for Precision Farming: A Case Study. *Sustainability*, 14(22), 14802. <https://doi.org/10.3390/su142214802>
- Mulla, D. J. (2013). Twenty five years of remote sensing in precision agriculture: Key advances and remaining knowledge gaps. *Biosystems Engineering*, 114(4), 358–371. <https://doi.org/10.1016/j.biosystemseng.2012.08.009>
- Ngadi, N., Zaelany, A. A., Latifa, A., Harfina, D., Asiati, D., Setiawan, B., Ibnu, F., Triyono, T., & Rajagukguk, Z. (2023). Challenge of Agriculture Development in Indonesia: Rural Youth Mobility and Aging



- Workers in Agriculture Sector. *Sustainability*, 15(2), 922. <https://doi.org/10.3390/su15020922>
- Nicholsa, M. (2017). Plant factories - The ultimate in controlled environment agriculture. *Acta Horticulturae*, 1176, 17–22. <https://doi.org/10.17660/ActaHortic.2017.1176.3>
- Niu, G., Kozai, T., & Sabeh, N. (2016a). Physical Environmental Factors and Their Properties. In *Plant Factory* (pp. 129–140). Elsevier. <https://doi.org/10.1016/B978-0-12-801775-3.00008-1>
- Niu, G., Kozai, T., & Sabeh, N. (2016b). Physical Environmental Factors and Their Properties. In *Plant Factory* (pp. 129–140). Elsevier. <https://doi.org/10.1016/B978-0-12-801775-3.00008-1>
- Niu, G., Kozai, T., & Sabeh, N. (2020). Physical environmental factors and their properties. In *Plant Factory* (pp. 185–195). Elsevier. <https://doi.org/10.1016/B978-0-12-816691-8.00011-X>
- Novitasari, D., Sarjiya, Hadi, S. P., Budiarto, R., & Deendarlianto. (2023). The climate and land-use changes impact on water availability for hydropower plants in Indonesia. *Energy Strategy Reviews*, 46, 101043. <https://doi.org/10.1016/j.esr.2022.101043>
- Peterson, D. (2018). *Managing Humidity in the Greenhouse*. Under Control: Tips for Controlled Environment Growing. <https://gpnmag.com/article/managing-humidity-in-the-greenhouse/>
- Ramin Shamshiri, R., Kalantari, F., C. Ting, K., R. Thorp, K., A. Hameed, I., Weltzien, C., Ahmad, D., & Mojgan Shad, Z. (2018). Advances in greenhouse automation and controlled environment agriculture: A transition to plant factories and urban agriculture. *International Journal of Agricultural and Biological Engineering*, 11(1), 1–22. <https://doi.org/10.25165/j.ijabe.20181101.3210>
- Resh, H. M. (2022). *Hydroponic Food Production: A Definitive Guidebook for the Advanced Home Gardener and the Commercial Hydroponic Grower*. CRC Press. <https://doi.org/10.1201/9781003133254>
- Ryu, D. K., Kang, S. W., Ngo, V. D., Chung, S. O., Choi, J. M., Park, S. U., & Kim, S. J. (2014). CONTROL OF TEMPERATURE, HUMIDITY, AND CO₂ CONCENTRATION IN SMALL-SIZED EXPERIMENTAL PLANT FACTORY. *Acta Horticulturae*, 1037, 477–484. <https://doi.org/10.17660/ActaHortic.2014.1037.59>
- Sugano, M. (2019). Network and Processing System. In *Plant Factory Using Artificial Light* (pp. 207–210). Elsevier. <https://doi.org/10.1016/B978-0-12-813973-8.00017-8>
- Suhairi, M., & Tuzsakdiah, D. H. (2023). Jurnal Politeknik Caltex Riau Sistem Kontrol Dan Monitoring Intensitas Cahaya dan Suhu Tanaman Selada Pada Greenhouse BerBasis IoT. In *Jurnal ELEMENTER* (Vol. 9, Issue 1). <https://jurnal.pcr.ac.id/index.php/elementer/>
- Takagaki, M., Hara, H., & Kozai, T. (2016). Micro- and Mini-PFALs for Improving the Quality of Life in Urban Areas. In *Plant Factory* (pp. 91–104). Elsevier. <https://doi.org/10.1016/B978-0-12-801775-3.00005-6>



- Takagaki, M., Hara, H., & Kozai, T. (2020). Micro- and mini-PFALs for improving the quality of life in urban areas. In *Plant Factory* (pp. 117–128). Elsevier. <https://doi.org/10.1016/B978-0-12-816691-8.00006-6>
- World Bank Group, & Asian Development Bank. (2021). *INDONESIA CLIMATE RISK COUNTRY PROFILE*. www.worldbank.org
- Wu, T., Lin, Y., Zheng, L., Guo, Z., Xu, J., Liang, S., Liu, Z., Lu, Y., Shih, T., & Chen, Z. (2018). Analyses of multi-color plant-growth light sources in achieving maximum photosynthesis efficiencies with enhanced color qualities. *Optics Express*, 26(4), 4135. <https://doi.org/10.1364/OE.26.004135>
- Xu, Y. (2019). Nature and Source of Light for Plant Factory. In *Plant Factory Using Artificial Light* (pp. 47–69). Elsevier. <https://doi.org/10.1016/B978-0-12-813973-8.00002-6>
- Yuliara, M. I. (2016). *REGRESI LINIER SEDERHANA*.
- Zheng, S. (2019). IT Networks and Plant Factories. In *Plant Factory Using Artificial Light* (pp. 211–226). Elsevier. <https://doi.org/10.1016/B978-0-12-813973-8.00020-8>