



DAFTAR PUSTAKA

- Abbas, Q., Han, J., Bakhsh, K., Ullah, R., Kousar, R., Adeel, A., & Akhtar, A. (2022). Adaptation to climate change risks among dairy farmers in Punjab, Pakistan. *Land Use Policy*, 119(April), 106184. <https://doi.org/10.1016/j.landusepol.2022.106184>
- Abdulla, I., & Arshad, F. M. (2017). Exploring relationships between rubber productivity and R & D in Malaysia. *Outlook on Agriculture*, 46(1), 28–35. <https://doi.org/10.1177/0030727016689731>
- Abdur Rashid Sarker, M., Alam, K., & Gow, J. (2013). Assessing the determinants of rice farmers' adaptation strategies to climate change in Bangladesh. *International Journal of Climate Change Strategies and Management*, 5(4), 382–403. <https://doi.org/10.1108/IJCCSM-06-2012-0033>
- Abid, M., Schneider, U. A., & Scheffran, J. (2016). Adaptation to climate change and its impacts on food productivity and crop income: Perspectives of farmers in rural Pakistan. *Journal of Rural Studies*, 47, 254–266. <https://doi.org/10.1016/j.jrurstud.2016.08.005>
- Acheampong, P. P., Obeng, E. A., Opoku, M., Brobbey, L., & Sakyiamah, B. (2022). Does food security exist among farm households? Evidence from Ghana. *Agriculture and Food Security*, 11(1), 1–13. <https://doi.org/10.1186/s40066-022-00362-9>
- Adi, T. (2019). *Membangkitkan Kejayaan Tanaman Karet*. [www.Analisis.Kontan.Co.Id](http://www.analisis.kontan.co.id/news/membangkitkan-kejayaan-tanaman-karet?page=all). <https://analisis.kontan.co.id/news/membangkitkan-kejayaan-tanaman-karet?page=all>
- Adnan, K. M. M., Ying, L., Ayoub, Z., Sarker, S. A., Menhas, R., Chen, F., & Yu, M. M. (2020). Risk management strategies to cope catastrophic risks in agriculture: The case of contract farming, diversification and precautionary savings. *Agriculture*, 10(8), 351. <https://doi.org/10.3390/agriculture10080351>
- Adnan, K. M. M., Ying, L., Sarker, S. A., Yu, M., Eliw, M., Sultanuzzaman, M. R., & Huq, M. E. (2021). Simultaneous adoption of risk management strategies to manage the catastrophic risk of maize farmers in Bangladesh. *GeoJournal*, 86(4), 1981–1998. <https://doi.org/10.1007/s10708-020-10154-y>
- Adzawla, W., Kudadze, S., Mohammed, A. R., & Ibrahim, I. I. (2019). Climate perceptions, farmers' willingness-to-insure farms and resilience to climate change in Northern region, Ghana. *Environmental Development*, 32, 1–12. <https://doi.org/10.1016/j.envdev.2019.100466>
- Agidew, A. meta A., & Singh, K. N. (2018). Determinants of food insecurity in the rural farm households in South Wollo Zone of Ethiopia: the case of the Teleyayen sub-watershed. *Agricultural and Food Economics*, 6(10), 1–23. <https://doi.org/10.1186/s40100-018-0106-4>
- Agustina, D. S., & Herlinawati, E. (2017). Komparasi Kelayakan Investasi Klon Karet GT 1 dan PB 260 Pada Berbagai Tingkat Harga dan Umur Ekonomis. *Jurnal*



Penelitian Karet, 35(1), 83–92. <https://doi.org/10.22302/ppk.jpk.v1i1.362>

Ahmad, D., Afzal, M., & Rauf, A. (2019). Analysis of wheat farmers' risk perceptions and attitudes : evidence from Punjab, Pakistan. *Natural Hazards*, 95, 845–861. <https://doi.org/10.1007/s11069-018-3523-5>

Ahmad, D., Afzal, M., & Rauf, A. (2020). Environmental risks among rice farmers and factors influencing their risk perceptions and attitudes in Punjab, Pakistan. *Environmental Science and Pollution Research*, 27(17), 21953–21964. <https://doi.org/10.1007/s11356-020-08771-8>

Ahmed, U. I., Ying, L., Bashir, M. K., Abid, M., & Zulfiqar, F. (2017). Status and determinants of small farming households' food security and role of market access in enhancing food security in rural Pakistan. *PLoS ONE*, 12(10), 1–15.

Akcaoz, H., Kizilay, H., & Ozcatalbas, O. (2009). Risk management strategies in dairy farming: A case study in Turkey. *Jounal of Animal and Veterinary Advances*, 8(5), 949–958.

Akhtar, S., LI, G., Nazir, A., Razzaq, A., Ullah, R., Faisal, M., Naseer, M. A. U. R., & Raza, M. H. (2019). Maize production under risk: The simultaneous adoption of off-farm income diversification and agricultural credit to manage risk. *Journal of Integrative Agriculture*, 18(2), 460–470. [https://doi.org/10.1016/S2095-3119\(18\)61968-9](https://doi.org/10.1016/S2095-3119(18)61968-9)

Akhtar, S., LI, G., Ullah, R., Nazir, A., Iqbal, M. A., Raza, M. H., Iqbal, N., & Faisal, M. (2018). Factors influencing hybrid maize farmers' risk attitudes and their perceptions in Punjab Province, Pakistan. *Journal of Integrative Agriculture*, 17(6), 1454–1462. [https://doi.org/10.1016/S2095-3119\(17\)61796-9](https://doi.org/10.1016/S2095-3119(17)61796-9)

Alam, A., & Guttormsen, A. G. (2019). Risk in aquaculture : farmers' perceptions and management strategies in Bangladesh. *Aquaculture Economics & Management*, 23(4), 359–381. <https://doi.org/10.1080/13657305.2019.1641568>

Alhassan, H. (2020). Farm households' flood adaptation practices, resilience and food security in the Upper East region, Ghana. *Heliyon*, 6(6), e04167. <https://doi.org/10.1016/j.heliyon.2020.e04167>

Ali, Jabir. (2015). Adoption of diversification for risk management in vegetable cultivation. *International Journal of Vegetable Science*, 21(1), 9–20. <https://doi.org/10.1080/19315260.2013.813891>

Ali, Jonni, Delis, A., & Hodijah, S. (2015). Analisis Produksi dan Pendapatan Petani Karet di Kabupaten Bungo. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 2(4), 201–208.

Ali, M. F., Akber, M. A., Smith, C., & Aziz, A. A. (2021). The dynamics of rubber production in Malaysia: Potential impacts, challenges and proposed interventions. *Forest Policy and Economics*, 127(July 2020), 102449. <https://doi.org/10.1016/j.forepol.2021.102449>

Alpízar, F., Saborío-Rodríguez, M., Martínez-Rodríguez, M. R., Viguera, B., Vignola, R., Capitán, T., & Harvey, C. A. (2020). Determinants of food insecurity among



smallholder farmer households in Central America: recurrent versus extreme weather-driven events. *Regional Environmental Change*, 20(22), 1–16. <https://doi.org/10.1007/s10113-020-01592-y>

Andriesse, E., & Tanwattana, P. (2018). Coping with the end of the commodities boom: Rubber smallholders in Southern Thailand oscillating between near-poverty and middle-class status. *Journal of Developing Societies*, 34(1), 77–102. <https://doi.org/10.1177/0169796X17752420>

Antoni, M., & Tokuda, H. (2019). A determinant of marketing system choice by rubber smallholders in Indonesia. *Bulgarian Journal of Agricultural Science*, 25(4), 702–709.

Asare-Nuamah, P. (2021). Climate variability, subsistence agriculture and household food security in rural Ghana. *Heliyon*, 7(4), e06928. <https://doi.org/10.1016/j.heliyon.2021.e06928>

Asmare, F., Teklewold, H., & Mekonnen, A. (2019). The effect of climate change adaptation strategy on farm households welfare in the Nile basin of Ethiopia: Is there synergy or trade-offs? *International Journal of Climate Change Strategies and Management*, 11(4), 518–535. <https://doi.org/10.1108/IJCCSM-10-2017-0192>

Asravor, R. (2018). Smallholder farmers' risk perceptions and risk management responses. *African Journal of Economic and Management Studies*, 9(3), 367–387. <https://doi.org/10.1108/AJEMS-10-2017-0250>

Asravor, R. K. (2018). Livelihood Diversification Strategies to Climate Change among Smallholder Farmers in Northern Ghana. *Journal of International Development*, 30(8), 1318–1338. <https://doi.org/10.1002/jid.3330>

Asravor, R. K. (2019). Farmers' risk preference and the adoption of risk management strategies in Northern Ghana. *Journal of Environmental Planning and Management*, 62(5), 881–900. <https://doi.org/10.1080/09640568.2018.1452724>

Ayinu, Y. T., Ayal, D. Y., Zeleke, T. T., & Bektie, K. T. (2022). Impact of climate variability on household food security in Godere District, Gambella Region, Ethiopia. *Climate Services*, 27(December 2021), 100307. <https://doi.org/10.1016/j.ciser.2022.100307>

Azadi, Y., Yazdanpanah, M., & Mahmoudi, H. (2019). Understanding smallholder farmers' adaptation behaviors through climate change beliefs, risk perception, trust, and psychological distance: Evidence from wheat growers in Iran. *Journal of Environmental Management*, 250, 1–9. <https://doi.org/10.1016/j.jenvman.2019.109456>

Azwar, S. (2019). *Reliabilitas dan Validitas Edisi 4*. Pustaka Pelajar.

Badan Pusat Statistik. (2021a). *Kabupaten Sambas Dalam Angka Tahun 2021*. Badan Pusat Statistik Kabupaten Sambas.

Badan Pusat Statistik. (2021b). *Kabupaten Sanggau Dalam Angka 2021*. Badan Pusat Statistik Kabupaten Sanggau.



Badan Pusat Statistik. (2021c). *Kabupaten Sintang dalam Angka 2021*. Badan Pusat Statistik Kabupaten Sintang.

Badan Pusat Statistik. (2021d). *Kecamatan Balai dalam Angka 2021*. Badan Pusat Statistik Kabupaten Sanggau.

Badan Pusat Statistik. (2021e). *Kecamatan Parindu dalam Angka 2021*. Badan Pusat Statistik Kabupaten Sanggau.

Badan Pusat Statistik. (2021f). *Kecamatan Sajad dalam Angka 2021*. Badan Pusat Statistik Kabupaten Sambas.

Badan Pusat Statistik. (2021g). *Kecamatan Sepauk dalam Angka 2021*. Badan Pusat Statistik Kabupaten Sintang.

Badan Pusat Statistik. (2021h). Provinsi Kalimantan Barat dalam angka tahun 2021. In *Badan Pusat Statistik*. Badan Pusat Statistik Kalimantan Barat.

Bahiru, A., Senapathy, M., & Bojago, E. (2023). Status of household food security, its determinants, and coping strategies in the Humbo district, Southern Ethiopia. *Journal of Agriculture and Food Research*, 11(October 2022), 100461. <https://doi.org/10.1016/j.jafr.2022.100461>

Bairagi, S., Mishra, A. K., & Durand-Morat, A. (2020). Climate risk management strategies and food security: Evidence from Cambodian rice farmers. *Food Policy*, 95(November 2019), 101935. <https://doi.org/10.1016/j.foodpol.2020.101935>

Balai Penelitian Sumbawa. (2018). *Saptabina Usahatani Karet Rakyat*. Pusat Penelitian Karet.

Bard, S. K., & Barry, P. J. (2000). Developing a scale for assessing risk attitudes of agricultural decision makers. *International Food and Agribusiness Management Review*, 3(1), 9–25. [https://doi.org/10.1016/S1096-7508\(00\)00024-0](https://doi.org/10.1016/S1096-7508(00)00024-0)

Barokatuminalloh, Purwaningsih, Y., Daerobi, A., & Mulyaningsih, T. (2022). Farmer's Adaptation to Climate Change as Strategy to Achieve Food Security. *IOP Conference Series: Earth and Environmental Science*, 985(1). <https://doi.org/10.1088/1755-1315/985/1/012001>

Barrett, C. B., Reardon, T., & Webb, P. (2001). Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications. *Food Policy*, 26, 315–331.

Bashir, M. K., & Schilizzi, S. (2013). Determinants of rural household food security: A comparative analysis of African and Asian studies. *Journal of the Science of Food and Agriculture*, 93(6), 1251–1258. <https://doi.org/10.1002/jsfa.6038>

Beattie, B. R., & Taylor, R. C. (1994). *Ekonomi Produksi*. Gadjah Mada University Press.

Begho, T., Daubry, T. P., & Ebuka, I. A. (2022). What do we know about Nigerian farmers' attitudes to uncertainty and risk? A systematic review of the evidence.



Scientific African, 17, e01309. <https://doi.org/10.1016/j.sciaf.2022.e01309>

Bellon, M. R., Kotu, B. H., Azzarri, C., & Caracciolo, F. (2020). To diversify or not to diversify, that is the question. Pursuing agricultural development for smallholder farmers in marginal areas of Ghana. *World Development*, 125, 104682. <https://doi.org/10.1016/j.worlddev.2019.104682>

Bellotti, W., Lestari, E., & Fukofuka, K. (2018). A Food Systems Perspective on Food and Nutrition Security in Australia, Indonesia, and Vanuatu. In *Advances in Food Security and Sustainability* (1st ed., Vol. 3). Elsevier Inc. <https://doi.org/10.1016/bs.af2s.2018.10.001>

Bergfjord, O. J. (2009). Risk perception and risk management in Norwegian aquaculture. *Journal of Risk Research*, 12(1), 91–104. <https://doi.org/10.1080/13669870802488941>

Bhowmik, I., & Viswanathan, P. K. (2021). Development of the Rubber Sector in North East India: A Case of Missing Innovation and Linkages. *South Asian Survey*, 28(2), 294–317. <https://doi.org/10.1177/09715231211002307>

Binici, T., Koç, A. A., Zulauf, C. R., & Bayaner, A. (2003). Risk attitudes of farmers in terms of risk aversion: A case study of Lower Seyhan Plain farmers in Adana Province, Turkey. *Turkish Journal of Agriculture and Forestry*, 27(5), 305–312. <https://doi.org/10.3906/tar-0303-5>

Bishu, K. G., O'Reilly, S., Lahiff, E., & Steiner, B. (2016). Cattle farmers' perceptions of risk and risk management strategies: Evidence from Northern Ethiopia. *Journal of Risk Research*, 21(5), 1–21. <https://doi.org/10.1080/13669877.2016.1223163>

Bjornlund, H., Zuo, A., Ann, S., Parry, K., Pittock, J., Mdebu, M., & Moyo, M. (2019). The dynamics of the relationship between household decision-making and farm household income in small-scale irrigation schemes in southern Africa. *Agricultural Water Management*, 213(May 2018), 135–145. <https://doi.org/10.1016/j.agwat.2018.10.002>

Boratyńska, K., & Huseynov, R. T. (2017). An innovative approach to food security policy in developing countries. *Journal of Innovation and Knowledge*, 2(1), 39–44. <https://doi.org/10.1016/j.jik.2016.01.007>

Brunelle, T., Dumas, P., Souty, F., Dorin, B., & Nadaud, F. (2015). Evaluating the impact of rising fertilizer prices on crop yields. *Agricultural Economics (United Kingdom)*, 46(5), 653–666. <https://doi.org/10.1111/agec.12161>

Chamberlin, J., & Jayne, T. S. (2020). Does farm structure affect rural household incomes? Evidence from Tanzania. *Food Policy*, 90(November 2019), 1–14. <https://doi.org/10.1016/j.foodpol.2019.101805>

Coffey, B. K., & Schroeder, T. C. (2019). Factors influencing Midwestern grain farmers' use of risk management tools. *Agricultural Finance Review*, 79(2), 192–203. <https://doi.org/10.1108/AFR-04-2018-0026>

Crane, L., Gantz, G., Isaacs, S., Jose, D., & Sharp, R. (2013). *Introduction to Risk*



Management. Extension Risk Management Education and Risk Management Agency. <http://www.extensionrme.org/pubs/IntroductionToRiskManagement.pdf>

Creswell, J. W. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Dadzie, S. K. N., & Acquah, H. de-G. (2012). Attitudes Toward Risk and Coping Responses: The Case of Food Crop Farmers at Agona Duakwa in Agona East District of Ghana. *International Journal of Agriculture and Forestry*, 2(2), 29–37. <https://doi.org/10.5923/j.ijaf.20120202.006>

Damayanti, L. (2013). Faktor-Faktor yang Mempengaruhi Produksi, Pendapatan dan Kesempatan Kerja Pada Usaha Tani Padi Sawah di Daerah Irigasi Parigi Moutong. *SEPA*, 9(2), 249–259.

Damiri, N., Pratama, Y., Febbiyanti, T. R., Rahim, S. E., Astuti, D. T., & Purwanti, Y. (2022). Pestalotiopsis sp. infection causes leaf fall disease of new arrivals in several clones of rubber plants. *Biodiversitas*, 23(8), 3943–3949. <https://doi.org/10.13057/biodiv/d230811>

Danso-Abbeam, G., Dagunga, G., & Ehiakpor, D. S. (2020). Rural non-farm income diversification: Implications on smallholder farmers' welfare and agricultural technology adoption in Ghana. *Helion*, 6(11), e05393. <https://doi.org/10.1016/j.heliyon.2020.e05393>

Daslin, A. (2013). Ketahanan Genetik Berbagai Klon Karet Introduksi Terhadap Penyakit Gugur Daun. *Jurnal Penelitian Karet*, 31(2), 79–87.

de Brauw, A., & Ezenou, P. (2014). Measuring risk attitudes among Mozambican farmers. *Journal of Development Economics*, 111, 61–74. <https://doi.org/10.1016/j.jdeveco.2014.08.002>

De Salvo, M., Capitello, R., Gaudenzi, B., & Begalli, D. (2019). Risk management strategies and residual risk perception in the wine industry: A spatial analysis in Northeast Italy. *Land Use Policy*, 83, 47–62. <https://doi.org/10.1016/j.landusepol.2019.01.022>

Debertin, D. L. (2012). Agricultural Production Economics. In *Monographs*. University of Kentucky.

Dedi, & Subagyo. (2020). *Produktivitas dan kualitas masih menjadi kendala petani karet Kalbar*. Antara News. <https://www.antaranews.com/berita/1294102/produktivitas-dan-kualitas-masih-mendjadi-kendala-petani-karet-kalbar>

Dedi, & Wibowo, T. I. (2020). *Pabrik karet di Kalbar kekurangan bahan baku*. Antara News. <https://kalbar.antaranews.com/berita/413224/pabrik-karet-di-kalbar-kekurangan-bahan-baku>

Dewi, E. T., Azis, Y., & Husaini, M. (2019). Analisis Pendapatan dan Kesejahteraan Petani Karet Rakyat Desa Batu Merah, Kecamatan Lampihong, Kabupaten Balangan. *Frontier Agribisnis*, 3(4), 147–153. <https://ppjp.ulm.ac.id/journals/index.php/fag/article/view/2111>



Directorate General of Estate Crops. (2022). *Statistic of National Leading Estate Crops Commodity 2020-2022*. Directorate General of Estate Crops, Ministry of Agriculture.

Dona, A., Defidelwina, & Febrinova, R. (2015). Ketahanan pangan rumah tangga petani karet Desa Pematang Berangan Kecamatan Rambah. *Seminar Nasional Pangan Lokal, Bisnis Dan Eko Industri*, 10–14.

Ellis, E. (2017). Factors affecting risk management strategies to climate change effects in Ghana. *International Journal of Food and Agricultural Economics*, 5(1), 1–17.

Esiobu, N. S., & Onubuogu, G. C. (2014). Determinants of Income from Pineapple Production in Imo State, Nigeria : An Econometric Model Approach. *Journal of Economics and Sustainable Development*, 5(22), 122–133.

Fahad, S., Inayat, T., Wang, J., Dong, L., Hu, G., Khan, S., & Khan, A. (2020). Farmers' awareness level and their perceptions of climate change: A case of Khyber Pakhtunkhwa province, Pakistan. *Land Use Policy*, 96, 104669. <https://doi.org/10.1016/j.landusepol.2020.104669>

Fahad, S., Wang, J., Khan, A. A., Ullah, A., Ali, U., Hossain, M. S., Khan, S. U., Huong, N. T. L., Yang, X., Hu, G., & Bilal, A. (2018). Evaluation of farmers' attitude and perception toward production risk: Lessons from Khyber Pakhtunkhwa Province, Pakistan. *Human and Ecological Risk Assessment: An International Journal*, 24(6), 1710–1722. <https://doi.org/10.1080/10807039.2018.1460799>

Fauzi, I. R., Syarifa, L. F., Herlinawati, E., & Siagian, N. (2014). Performance of Tapping Premium System in Some Rubber Plantation Enterprises. *Indonesian Journal of Natural Rubber Research*, 32(1), 157–180. <https://doi.org/10.22302/ppk.jpk.v32i2.162>

Febbiyanti, T. R., & Fairuzah, Z. (2020). Identifikasi penyebab kejadian luar biasa penyakit gugur daun karet di Indonesia. *Jurnal Penelitian Karet*, 37(2), 193–206. <https://doi.org/10.22302/ppk.jpk.v37i2.616>

Fikire, A. H., & Zegeye, M. B. (2022). Determinants of Rural Household Food Security Status in North Shewa Zone , Amhara Region , Ethiopia. *The Scientific World Journal*, 2022, 1–8.

Flaten, O., Lien, G., Koesling, M., Valle, P. S., & Ebbesvik, M. (2005). Comparing risk perceptions and risk management in organic and conventional dairy farming: Empirical results from Norway. *Livestock Production Science*, 95(1–2), 11–25. <https://doi.org/10.1016/j.livprodsci.2004.10.014>

Gebissa, B., & Geremew, W. (2022). Determinants of food insecurity and the choice of livelihood strategies: The case of Abay Chomen district, Oromia regional state, Ethiopia. *The Scientific World Journal*, 2022, 1–15. <https://doi.org/10.1155/2022/1316409>

Gebreegziabher, K., & Tadesse, T. (2014). Risk perception and management in smallholder dairy farming in Tigray, Northern Ethiopia. *Journal of Risk Research*, 17(3), 367–381. <https://doi.org/10.1080/13669877.2013.815648>



- Gebru, G. W., Ichoku, H. E., & Phil-Eze, P. O. (2020). Determinants of smallholder farmers' adoption of adaptation strategies to climate change in Eastern Tigray National Regional State of Ethiopia. *Heliyon*, 6(7), e04356. <https://doi.org/10.1016/j.heliyon.2020.e04356>
- Ghozali, I. (2018). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 25*. Badan Penerbit Universitas Diponegoro.
- Girdžiūtė, L. (2012). Risks in Agriculture and Opportunities of their Integrated Evaluation. *Procedia - Social and Behavioral Sciences*, 62, 783–790. <https://doi.org/10.1016/j.sbspro.2012.09.132>
- Glorya, M. J., & Nugraha, A. (2019). Private Sector Initiatives To Boost Productivity of Cocoa, Coffee, and Rubber in Indonesia. In *Discussion Paper No 8 (Issue 8)*.
- Go, W. Z., Chin, K. L., H'ng, P. S., Wong, M. Y., Luqman, C. A., Surendran, A., Tan, G. H., Lee, C. L., Khoo, P. S., & Kong, W. J. (2021). Virulence of Rigidoporus microporus isolates causing White Root Rot disease on rubber trees (*Hevea brasiliensis*) in Malaysia. *Plants*, 10(10), 2123. <https://doi.org/10.3390/plants10102123>
- Greiner, R., Patterson, L., & Miller, O. (2009). Motivations, risk perceptions and adoption of conservation practices by farmers. *Agricultural Systems*, 99(2), 86–104. <https://doi.org/10.1016/j.agsy.2008.10.003>
- Gujarati, D. (2015). *Econometrics by example* (2nd ed). Palgrave.
- Guo, Z., Zhang, Y., Deegen, P., & Ubrig, H. (2006). Economic analyses of rubber and tea plantations and rubber-tea intercropping in Hainan, China. *Agroforestry Systems*, 66(2), 117–127. <https://doi.org/10.1007/s10457-005-4676-2>
- Gupito, R. W., Irham, I., & Waluyati, L. R. (2016). Analisis Faktor-Faktor Yang Mempengaruhi Pendapatan Usahatani Sorgum Di Kabupaten Gunungkidul. *Agro Ekonomi*, 24(1), 66–75. <https://doi.org/10.22146/agroekonomi.17383>
- Habegger, B. (2008). *International Handbook on Risk Analysis and Management*. Center for Security Studies.
- Hailu, B. K., Abrha, B. K., & Weldegiorgis, K. A. (2014). Adoption and Impact of Agricultural Technologies on Farm Income: Evidence From Southern Tigray, Northern Ethiopia. *International Journal of Food and Agricultural Economics*, 2(4), 91–106. <https://doi.org/10.22004/ag.econ.190816>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis (7th Edition)*. Pearson Prentice Hall.
- Hardaker, J. B., Lien, G., Anderson, J. R., & Huirne, R. B. M. (2004). Coping with risk in agriculture. In *Coping With Risk in Agriculture: Applied Decision Analysis*. CAB International. <https://doi.org/10.1079/9780851998312.0000>
- Harun, R. A., Irsal, & Jonis. (2019). Pengaruh Curah Hujan dan Hari Hujan terhadap Produksi Tanaman Karet Umur 13, 16, dan 19 Tahun di PT. Socfin Indonesia Kebun Lima Puluh. *Jurnal Agroteknologi*, 7(1), 20–28.



Harwodd, J., Heifner, R., Coble, K., Perry, J., & Somwaru, A. (1999). *Managing Risk in Farming: Concepts, Research and Analysis*. Economic Research Service, USDA.

Hashmiu, I., Agbenyega, O., & Dawoe, E. (2022). Cash crops and food security: evidence from smallholder cocoa and cashew farmers in Ghana. *Agriculture and Food Security*, 11(1), 1–21. <https://doi.org/10.1186/s40066-022-00355-8>

Hasibuan, A. M., Gregg, D., & Stringer, R. (2020). Accounting for diverse risk attitudes in measures of risk perceptions: A case study of climate change risk for small-scale citrus farmers in Indonesia. *Land Use Policy*, 95, 1–18. <https://doi.org/10.1016/j.landusepol.2019.104252>

Hayran, S., & Güçlü, A. (2015). Risk Perception and Management Strategies in Dairy Farming: A Case of Adana Province of Turkey. *Turkish Journal of Agriculture - Food Science and Technology*, 3(12), 952–961. <https://doi.org/10.24925/turjaf.v3i12.952-961.583>

Hazir, M. H. M., Kadir, R. A., Gloor, E., & Galbraith, D. (2020). Effect of agroclimatic variability on land suitability for cultivating rubber (*Hevea brasiliensis*) and growth performance assessment in the tropical rainforest climate of Peninsular Malaysia. *Climate Risk Management*, 27, 100203–100221. <https://doi.org/10.1016/j.crm.2019.100203>

He, R., Jin, J., Kuang, F., Zhang, C., & Guan, T. (2020). Farmers' risk cognition, risk preferences and climate change adaptive behavior: A structural equation modeling approach. *International Journal of Environmental Research and Public Health*, 17(1), 85–97. <https://doi.org/10.3390/ijerph17010085>

Herdiana, A., Darwanto, D. H., & Mulyo, J. H. (2014). Ketahanan Pangan Rumah Tangga Di Kabupaten Ciamis. *Jurnal Sosial Ekonomi Pertanian Dan Agribisnis*, 11(1), 21–34. <https://doi.org/10.20961/sepa.v11i1.42247>

Heriyanto, H., & Darus, D. (2017). Analisis Efisiensi Faktor Produksi Karet di Kabupaten Kampar Provinsi Riau. *Jurnal Dinamika Pertanian*, XXXIII(2), 121–128.

Hilemelekot, F., Ayal, D. Y., Ture, K., & Terefe Zeleke, T. (2021). Climate change and variability adaptation strategies and their implications for household food Security: The case of Basona Worena District, North Shewa zone, Ethiopia. *Climate Services*, 24(November), 100269. <https://doi.org/10.1016/j.ciser.2021.100269>

Hillson, D., & Murray-webster, R. (2005). Understanding and Managing Risk Attitude. In *Gower Publishing*. <https://doi.org/10.1080/00140130802295572>

Holt, C. A., & Laury, S. K. (2002). Risk Aversion and Incentive Effects. *American Economic Review*, 92(5), 1644–1655.

Huet, E. K., Adam, M., Giller, K. E., & Descheemaeker, K. (2020). Diversity in perception and management of farming risks in southern Mali. *Agricultural Systems*, 184(January), 102905. <https://doi.org/10.1016/j.agsy.2020.102905>



Hurni, K., & Fox, J. (2018). The expansion of tree-based boom crops in mainland Southeast Asia: 2001 to 2014. *Journal of Land Use Science*, 13(1–2), 198–219. <https://doi.org/10.1080/1747423X.2018.1499830>

Ibukun, C. O., & Adebayo, A. A. (2021). Household food security and the COVID-19 pandemic in Nigeria. *African Development Review*, 33(S1), S75–S87. <https://doi.org/10.1111/1467-8268.12515>

Indonesia Investments. (2018). *Rubber (Natural)*. [Www.Indonesia-Investments.Com.](http://www.indonesia-investments.com/business/commodities/rubber/item185) <https://www.indonesia-investments.com/business/commodities/rubber/item185>

Iqbal, M. A., Ping, Q., Abid, M., Syed, M. M. K., & Rizwan, M. (2016). Assessing risk perceptions and attitude among cotton farmers: A case of Punjab province, Pakistan. *International Journal of Disaster Risk Reduction*, 16, 68–74. <https://doi.org/10.1016/j.ijdrr.2016.01.009>

Iqbal, M. A., Ping, Q., Zafar, M. U., Abbas, A., Bashir, M. K., Ali, A., & Kousar, R. (2018). Farm risk sources and their mitigation: A case of cotton growers in Punjab. *Pakistan Journal of Agricultural Sciences*, 55(3), 683–690. <https://doi.org/10.21162/PAKJAS/18.7070>

Iskandar. (2018). Analisis Produksi Tanaman Karet Di Kabupaten Aceh Tamiang. *Jurnal Samudra Ekonomika*, 2(1), 85–96.

Islam, M. D. II, Rahman, A., Sarker, M. N. I., Sarker, M. S., & Jianchao, L. (2021). Factors influencing rice farmers' risk attitudes and perceptions in Bangladesh amid environmental and climatic issues. *Polish Journal of Environmental Studies*, 30(1), 177–187. <https://doi.org/10.15244/pjoes/120365>

Ismail, T., & Gohet, E. (2020). Impact of climate change on latex harvesting. *Natural Rubber Systems and Climate Change (FTA Working Report)*, 150, 16–18.

Iyer, P., Bozzola, M., Hirsch, S., Meraner, M., & Finger, R. (2020). Measuring Farmer Risk Preferences in Europe: A Systematic Review. *Journal of Agricultural Economics*, 71(1), 3–26. <https://doi.org/10.1111/1477-9552.12325>

Jankelova, N., Masar, D., & Moricova, S. (2017). Risk factors in the agriculture sector. *Agricultural Economics (Zemědělská Ekonomika)*, 63(6), 247–258. <https://doi.org/10.17221/212/2016-AGRICECON>

Jin, S., Waibel, H., Min, S., & Huang, J. (2018). Livelihood responses of smallholder farmers in Southwest China to the decline in rubber prices. *International Conference of Agricultural Economists*, 1(3), 1–22.

Jin, Shaoze, Min, S., Huang, J., & Waibel, H. (2021). Falling price induced diversification strategies and rural inequality: Evidence of smallholder rubber farmers. *World Development*, 146, 105604. <https://doi.org/10.1016/j.worlddev.2021.105604>

Jogiyanto. (2008). *Pedoman Survei Kuisioner: Mengembangkan Kuisioner, Mengatasi Bias dan Meningkatkan Respon*. Badan Penerbit Fakultas Ekonomika dan Bisnis UGM.



Joshi, B., Ji, W., & Joshi, N. B. (2017). Farm households' perception on climate change and adaptation practices: A case from mountain district of Nepal. *International Journal of Climate Change Strategies and Management*, 9(4), 433–445. <https://doi.org/10.1108/IJCCSM-07-2016-0099>

Kabir, J., Cramb, R., Alauddin, M., Gaydon, D. S., & Roth, C. H. (2020). Farmers' perceptions and management of risk in rice/shrimp farming systems in South-West Coastal Bangladesh. *Land Use Policy*, 95, 104577. <https://doi.org/10.1016/j.landusepol.2020.104577>

Kabir, M. J., Cramb, R., Alauddin, M., & Gaydon, D. S. (2019). Farmers' perceptions and management of risk in rice-based farming systems of south-west coastal Bangladesh. *Land Use Policy*, 86, 177–188. <https://doi.org/10.1016/j.landusepol.2019.04.040>

Kahan, D. (2008). *Farm Management Extension Guide: Managing Risk in Farming*. www.fao.org/publications

Karadas, K., & Birinci, A. (2018). Identification of Risk Factors Affecting Production of Beekeeping Farms and Development of Risk Management strategies: A new approach. *Brazilian Journal of Animal Science*, 47, 1–9. <https://doi.org/10.1590/rbz4720170252>

Karmini. (2017). Factors affecting paddy farm income in East Kalimantan, Indonesia. *Biodiversitas*, 18(1), 101–108. <https://doi.org/10.13057/biodiv/d180115>

Kerap, M. C., Pakasi, C. B. D., & Sondakh, M. L. (2018). Analisis Pendapatan Rumah Tangga Petani Cengkeh Di Desa Tulap Kecamatan Kombi Kabupaten Minahasa. *Agri-Sosioekonomi*, 14(2), 111–120. <https://doi.org/10.35791/agrsossek.14.2.2018.20376>

Khan, I., Lei, H., Shah, I. A., Ali, I., Khan, I., Muhammad, I., Huo, X., & Javed, T. (2020). Farm households' risk perception, attitude and adaptation strategies in dealing with climate change: Promise and perils from rural Pakistan. *Land Use Policy*, 91, 104395. <https://doi.org/10.1016/j.landusepol.2019.104395>

Khan, N. A., Gao, Q., Iqbal, M. A., & Abid, M. (2020). Modeling food growers' perceptions and behavior towards environmental changes and its induced risks : evidence from Pakistan. *Environmental Science and Pollution Research*, 27, 20292–20308.

Khan, W., Jamshed, M., Fatima, S., & Dhamija, A. (2020). Determinants of income diversification of farm households' in Uttar Pradesh, India. *Forum for Social Economics*, 49(4), 465–483. <https://doi.org/10.1080/07360932.2019.1666728>

Khompatara, K., Pettongkao, S., Kuyyogsuy, A., Deenamo, N., & Churngchow, N. (2019). Enhanced resistance to leaf fall disease caused by Phytophthora palmivora in rubber tree seedling by Sargassum polycystum extract. *Plants*, 8(6), 1–14. <https://doi.org/10.3390/plants8060168>

Koesling, M., Ebbesvik, M., Lien, G., Flaten, O., Valle, P. S., & Arntzen, H. (2004). Risk and risk management in organic and conventional cash crop farming in Norway. *Food Economics - Acta Agriculturae Scandinavica, Section C*, 1(4),



195–206. <https://doi.org/10.1080/16507540410019692>

Komarek, A. M., De Pinto, A., & Smith, V. H. (2020). A review of types of risks in agriculture: What we know and what we need to know. *Agricultural Systems*, 178, 102738–102747. <https://doi.org/10.1016/j.agsy.2019.102738>

Kotler, P. (1997). *Manajemen Pemasaran. Analisis Perencanaan, Implementasi dan Pengendalian*. Penerbit Erlangga.

Kusdiana, A. P. J., Sinaga, M. S., & Tondok, E. T. (2020). Diagnosis Penyebab Penyakit Baru Gugur Daun Karet (*Hevea brasiliensis* Muell. Arg.). *Jurnal Penelitian Karet*, 38(2), 165–178.

Lahjie, A. M., Lepong, A., Simarangkir, B. D. A. S., Kristiningrum, R., & Ruslim, Y. (2018). Financial analysis of dipterocarp log production and rubber production in the forest and land rehabilitation program of Sekolaq Muliaq, West Kutai district, Indonesia. *Biodiversitas*, 19(3), 757–766. <https://doi.org/10.13057/biodiv/d190301>

Langenberger, G., Cadisch, G., Martin, K., Min, S., & Waibel, H. (2017). Rubber intercropping: A viable concept for the 21st century? *Agroforestry Systems*, 91(3), 577–596. <https://doi.org/10.1007/s10457-016-9961-8>

Le, T. C., & Cheong, F. (2010). Perceptions of risk and risk management in Vietnamese catfish farming: An empirical study. *Aquaculture Economics & Management*, 14(4), 282–314. <https://doi.org/10.1080/13657305.2010.526019>

Leavy, P. (2017). *Research Design. Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches*. The Guilford Press.

Lebel, L., & Lebel, P. (2018). Emotions , attitudes , and appraisal in the management of climate-related risks by fish farmers in Northern Thailand. *Journal of Risk Research*, 21(8), 933–951. <https://doi.org/10.1080/13669877.2016.1264450>

Lebel, P., Whangchai, N., Chitmanat, C., & Lebel, L. (2015). Climate risk management in river-based tilapia cage culture in northern Thailand. *International Journal of Climate Change Strategies and Management*, 7(4), 476–498. <https://doi.org/10.1108/IJCCSM-01-2014-0018>

Li, J., & Lin, W. (2021). Effects of nitrogen fertilizer rates on the growth and nutrient utilization of calla lily intercropped with rubber trees. *Soil and Tillage Research*, 211(March), 105031. <https://doi.org/10.1016/j.still.2021.105031>

Li, S., Juhász-Horváth, L., Harrison, P. A., Pintér, L., & Rounsevell, M. D. A. (2017). Relating farmer's perceptions of climate change risk to adaptation behaviour in Hungary. *Journal of Environmental Management*, 185, 21–30. <https://doi.org/10.1016/j.jenvman.2016.10.051>

Loison, S. A. (2019). Household livelihood diversification and gender: Panel evidence from rural Kenya. *Journal of Rural Studies*, 69, 156–172. <https://doi.org/10.1016/j.jrurstud.2019.03.001>



- Lu, W., Latif, A., & Ullah, R. (2017). Simultaneous adoption of contract farming and off-farm diversification for managing agricultural risks: The case of flue-cured Virginia tobacco in Pakistan. *Natural Hazards*, 86(3), 1347–1361. <https://doi.org/10.1007/s11069-017-2748-z>
- Lucas, M. P., & Pabuayon, I. M. (2011). Risk Perceptions, Attitudes, and Influential Factors of Rainfed Lowland Rice Farmers in Ilocos Norte, Philippines. *Asian Journal of Agriculture and Development*, 8(2), 61–77.
- Lyu, K., & Barré, T. J. (2017). Risk aversion in crop insurance program purchase decisions Evidence from maize production areas in China. *China Agricultural Economic Review*, 9(1), 62–80. <https://doi.org/10.1108/CAER-04-2015-0036>
- Mahendra, I., Rasyad, A., & Nurhidayah, T. (2019). Dampak Faktor Lingkungan Terhadap Ketahanan Pangan Rumah Tangga Petani Karet di Kabupaten Kuantan Singingi. *Jurnal Ilmu Lingkungan*, 13(1), 1–14.
- Mahmood, N., Arshad, M., Kaechele, H., Shahzad, M. F., Ullah, A., & Mueller, K. (2020). Fatalism, climate resiliency training and farmers' adaptation responses: Implications for sustainable rainfed-wheat production in Pakistan. *Sustainability*, 12(4), 1650. <https://doi.org/10.3390/su12041650>
- Mahmood, N., Arshad, M., Mehmood, Y., Faisal Shahzad, M., & Kächele, H. (2021). Farmers' perceptions and role of institutional arrangements in climate change adaptation: Insights from rainfed Pakistan. *Climate Risk Management*, 32, 100288. <https://doi.org/10.1016/j.crm.2021.100288>
- Mahmud, K. T., Akbar, T., & Parvez, A. (2020). Can microcredit improve the risk management capacity of the poor fish farmers ? Evidence from Bangladesh. *Journal of Poverty*, 00(00), 1–20. <https://doi.org/10.1080/10875549.2020.1799286>
- Mahmudi, M., Karno, K., & Purbajanti, E. D. (2019). Analisis Peningkatan Produktivitas Lahan Dengan Penanaman Pohon Sengon Pada Areal Karet Belum Menghasilkan (TBM) di Kebun Sukamangli PT Perkebunan Nusantara IX. *Jurnal Penelitian Karet*, 37(2), 115–126. <https://doi.org/10.22302/ppk.jpk.v37i2.662>
- Malau, J. (2019). *Perkebunan Karet Rakyat (Hevea brasiliensis) di Kalimantan Barat*. Balai Proteksi Tanaman Perkebunan Pontianak. <http://balaipontianak.ditjenbun.pertanian.go.id/web/page/title/474/perkebunan-karet-rakyat-hevea-brasiliensis-di-kalimantan-barat>
- Marampa, Y. P., & Maskan. (2014). Analisis kelayakan finansial budidaya tanaman karet (Hevea brasiliensis) skala rakyat di Kampung Tering Seberang Kecamatan Tering Kabupaten Kutai Barat. *Jurnal Agriculture and Forestry*, 13(1), 231–240.
- Mardiana, R., Abidin, Z., & Soelaiman, A. (2014). Pendapatan Dan Kesejahteraan Petani Karet Rakyat Di Kecamatan Bumi Agung Kabupaten Way Kanan. *JIA*, 2(3), 239–245. <http://jurnal.fp.unila.ac.id/index.php/JIA/article/view/806>
- Marie, M., Yirga, F., Haile, M., & Tquabo, F. (2020). Farmers' choices and factors affecting adoption of climate change adaptation strategies: evidence from



northwestern Ethiopia. *Heliyon*, 6(4), e03867.
<https://doi.org/10.1016/j.heliyon.2020.e03867>

Mase, A. S., Gramig, B. M., & Prokopy, L. S. (2017). Climate change beliefs, risk perceptions, and adaptation behavior among Midwestern US. crop farmers. *Climate Risk Management*, 15, 8–17. <https://doi.org/10.1016/j.crm.2016.11.004>

Maxwell, D., Levin, C., Armar-Klemesu, M., Ruel, M., Morris, S., & Ahiadeke, C. (2000). Urban livelihoods and food and nutrition security in Greater Accra, Ghana. In *Research Report of the International Food Policy Research Institute* (Issue 112). <https://doi.org/10.2499/0896291154rr112>

Maziya, M., Mudhara, M., & Chitja, J. (2017). What factors determine household food security among smallholder farmers? Insights from Msinga, KwaZulu-Natal, South Africa. *Agrekon*, 56(1), 40–52. <https://doi.org/10.1080/03031853.2017.1283240>

Mekonnen, A., Tessema, A., Ganewo, Z., & Haile, A. (2021). Climate change impacts on household food security and farmers adaptation strategies. *Journal of Agriculture and Food Research*, 6, 100197. <https://doi.org/10.1016/j.jafr.2021.100197>

Menapace, L., Colson, G., & Raffaelli, R. (2013). Risk Aversion, Subjective Beliefs, and Farmer Risk Management Strategies. *American Journal of Agricultural Economics*, 95(2), 384–389. <https://doi.org/10.1093/ajae/aas107>

Mengistu, D. D., Degaga, D. T., & Tsehay, A. S. (2021). Analyzing the contribution of crop diversification in improving household food security among wheat dominated rural households in Sinana District, Bale Zone, Ethiopia. *Agriculture and Food Security*, 10(1), 1–15. <https://doi.org/10.1186/s40066-020-00280-8>

Meraner, M., & Finger, R. (2017). Risk Perceptions, Preferences and Management Strategies: Evidence from a Case Study Using German Livestock Farmers. *Journal of Risk Research*, 22(1), 110–135. <https://doi.org/10.1080/13669877.2017.1351476>

Mersha, M. A., & Demeke, L. B. (2019). Analysis of Factors Affecting Potato Farmers ' Gross Margin in Central Ethiopia : The Case of Holeta District. *Munich Personal RePEc Archive*, 92846, 1–38.

Meuwissen, M. P. M., Huirne, R. B. M., & Hardaker, J. B. (2001). Risk and risk management: An empirical analysis of Dutch livestock farmers. *Livestock Production Science*, 69(1), 43–53. [https://doi.org/10.1016/S0301-6226\(00\)00247-5](https://doi.org/10.1016/S0301-6226(00)00247-5)

Mgale, Y. J., & Yunxian, Y. (2021). Price risk perceptions and adoption of management strategies by smallholder rice farmers in Mbeya region, Tanzania. *Cogent Food & Agriculture*, 7(1), 1–16. <https://doi.org/10.1080/23311932.2021.1919370>

Miller, R. ., & Meiners, E. . (2000). *Teori Mikroekonomika Intermediate*. PT. Grafindo Persada.



- Min, S., Huang, J., Bai, J., & Waibel, H. (2017). Adoption of intercropping among smallholder rubber farmers in Xishuangbanna, China. *International Journal of Agricultural Sustainability*, 15(3), 223–237. <https://doi.org/10.1080/14735903.2017.1315234>
- Min, S., Huang, J., & Waibel, H. (2017). Rubber specialization vs crop diversification: The roles of perceived risks. *China Agricultural Economic Review*, 9(2), 188–210. <https://doi.org/10.1108/CAER-07-2016-0097>
- Min, S., Wang, X., Bai, J., & Waibel, H. (2021). Married to rubber? Evidence from the expansion of natural rubber in Southwest China. *Forest Policy and Economics*, 129(April 2020), 102513. <https://doi.org/10.1016/j.forepol.2021.102513>
- Miyata, S. (2003). Household's Risk Attitudes in Indonesian Villages. *Applied Economics*, 35(5), 573–583. <https://doi.org/10.1080/0003684022000020823>
- Mohd Hazir, M. H., Kadir, R. A., & Karim, Y. A. (2018). Projections on future impact and vulnerability of climate change towards rubber areas in Peninsular Malaysia. *IOP Conference Series: Earth and Environmental Science*, 169(1). <https://doi.org/10.1088/1755-1315/169/1/012053>
- Moser, S., & Mußhoff, O. (2017). Comparing the use of risk-influencing production inputs and experimentally measured risk attitude: Do the decisions of Indonesian small-scale rubber farmers match? *German Journal of Agricultural Economics*, 66(2), 124–139.
- Mulwa, C., Marenja, P., Rahut, D. B., & Kassie, M. (2017). Response to climate risks among smallholder farmers in Malawi: A multivariate probit assessment of the role of information, household demographics, and farm characteristics. *Climate Risk Management*, 16, 208–221. <https://doi.org/10.1016/j.crm.2017.01.002>
- Mulyo, J. H., Irham, I., Jumeri, J., Widodo, A. H., Wirakusuma, G., & Perwitasari, H. (2018). Food Security of Farm Households in Indonesia's Border Area, Sebatik Island. *International Journal of Engineering & Technology*, 7(3.30), 314–319. <https://doi.org/10.14419/ijet.v7i3.30.18269>
- Murniati, K., & Mutolib, A. (2020). The impact of climate change on the household food security of upland rice farmers in sidomulyo, lampung province, indonesia. *Biodiversitas*, 21(8), 3487–3493. <https://doi.org/10.13057/biodiv/d210809>
- Murray-Webster, R., & Hillson, D. (2008). Managing Group Risk Attitude. In *Gower Publishing*. <https://doi.org/10.4324/9781315593579>
- Nabuumma, D., Ekesa, B., Faber, M., & Mbhenyane, X. (2021). Community perspectives on food security and dietary diversity among rural smallholder farmers: A qualitative study in central Uganda. *Journal of Agriculture and Food Research*, 5, 100183. <https://doi.org/10.1016/j.jafr.2021.100183>
- Nanda, L. P., Mulyo, J. H., & Waluyati, L. R. (2019). Analisis Ketahanan Pangan Rumah Tangga Di Kabupaten Lampung Tengah. *Jurnal Ekonomi Pertanian Dan Agribisnis*, 3(2), 219–232. <https://doi.org/10.21776/ub.jepa.2019.003.02.2>
- Nasution, I., Siregar, T. H. S., & Pane, E. (2019). Hubungan Iklim Terhadap Produksi



Serta Pendapatan Petani Karet di Kabupaten Padang Lawas Utara.
AGRISAINS : Jurnal Ilmiah Magister Agribisnis, 1(1), 56–67.

Ndem, C. N., & Osondu, C. K. (2018). Risk Sources and Management Strategies Among Cassava Farmers in Abia State, Nigeria. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, 18(1), 267–276.

Ng, W. P. Q., Lim, M. T., Bt Mohamad Izhar, S. M., Lam, H. L., & Yusup, S. (2014). Overview on economics and technology development of rubber seed utilisation in Southeast Asia. *Clean Technologies and Environmental Policy*, 16(3), 439–453. <https://doi.org/10.1007/s10098-013-0667-6>

Nicod, T., Bathfield, B., Bosc, P.-M., Promkhambut, A., Duangta, K., & Chambon, B. (2020). Households' livelihood strategies facing market uncertainties: How did Thai farmers adapt to a rubber price drop? *Agricultural Systems*, 182, 102846. <https://doi.org/10.1016/j.aggsy.2020.102846>

Noack, F. (2019). The contrasting effects of farm size on farm incomes and food production. *Environmental Research Letters*, 14, 1–15.

Nofriadi. (2016). Analisis Faktor-Faktor yang Mempengaruhi Produksi Karet di Kecamatan Mestong Kabupaten Muaro Jambi (Studi kasus Desa Muaro Sebapo). *E-Jurnal Ekonomi Sumberdaya Dan Lingkungan*, 5(1), 1–12. <https://online-journal.unja.ac.id/JSEL/article/view/3923/2854>

Nugraha, I. S., Alamsyah, A., & Agustina, D. S. (2018). Analisis Faktor-Faktor Yang Mempengaruhi Produksi dan Pendapatan Petani Karet (Studi Kasus Petani Karet Di Wilayah Operasional Perusahaan Migas Kabupaten Musi Banyuasin). *Jurnal Penelitian Karet*, 36(2), 183–192.

Nugraha, I. S., Alamsyah, A., & Agustina, D. S. (2019). Studi Perkiraan Harga Karet Mingguan di Tingkat Petani dengan Pendekatan Pengeluaran Rumah Tangga dan Biaya Berkebun Karet di Musi Banyuasin. *Jurnal Penelitian Karet*, 37(1), 87–96.

Oduniyi, O. S., & Tekana, S. S. (2020). Status and Socioeconomic Determinants of Farming Households' Food Security in Ngaka Modiri Molema District, South Africa. *Social Indicators Research*, 149(2), 719–732. <https://doi.org/10.1007/s11205-020-02266-2>

Oduro-ofori, E., Aboagye Anokye, P., & Acquaye, N. E. A. (2014). Effects of Education on the Agricultural Productivity of Farmers in Offinso Municipality. *International Journal of Development Research*, 4(9), 1951–1960.

Ogada, M. J., Rao, E. J. O., Radeny, M., Recha, J. W., & Solomon, D. (2020). Climate-smart agriculture, household income and asset accumulation among smallholder farmers in the Nyando basin of Kenya. *World Development Perspectives*, 18(March), 1–11. <https://doi.org/10.1016/j.wdp.2020.100203>

Ojo, T. O., & Baiyegunhi, L. J. S. (2020). Determinants of climate change adaptation strategies and its impact on the net farm income of rice farmers in south-west Nigeria. *Land Use Policy*, 95(April 2019), 1–10.



<https://doi.org/10.1016/j.landusepol.2019.04.007>

Oktavia, F., Sahuri, & Shinta Agustina, D. (2021). Progress of Rubber Breeding Program to Support Agroforestry System in Indonesia. *E3S Web of Conferences*, 305, 03006. <https://doi.org/10.1051/e3sconf/202130503006>

Oktavia, F., Stevanus, C. T., & Dessailly, F. (2020). Optimasi Kondisi Suhu dan Kelembaban Serta Pengaruh Media Tanam Terhadap Keberhasilan Aklimatisasi Tanaman Karet Asal Embriogenesis Somatik. *Jurnal Penelitian Karet*, 38(1), 1–16.

Olaniyi, O. N., & Szulczyk, K. R. (2022). Estimating the economic impact of the white root rot disease on the Malaysian rubber plantations. *Forest Policy and Economics*, 138(February), 102707. <https://doi.org/10.1016/j.forepol.2022.102707>

Olarinde, L. O., Manyong, V. M., & Akintola, J. O. (2007). Attitudes towards risk among maize farmers in the dry savanna zone of Nigeria: some prospective policies for improving food production. *African Journal of Agricultural Research*, 2(8), 399–408.

Oparinde, L. O., Amos, T. T., Aturamu, O. A., & Daramola, A. G. (2018). Attitudes Towards Risk and Risk Combating Strategies among Maize and Cassava Farmers in Southwest, Nigeria. *Journal of Economics, Management and Trade*, 21(7), 1–12. <https://doi.org/10.9734/jemt/2018/40755>

Paltasingh, K. R., & Goyari, P. (2018). Impact of farmer education on farm productivity under varying technologies: case of paddy growers in India. *Agricultural and Food Economics*, 6(1). <https://doi.org/10.1186/s40100-018-0101-9>

Penot, E., Chambon, B., & Wibawa, G. (2017). An history of Rubber Agroforestry Systems development in Indonesia and Thailand as alternatives for a sustainable agriculture and income stability. *IRRDB International Rubber Conference, October*. <https://www.researchgate.net/publication/320197089>

Penot, E., & Ilahang. (2021). Rubber Agroforestry Systems (RAS) in West Kalimantan, Indonesia: An historical perspective. *E3S Web of Conferences*, 305, 02001. <https://doi.org/10.1051/e3sconf/202130502001>

Penot, E., Thériez, M., Michel, I., Tongkaemkaew, U., & Chambon, B. (2022). Agroforestry rubber networks and farmers groups in Phatthalung area in Southern Thailand: A potential for an innovation platform? *Forest and Society*, 6(2), 503–526. <https://doi.org/10.24259/fs.v6i2.12481>

Perdana, R. P. (2019). Kinerja Ekonomi Karet dan Strategi Pengembangan Hilirisasinya di Indonesia. *Forum Penelitian Agro Ekonomi*, 37(1), 25–39. <https://doi.org/10.21082/fae.v37n1.2019.25-39>

Permana, A. S., Perera, R., & Kumar, S. (2008). Understanding energy consumption pattern of households in different urban development forms: A comparative study in Bandung City, Indonesia. *Energy Policy*, 36(11), 4287–4297. <https://doi.org/10.1016/j.enpol.2008.08.005>



Pindyck, R. S., & Rubinfeld, D. L. (2013). *Microeconomics*. Pearson.

Pratiwi, L. F. L., & Hardyastuti, S. (2018). Analisis Faktor-Faktor Yang Mempengaruhi Pendapatan Usahatani Kentang Pada Lahan Marginal Di Kecamatan Kejajar Kabupaten Wonosobo. *AGRIDEVINA*, 7(1), 14–26. <https://doi.org/10.33005/adv.v7i1.1127>

Pujianti, R., & Antara, M. (2016). Analisis Produksi Karet Rakyat di Desa Pontangoa Kecamatan Lembo Raya Kabupaten Morowali Utara. *E-Journal Agrotekbis*, 4(4), 485–490.

Purba, F., Rochdiani, D., & Wulandari, E. (2020). Komparasi Pendapatan Petani Karet Yang Menjual Bokar Ke Pasar Lelang Dan Non Lelang Di Kecamatan Sembawa Kabupaten Banyuasin Provinsi Sumatera Selatan. *Jurnal Penelitian Karet*, 38(1), 75–84. <https://doi.org/10.22302/ppk.jpk.v38i1.666>

Purwaningrat, L., Novianti, T., & Dermoredjo, S. K. (2019). Dampak Penerapan Agreed Export Tonnage Scheme (Aets) Terhadap Kesejahteraan Petani Karet Indonesia. *Jurnal Penelitian Karet*, 37(2), 127–138. <https://doi.org/10.22302/ppk.jpk.v37i2.641>

Purwanto, Z. (2008). Analisis Fungsi Keuntungan dan Efisiensi Ekonomi Relatif Pada Usahatani Padi Sawah Tadah Hujan. *Cemara*, 5(1), 28–42. <http://www.sampulpertanian.com/2017/06/pengertian-sawah-tadah-hujan.html>

Qi, D., Zhu, J., Huang, Y., Xie, G., & Wu, Z. (2021). Factors affecting technology choice behaviour of rubber smallholders: A case study in central Hainan, China. *Journal of Rubber Research*, 24(3), 327–338. <https://doi.org/10.1007/s42464-021-00096-6>

Radeny, M., Rao, E. J. O., Ogada, M. J., Recha, J. W., & Solomon, D. (2022). Impacts of climate-smart crop varieties and livestock breeds on the food security of smallholder farmers in Kenya. *Food Security*, 1511–1535. <https://doi.org/10.1007/s12571-022-01307-7>

Rahim, A., & Hastuti, D. R. D. (2007). *Pengantar, Teori dan Kasus Ekonomika Pertanian*. Penebar Swadaya.

Rahmi, R. D., Suratiyah, K., & Mulyo, J. H. (2013). Ketahanan Pangan Rumah Tangga Petani di Kecamatan Ponjong Kabupaten Gunungkidul. *Agro Ekonomi*, 24(2), 190–201.

Razar, R. M., Hamid, N. R. A., & Ghani, Z. A. (2021). GxE effect and stability analyses of selected rubber clones (*Hevea brasiliensis*) in Malaysia. *Journal of Rubber Research*, 24(3), 475–487. <https://doi.org/10.1007/s42464-021-00115-6>

Reincke, K., Vilvert, E., Fasse, A., Graef, F., Sieber, S., & Lana, M. A. (2018). Key factors influencing food security of smallholder farmers in Tanzania and the role of cassava as a strategic crop. *Food Security*, 10(4), 911–924. <https://doi.org/10.1007/s12571-018-0814-3>

Rekhy, R., & McConchie, R. (2014). Promoting consumption of fruit and vegetables for better health. Have campaigns delivered on the goals? *Appetite*, 79, 113–



123. <https://doi.org/10.1016/j.appet.2014.04.012>

Ren, C., Liu, S., Grinsven, H. Van, Reis, S., Jin, S., Liu, H., & Gu, B. (2019). The impact of farm size on agricultural sustainability. *Journal of Cleaner Production*, 220(12), 357–367. <https://doi.org/10.1016/j.jclepro.2019.02.151>

Reynaud, A., & Couture, S. (2012). Stability of risk preference measures: Results from a field experiment on French farmers. *Theory and Decision*, 73(2), 203–221. <https://doi.org/10.1007/s11238-012-9296-5>

Rivano, F., Maldonado, L., Simbaña, B., Lucero, R., Gohet, E., Cevallos, V., & Yugcha, T. (2015). Suitable rubber growing in Ecuador: An approach to South American leaf blight. *Industrial Crops and Products*, 66, 262–270. <https://doi.org/10.1016/j.indcrop.2014.12.034>

Rizwan, M., Ping, Q., Saboor, A., Ahmed, U. I., Zhang, D., Deyi, Z., & Teng, L. (2020). Measuring rice farmers' risk perceptions and attitude: Evidence from Pakistan. *Human and Ecological Risk Assessment*, 26(7), 1832–1847. <https://doi.org/10.1080/10807039.2019.1602753>

Rohmah, W., Suryantini, A., & Hartono, S. (2014). Analisis Pendapatan Dan Tingkat Kesejahteraan Rumah Tangga Petani Tebu Tanam Dan Keprasan di Kabupaten Bantul. *Agro Ekonomi*, 24(1), 54–65. <https://doi.org/10.22146/agroekonomi.17382>

Rozaki, Z., Rahmawati, N., Wijaya, O., Azizah, S. N., Pratama, A. C., Pramudya, Y., Novianto, F., Hanum, F. F., Rahmat, A., Jumakir, & Waluyo. (2022). Farmers' food security in the volcanic area: A case in Mount Merapi, Indonesia. *Open Agriculture*, 7(1), 554–565. <https://doi.org/10.1515/opag-2022-0122>

Ruangsri, K., Makkaew, K., & Sdoodee, S. (2015). The impact of rainfall fluctuation on days and rubber productivity in Songkhla Province. *International Journal of Agricultural Technology*, 11(1), 181–191.

Sahuri. (2018). Hubungan antara Neraca Air Lahan dan Produksi Karet Klon PB260. *Jurnal Ilmu Pertanian Indonesia*, 23(1), 38–43. <https://doi.org/10.18343/jipi.23.1.38>

Salarkia, N., Abdollahi, M., Amini, M., & Neyestani, T. R. (2014). An adapted Household Food Insecurity Access Scale is a valid tool as a proxy measure of food access for use in urban Iran. *Food Security*, 6(2), 275–282. <https://doi.org/10.1007/s12571-014-0335-7>

Sankalpa, J. K. S., Wijesuriya, W., & Ishani, P. G. N. (2020). Do rubber-based agroforestry practices build resilience upon poverty incidence? A case study from Moneragala district in Sri Lanka. *Agroforestry Systems*, 94(5), 1795–1808. <https://doi.org/10.1007/s10457-020-00502-9>

Saqib, S. E., Ahmad, M. M., Panezai, S., & Ali, U. (2016). Factors Influencing Farmers' Adoption of Agricultural Credit as a Risk Management Strategy: The Case of Pakistan. *International Journal of Disaster Risk Reduction*, 1–24. <https://doi.org/10.1016/j.ijdrr.2016.03.008>



- Saqib, S. E., Ahmad, M. M., Pansezai, S., & Rana, I. A. (2016). An empirical assessment of farmers' risk attitudes in flood-prone areas of Pakistan. *International Journal of Disaster Risk Reduction*, 18, 107–114. <http://dx.doi.org/10.1016/j.ijdrr.2016.06.007>
- SAW. (2020). *Perbaikan Tata Niaga Karet di Kalbar Butuh Dukungan Daerah*. Medcom.Id. <https://www.medcom.id/ekonomi/bisnis/3NOGgR3N-perbaikan-tata-niaga-karet-di-kalbar-butuh-dukungan-daerah>
- Schreinemachers, P., Simmons, E. B., & Wopereis, M. C. S. (2018). Tapping the economic and nutritional power of vegetables. *Global Food Security*, 16, 36–45. <https://doi.org/10.1016/j.gfs.2017.09.005>
- Sdoodee, S., & Rongsawat, S. (2012). Impact of climate change on smallholders' rubber production in Songkhla province, Southern Thailand. *Proceeding of The 2012 International and National Conference For The Sustainable Community Development of "Local Community : The Foundation of Development in the ASEAN Economic Community (AEC)*, 81–86.
- Senapati, A. K. (2020). Evaluation of risk preferences and coping strategies to manage with various agricultural risks: Evidence from India. *Heliyon*, 6(3), e03503. <https://doi.org/10.1016/j.heliyon.2020.e03503>
- Setiyanto, A. (2015). Sintesis pendapatan rumah tangga perdesaan. *Panel Petani Nasional*, 81–98.
- Setyawan, E., Subantoro, R., & Prabowo, R. (2016). Analisis Faktor yang Berpengaruh Terhadap Produksi Karet di PT Perkebunan Nusantara IX Kebun Sukamangli Kabupaten Kendal. *Mediagro*, 12(1), 35–44.
- Sharaunga, S., Mudhara, M., & Bogale, A. (2016). Effects of "women empowerment" on household food security in rural KwaZulu-Natal province. *Development Policy Review*, 34(2), 223–252. <https://doi.org/10.1111/dpr.12151>
- Siagian, N. (2015). *Cara Modern Mendongkrak Produktivitas Tanaman Karet*. PT AgroMedia Pustaka.
- Simamora, D. I. S., Yusri, J., & Dewi, N. (2017). Analisis Faktor-Faktor yang Mempengaruhi Produksi Usahatani Karet di Kecamatan Pangkalan Kuras Kabupaten Pelalawan. *Jom Faperta*, 4(2), 1–12.
- Siregar, F. A., Fiddini Alham, Mahyuddin, T., & Muslimah. (2019). Risiko Produksi Karet Petani di Kecamatan Kejuruan Muda Kabupaten Aceh Tamiang. *Jurnal Penelitian Agrisamudra*, 5(1), 68–75. <https://doi.org/10.33059/jpas.v6i1.1401>
- Siregar, T. H. S. (2014). Pola Musiman Produksi Dan Gugur Daun Pada Klon PB 260 Dan RRIC 100. *Jurnal Penelitian Karet*, 32(2), 88–97. <https://doi.org/10.22302/jpk.v32i2.155>
- Siregar, T., & Suhendry, I. (2020). Budi Daya dan Teknologi Karet. In *Jakarta: Penebar Swadaya*. Penebar Swadaya.
- Siri-udom, S., Suwannarach, N., & Lumyong, S. (2017). Applications of volatile



- compounds acquired from Muscodor heveae against white root rot disease in rubber trees (*Hevea brasiliensis* Müll. Arg.) and relevant allelopathy effects. *Fungal Biology*, 121(6–7), 573–581. <https://doi.org/10.1016/j.funbio.2017.03.004>
- Sjöberg, L., Moen, E. B., & Rundmo, T. (2004). *Explaining risk perception. An evaluation of the psychometric paradigm in risk* (Vol. 2, Issue 2). Rotunde. <https://doi.org/10.1080/135753097348447>
- Song, H., Miao, Z., Jiang, G., Zhang, Y., Lu, F., Deng, F., Xie, E., Wu, J., & Zhao, F. (2022). Relationships between the Water Uptake and Nutrient Status of Rubber Trees in a Monoculture Rubber Plantation. *Agronomy*, 12(1999), 1–17. <https://doi.org/10.3390/agronomy12091999>
- Spicka, J. (2020). Socio-demographic drivers of the risk-taking propensity of micro farmers: Evidence from the Czech Republic. *Journal of Entrepreneurship in Emerging Economies*, 12(4), 569–590. <https://doi.org/10.1108/JEEE-09-2019-0143>
- Sugiyono. (2012). *Metode Penelitian Kombinasi*. Penerbit Alfabeta.
- Sulewski, P., & Kłoczko-Gajewska, A. (2014). Farmers' risk perception, risk aversion and strategies to cope with production risk: An empirical study from Poland. *Studies in Agricultural Economics*, 116(3), 140–147. <https://doi.org/10.7896/j.1414>
- Supranto, J. (2007). *Perilaku Konsumen dan Strategi Pemasaran Memenangkan Persaingan Bisnis*. Mitra Wacana Media.
- Suratiyah, K. (2015). *Ilmu Usahatani*. Penebar Swadaya.
- Suryabrata, S. (2003). *Metode Penelitian*. Penerbit Rajawali.
- Suyanto, S., Tomich, T. P., & Otsuka, K. (2001). Land tenure and farm management efficiency: The case of smallholder rubber production in customary land areas of Sumatra. *Agroforestry Systems*, 50(2), 145–160. <https://doi.org/10.1023/A:1010625019030>
- Syahza, A., Backe, D., & Asmit, B. (2018). Natural rubber institutional arrangement in efforts to accelerate rural economic development in the province of Riau. *International Journal of Law and Management*, 60(6), 1509–1521. <https://doi.org/10.1108/IJLMA-10-2017-0257>
- Syarifa, L. F., Agustina, D. S., Alamsyah, A., & Nugraha, I. S. (2016). Potensi dan kendala dalam penguatan dan penumbuhan kelompok pemasaran bahan olah karet terorganisir di Provinsi Sumatera Selatan. *Jurnal Penelitian Karet*, 34(2), 237–246.
- Syarifa, L. F., Agustina, D. S., & Nancy, C. (2013). Evaluasi Pengolahan Dan Mutu Bahan Olah Karet Rakyat (Bokar) di Tingkat Petani Karet di Sumatera Selatan. *Jurnal Penelitian Karet*, 31(2), 139–148. <https://doi.org/10.22302/jpk.v31i2.141>
- Syarifa, L. F., & Tistama, R. (2020). Analisis Kinerja dan Prospek Komoditas Karet.



Analisis Dan Opini Perkebunan, 1(2), 1–7.

Tanakasempipat, P. (2019). *Top rubber producer Thailand hit by fungal disease outbreak.* Reuters. <https://www.reuters.com/article/us-thailand-rubber-idUSKBN1X0118>

Tesfahun, A. A., & Chawla, A. S. (2020). Risk perceptions and adaptation strategies of smallholder farmers to climate change and variability in North Shoa Zone, Ethiopia. *Management of Environmental Quality: An International Journal*, 31(1), 254–272. <https://doi.org/10.1108/MEQ-04-2019-0076>

Tesfaye, W., & Seifu, L. (2016). Climate change perception and choice of adaptation strategies: Empirical evidence from smallholder farmers in east Ethiopia. *International Journal of Climate Change Strategies and Management*, 8(2), 253–270. <https://doi.org/10.1108/IJCCSM-01-2014-0017>

Thaochan, N., Pornsuriya, C., Chairin, T., & Sunpapao, A. (2020). Roles of systemic fungicide in antifungal activity and induced defense responses in rubber tree (*Hevea brasiliensis*) against leaf fall disease caused by *Neopestalotiopsis cubana*. *Physiological and Molecular Plant Pathology*, 111(June), 101511. <https://doi.org/10.1016/j.pmpp.2020.101511>

The World Bank. (2016). *Agricultural Sector Risk Assessment: Methodological Guidance For Practitioners*. World Bank Group.

Theeuwesen, L. (2013). *Risks and Risk Management in Agriculture: Vol. 13(28) (Issue 4)*.

Thi Lan Huong, N., Shun Bo, Y., & Fahad, S. (2017). Farmers' perception, awareness and adaptation to climate change: evidence from northwest Vietnam. *International Journal of Climate Change Strategies and Management*, 9(4), 555–576. <https://doi.org/10.1108/IJCCSM-02-2017-0032>

Thomas, G. (2018). *Risk Management in Agriculture* (Issue July 2018). The Scottish Parliament.

Tongkaemkaew, U., & Chambon, B. (2018). Rubber plantation labor and labor movements as rubber prices decrease in Southern Thailand. *Forest and Society*, 2(1), 18–27. <https://doi.org/10.24259/fs.v2i1.3641>

Tudor, K., Spaulding, A., Roy, K. D., & Winter, R. (2014). An analysis of risk management tools utilized by Illinois farmers. *Agricultural Finance Review*, 74(1), 69–86. <https://doi.org/10.1108/AFR-09-2012-0044>

Tulong, V. A., Ngangi, C. R., & Tangkere, E. G. (2019). Nilai Tukar Pendapatan Rumah Tangga Petani Padi Di Desa Tolok Kecamatan Tompaso Kabupaten Minahasa. *Journal of Agribusiness and Rural Development (Jurnal Agribisnis Dan Pengembangan Pedesaan)*, 1(1), 71–79.

Tun Oo, A., Van Huylenbroeck, G., & Speelman, S. (2017). Determining factors for the application of climate change adaptation strategies among farmers in Magwe District, dry zone region of Myanmar. *International Journal of Climate Change Strategies and Management*, 9(1), 36–55. <https://doi.org/10.1108/IJCCSM-09-001>



2015-0134

Ullah, R., & Shivakoti, G. P. (2014). Adoption of on-farm and off-farm diversification to manage agricultural risks. *Outlook on Agriculture*, 43(4), 265–271. <https://doi.org/10.5367/oa.2014.0188>

Ullah, R., Shivakoti, G. P., & Ali, G. (2015). Factors effecting farmers' risk attitude and risk perceptions: The case of Khyber Pakhtunkhwa, Pakistan. *International Journal of Disaster Risk Reduction*, 13(2020), 151–157. <https://doi.org/10.1016/j.ijdrr.2015.05.005>

Ullah, R., Shivakoti, G. P., Kamran, A., & Zulfiqar, F. (2016). Farmers versus nature: Managing disaster risks at farm level. *Natural Hazards*, 82(3), 1931–1945. <https://doi.org/10.1007/s11069-016-2278-0>

Ullah, R., Shivakoti, G. P., Zulfiqar, F., & Kamran, M. A. (2016). Farm Risks and Uncertainties: Sources, Impacts and Management. *Outlook on Agriculture*, 45(3), 199–205. <https://doi.org/10.1177/0030727016665440>

Ullah, W., Nihei, T., Nafees, M., Zaman, R., & Ali, M. (2018). Understanding climate change vulnerability, adaptation and risk perceptions at household level in Khyber Pakhtunkhwa, Pakistan. *International Journal of Climate Change Strategies and Management*, 10(3), 359–378. <https://doi.org/10.1108/IJCCSM-02-2017-0038>

Vaughan, E. J., & Vaughan, T. M. (2007). Fundamentals of Risk and Insurance. In *Fundamentals of Risk and Insurance*. Wiley. <https://doi.org/10.2307/253725>

Velandia, M., Rejesus, R. M., Knight, T. O., & Sherrick, B. J. (2009). Factors Affecting Farmers' Utilization of Agricultural Risk Management Tools: The Case of Crop Insurance, Forward Contracting, and Spreading Sales. *Journal of Agricultural and Applied Economics*, 41(1), 107–123. <https://doi.org/10.1017/s1074070800002583>

Villano, R. A., O'Donnell, C. J., & Battese, G. E. (2005). An Investigation of Production Risk , Risk Preferences and Technical Efficiency : Evidence from Rainfed Lowland Rice Farms in the Philippines. In *Working Paper Series in Agricultural and Resource Economics* (Vol. 1).

Villena-esponera, M. P., Moreno-rojas, R., & Molina-recio, G. (2019). Validation of a Scale to Assess Household Food Insecurity in One Rural and One Periurban Area of Ecuador, with a High Percentage of Migrants. *Ecology of Food and Nutrition*, 58(2), 104–119. <https://doi.org/10.1080/03670244.2019.1570177>

Vrignon-Brenas, S., Gay, F., Ricard, S., Snoeck, D., Perron, T., Mareschal, L., Laclau, J. P., Gohet, É., & Malagoli, P. (2019). Nutrient management of immature rubber plantations. A review. *Agronomy for Sustainable Development*, 39(1). <https://doi.org/10.1007/s13593-019-0554-6>

Waha, K., Accatino, F., Godde, C., Rigolot, C., Bogard, J., Domingues, J. P., Gotor, E., Herrero, M., Martin, G., Mason-D'Croz, D., Tacconi, F., & van Wijk, M. (2022). The benefits and trade-offs of agricultural diversity for food security in low- and middle-income countries: A review of existing knowledge and evidence. *Global*



Food Security, 33(June), 100645. <https://doi.org/10.1016/j.gfs.2022.100645>

Waligo, B. (2004). *Pengantar Psikologi Umum*. Penerbit Andi Offset.

Wauters, E., Van Winsen, F., De Mey, Y., & Lauwers, L. (2014). Risk Perception, Attitudes Towards Risk and Risk Management: Evidence and Implications. *Agricultural Economics (Czech Republic)*, 60(9), 389–405. <https://doi.org/10.17221/176/2013-agricecon>

Widarjono, A. (2018). *Analisis Regresi dengan SPSS*. UPP STIM YKPN.

Widyasari, T., Hartono, S., & Irham, I. (2015). Peremajaan Optimal Tanaman Karet Di Pt. Perkebunan Nusantara IX (Analisis Simulasi Pada Kebun Getas). *Jurnal Penelitian Karet*, 33(1), 47–56. <https://doi.org/10.22302/jpk.v33i1.170>

Wik, M., Kebede, T. A., Bergland, O., & Holden, S. T. (2004). On the measurement of risk aversion from experimental data. *Applied Economics*, 36(21), 2443–2451. <https://doi.org/10.1080/0003684042000280580>

Winarni, B., Lahjie, A. M., Simarangkir, B. D. A. S., Yusuf, S., & Ruslim, Y. (2017). Forest gardens management under traditional ecological knowledge in West Kalimantan, Indonesia. *Biodiversitas*, 19(1), 77–84. <https://doi.org/10.13057/biodiv/d190113>

Yamin, S., Rachmach, L. A., & Kurniawan, H. (2011). *Regresi dan Korelasi dalam Genggaman Anda*. Penerbit Salemba Empat.

Yila, J. O., & Resurreccion, B. P. (2013). Determinants of smallholder farmers' adaptation strategies to climate change in the semi arid Nguru Local Government Area, Northeastern Nigeria. *Management of Environmental Quality: An International Journal*, 24(3), 341–364. <https://doi.org/10.1108/14777831311322659>

Zaw, Z. N., Sdoodee, S., & Lacote, R. (2017). Performances of low frequency rubber tapping system with rainguard in high rainfall area in Myanmar. *Australian Journal of Crop Science*, 11(11), 1451–1456. <https://doi.org/10.21475/ajcs.17.11.11.pne593>

Zhai, S., Song, G., Qin, Y., Ye, X., & Leipnik, M. (2018). Climate change and Chinese farmers: Perceptions and determinants of adaptive strategies. *Journal of Integrative Agriculture*, 17(4), 949–963. [https://doi.org/10.1016/S2095-3119\(17\)61753-2](https://doi.org/10.1016/S2095-3119(17)61753-2)