

## Daftar Pustaka

- Abduh A.M., Hanudin E., Purwanto B.H & Utami S.N.H. 2020. Effect of plant spacing and organic fertilizer doses on methane emission in organic rice fields. *Environment and Natural Journal* 18 (1): 66-74.
- Aini Dian N., Bambang S. & Herlinawati. 2017. Aplikasi Mikroorganisme Lokal Bonggol Pisang dan Pupuk Kandang Kambing terhadap Produksi Kedelai (*Glycine max* L. Merrill) Varietas Baluran. *Agripina, Journal of Applied Agricultural Sciences* Vol. 1 No. 1: 35-43.
- Akinsemolu Adenike A. 2018. The Role of Microorganisms in Achieving the Sustainable Development Goals. *Journal of Cleaner Production* 182: 139-155.
- Akram Rida, Veysel Turan, Abdul Wahid, Muhammad I., Muhammad A. Shahid, S. Kaleem, A. Hafeez, Muhammad M. Maqbool, Hassan J. Chaudhary, Muhammad F. Hussain M., Muhammad Mubeen, N. Sadiq, R. Murtaza, D. H. Kazmi, S. Ali, N. Khan, S. R. Sultana, S. Fahad, A. Amin & W. Nasim. 2018. Paddy land Pollutants and their role in climate change. M. Z. Hashmi, A. Varma (eds.), *Environmental Pollution of Paddy Soils*, Soil Biology 53.
- Ali M.A., Sattar M.A., Islam M.N & Inubushi K. 2014. Integrated effect of organic, inorganic and biological amendments on methane emission, soil quality and rice productivity in irrigated paddy ecosystem of Bangladesh: field study of two consecutive rice growing seasons. *Plant Soil* 378: 239-252.
- Alvarenga P., P. Palma, C. Mourinha, M. Farro, J. Dores, M. Patanita, C. Cunha-Queda, T. Natal-da-Luz, M. Renaud & J. P. Sousa. 2017. Recycling Organic Wastes to Agricultural Land as a Way to Improve Its Quality: A Field Study to Evaluate Benefits and Risks. *Waste Management* 61: 582-592.
- Amry R. 2009. *Effect of the Balance of Stone Banana (Musa brachycarp) and Wheat Flour on Some Characteristics of Dried Noodles*. Skripsi. Industrial Agriculture Technology, Universitas Padjadjaran, Bandung.
- Andoko Agus, Drs. 2008. *Budidaya Padi Secara Organik*. Penebar Swadaya, Depok.
- Angraini, Erni. 2015. *Kajian Potensi Bakteri Pelarut Kalium dari Lahan Penambangan Batu Kapur Palimanan, Cirebon*. Tesis. Sekolah Pascasarjana, Institut Pertanian Bogor.
- Ariyanti Mira, Intan R. Dewi & Gita Natali. 2019. Utilization of organic fertilizer made out of oil palm midrib in oil palm nursery. *International Journal on Advanced Science Engineering Information Technology* Volume 9 No. 4: 1324-1329, 2019.
- Arikunto Suharsimi., Prof. Dr. 2010. *Prosedur Penelitian Suatu Pendekatan Praktik*. Rineka Cipta, Jakarta.
- Ashari, Juwaidah Sharifuddin, Zainal Abidin Mohammed & Rika Terano. 2016. Rice Farmers Perception and Attitude Toward Organic Farming Adoption. *Jurnal Agro Ekonomi* Vol. 34 No. 1: 35-46.
- Ashrafuzzaman M., Farid A. Hossen, M. Razi I., Md. Anamul Hoque, M. Zahurul Islam, S. M. Shahidullah & Sariah Meon. 2009. Efficiency of Plant Growth-

- Promoting Rhizobacteria (PGPR) for the Enhancement of Rice Growth. *African Journal of Biotechnology* Volume 8 (7): 1247-1252.
- Asri Feri. 2010. *Influence of Organic and Inorganic Fertilizers Balance on Methane Emission (CH<sub>4</sub>) in Paddy Fields Palur*. Skripsi. Faculty of Agriculture, Sebelas Maret University, Surakarta.
- Bachtiar, Munif Ghulamahdi, Maya Melati, Dwi Guntoro & Atang Sutandi. 2016. Kebutuhan Nitrogen Tanaman Kedelai pada Tanah Mineral dan Mineral Bergambut dengan Budidaya Jenuh Air. *Jurnal Penelitian Pertanian Tanaman Pangan* Vol. 35 Nomor 3: 217-227.
- Badan Penelitian Lingkungan Pertanian (Balitgan). 2008. *Petunjuk Teknis Menghitung Total Emisi CH<sub>4</sub> dengan Pengambilan Contoh Terbatas*. Badan Penelitian dan Pengembangan (Litbang), Kementerian Pertanian.
- Badan Penelitian dan Pengembangan (Litbang) Pertanian. 2011. *Laporan Tahunan 2010 tentang Inovasi Mengantisipasi Perubahan Iklim untuk Kemandirian Pangan*. Kementerian Pertanian.
- Baohua X, Zheng X, Zhou Z, Gu J, Zhu B, Chen X, Shi Y, Wang Y, Zhao Z, Liu C, Yao Z, Zhu J. 2010. Effects of Nitrogen Fertilizer on CH<sub>4</sub> Emission from Rice Field: Multi-site Field Observations. *Plant Soil* 326: 393-401.
- Bharali A, Kushal K. Baruah, Sunitee G. Baruah & P. Bhattacharyya. 2017. Impacts of Integrated Nutrient Management on Methane Emission, Global Warming Potential and Carbon Storage Capacity in Rice Grown in a Northeast India Soil. *Environmental Science and Pollution Research*.
- Bhardwaj Deepak, Mohammad Wahid Ansari, Ranjan Kumar Sahoo & Narendra Tuteja, 2014. Biofertilizer Function as Key Player in Sustainable Agriculture by Improving Soil Fertility, Plant Tolerance and Crop Productivity (Review). *Microbial Cell Factories* 13: 66.
- Bhattacharyya P. N. & Jha D. K. 2011. Plant Growth Promoting Rhizobacteria (PGPR): Emergence in Agriculture. *World Journal of Microbiology and Biotechnology* Vol. 28: 1327-1350.
- Bhattacharyya P., P. K. Dash, C. K. Swain, S. R. Padhy, K.S. Roy, S. Neogi, J. Berliner, T. Adak, S. S. Pokhare, M. J. Baig & T. Mohapatra. 2019. Mechanism of plant mediated methane emission in tropical lowland rice. *Science of the Total Environment* 651: 84-92.
- Bianco Adele. 2016. Green Jobs and Policy Measures for Sustainable Agriculture. *Agriculture and Agricultural Science Procedia* 8 : 346-352.
- Bogoviz Aleksei. 2019. Transforming the Agricultural Sector for Better Sustainable Development: Perspectives from Rusia as a Member State of the Eurasian Economic Union. *IOP Conf. Series: Earth and Environmental Science* 274: 012001.
- BPS, 2019a. Statistik Indonesia 2019. Badan Pusat Statistik (BPS).
- BPS, 2014. *Klaten dalam Angka 2014*. Badan Pusat Statistik (BPS).
- BPS, 2015. *Klaten dalam Angka 2015*. Badan Pusat Statistik (BPS).

- BPS, 2016. *Klaten dalam Angka 2016*. Badan Pusat Statistik (BPS).
- BPS, 2017. *Klaten dalam Angka 2017*. Badan Pusat Statistik (BPS).
- BPS, 2018. *Klaten dalam Angka 2018*. Badan Pusat Statistik (BPS).
- BPS, 2019b. *Klaten dalam Angka 2019*. Badan Pusat Statistik (BPS).
- Budiastuti MTh. Sri. 2009. Dampak Penyimpangan Iklim Global terhadap Hasil Pertanian. *Agrosains* 11 (1): 22-27.
- Budiastuti Sri, Djoko Purnomo, Trijono Djoko Sulistyo, Suharto Ponco Rahardjo, Linayanti Darsono & Yosef Victorianus Pardjo. 2012. The Enhancement of Melon Fruit Quality by Application of the Fertilizer and Gibberellin. *Journal of Agricultural Science and Technology B* 2: 455-460.
- Cahyono A., Pamungkas B. P., Ayu P. K., Nur Aini I. H. & Pita A Bkti C. 2021. W. Leal Filho et al. (eds.), *Handbook of Climate Change Management*.
- Case S. D. C., M. Oelofse, Y. Hou, O. Oenema & L. S. Jensen. 2017. Farmers Perceptions and Use of Organic Waste Product as Fertilisers- A Survey Study of Potential Benefits and Barriers. *Agricultural Systems* 151: 84-95.
- Chen Hong-Ge, Y.-H. & Percival Zhang. 2015. New Biorefineries and Sustainable Agriculture : Increased Food, Biofuels, and Ecosystem Security. *Renewable and Sustainable Energy Reviews* 47: 117-132.
- Chiew Yoon Lin, J. Spangberg, A. Baky, Per-Anders H. & H. Jonsson. 2015. Environmental Impact of Recycling Digested Food Waste as Fertilizer in Agriculture- A Case Study. *Resources, Conservation and Recycling* 95: 1-14.
- Comte Irina, Francois Colin, Olivier G., S. Follain, Joann K. Whalen & Jean-Pierre C. 2013. Landscape-scale Assessment of Soil Response to Long-term Organic and Mineral Fertilizer Application in an Industrial Oil Palm Plnatation, Indonesia. *Agriculture, Ecosystems and Environment* 169: 58-68.
- Cyio Muhammad Basir. 1997. *Reduksi Fluks Metan, Ketersediaan dan Serapan Beberapa Unsur Hara serta Hasil Padi (Oryza sativa L.) Kultivar IR64 Akibat Pemupukan Kalium dan Sulfur pada Aeris Tropaequet dengan Sistem Tanam Gogorancah dan Walik Jerami*. Disertasi. Universitas Padjajaran, Bandung.
- Daquiado Aileen Rose, Saranya Kuppusamy, Song Yeob Kim, Jang Hwan Kim, Young-Eun Yoon, Pil Joo Kim, Sung-Hwan Oh, Youn-Sig Kwak & Yong Bok Lee. 2016. Pyrosequencing analysis of bacterial community diversity in long-term fertilized paddy field soil. *Applied Soil Ecology* 108: 84-91.
- Dara S. S. 1993. *Environmental Chemistry and Pollution Control*. S. Shand & Company LTD., New Delhi.
- Datta S., Joginder S., Sharanpeet S & Jaswinder S. 2016. Earthworms, Pesticides and Sustainable Agriculture: A Review. *Environmental Science Pollution Research* 23: 8227-8243.
- Dawson Neil, Adrian Martin & Laura Camfield. 2019. Can Agricultural Help Attain Sustainable Development Goals? Evidence from Africa and Asia. *Third World Quarterly* 40 (5): 926-946.
- Dermiyati. 2015. *Sistem Pertanian Organik Berkelanjutan*. Plantaxia, Yogyakarta.

- Devakumar N., Shubha S., S. B. Gouder & G. G. E. Rao. 2014. Microbial Analytical Studies of Traditional Organic Preparations Beejamrutha and Jeevamrutha. In: Rahman G & Aksoy (Eds.) *Proceedings of the 4<sup>th</sup> ISOFAR Scientific Conference. 'Building Organic Bridges'*, at the Organic World Congress 2014: 639-642. Istanbul.
- Dhanuja C, Abbasi T & Abbasi SA. 2018. Greenhouse Gas Emissions from Paddy Fields in Peninsular South India. *International Journal of Engineering & Scientific Research* Vol. 6 Issue 6: 56-63.
- Dhanuja, C., Saxena, D.K. & Abbasi, T. 2019. Effect of Application of Vermicompost on Methane Emission and Grain Yield of Chinna Ponni Paddy Crop. *Paddy and Water Environment* 17: 797–802.
- Diacono M & Montemurro F. 2011. Long-term Effects of Organic Amendments on Soil Fertility. *Agron. Sustain. Dev.* 30: 410-422.
- Dinas LHK. 2015. *Statistik Kehutanan 2015*. Dinas Lingkungan Hidup dan Kehutanan (LHK) Provinsi Jawa Tengah.
- Dinas LHK. 2016. *Statistik Kehutanan 2016*. Dinas Lingkungan Hidup dan Kehutanan (LHK) Provinsi Jawa Tengah.
- Dinas LHK. 2017. *Statistik Kehutanan 2017*. Dinas Lingkungan Hidup dan Kehutanan (LHK) Provinsi Jawa Tengah.
- Dinas LHK. 2018. *Statistik Kehutanan 2018*. Dinas Lingkungan Hidup dan Kehutanan (LHK) Provinsi Jawa Tengah.
- Dinas PKPP. 2014. *Laporan Tahunan Produksi Buah-buahan dan Sayuran 2014*. Dinas Pertanian Ketahanan Pangan dan Perikanan (PKPP) Kabupaten Klaten.
- Dinas PKPP. 2015. *Laporan Tahunan Produksi Buah-buahan dan Sayuran 2015*. Dinas Pertanian Ketahanan Pangan dan Perikanan (PKPP) Kabupaten Klaten.
- Dinas PKPP. 2016. *Laporan Tahunan Produksi Buah-buahan dan Sayuran 2016*. Dinas Pertanian Ketahanan Pangan dan Perikanan (PKPP) Kabupaten Klaten.
- Dinas PKPP. 2017. *Laporan Tahunan Produksi Buah-buahan dan Sayuran 2017*. Dinas Pertanian Ketahanan Pangan dan Perikanan (PKPP) Kabupaten Klaten.
- Dinas PKPP. 2018. *Laporan Tahunan Produksi Buah-buahan dan Sayuran 2018*. Dinas Pertanian Ketahanan Pangan dan Perikanan (PKPP) Kabupaten Klaten.
- Dinas PKPP. 2019. *Laporan Tahunan Produksi Buah-buahan dan Sayuran 2019*. Dinas Pertanian Ketahanan Pangan dan Perikanan (PKPP) Kabupaten Klaten.
- Djarwanto PS & Pangestu Subagyo. 1998. *Statistik Induktif Edisi IV*. BPFE UGM, Yogyakarta.
- Dobermann A. & T. Fairhurst. 2000. *Rice: Nutrient Disorders and Nutrient Management*. Makati: International Rice Research Institute.
- Dong D., Yang M., Wang C., Wang H., Li Y., Luo J & Wu W. 2013. Responses of methane emissions and rice yield to applications of biochar and straw in a paddy field. *J Soils Sediments* 13: 1450-1460.
- Dugan Mary. 2015. Rice. *Journal of Agricultural & Food Information* 16 (1) : 3-10.



- Ervianty Dita, Elizabeth A. Widjaja & Agung Sedayu. 2019. Bamboo Diversity of Sulawesi, Indonesia. *Biodiversitas* 20 (1): 91-109.
- Fayet L., Vermeulen W. J. 2014. Supporting Small-holders to Access Sustainable Supply Chains: Lessons from the Indian Cotton Supply Chain. *Sustain. Dev.* 22 (5): 289-310.
- Foth. D. Henry. 1994. *Dasar-dasar Ilmu Tanah. Alih Bahasa : Soenartono Adisoemarto*. Penerbit Erlangga, Jakarta.
- Gardner F. P., R. B. Pearce & R. L. Mitchell. 1991. *Cultivation Plant Physiology*. University of Indonesia Press. Jakarta.
- Gazali T. Ahmad & Azizul M. Moqsud. 2019. Evaluation of Scale-up and Environmental Factors on Microbial Fuel Cell. *International Journal on Advanced Science Engineering Information Technology* 9 (3): 861-865.
- Genpan Li. 2009. Thought and Practice of Sustainable Development in Chinese Traditional Agriculture. *China Agricultural Economic Review* Volume 1 No. 1 pp. 97-109.
- Ghozali, Imam. 2005. *Aplikasi Analisis Multivariate dengan Program SPSS*. Badan Penerbit Universitas Diponegoro, Semarang.
- Gopalakrishnan Subramaniam, Arumugam Sathya, Rajendran Vijayabharathi, Rajeev Kumar Varsney, C. L. Laxmipathi Gowda & Lakshmanan Krishnamurthy. 2015. Plant Growth Promoting Rhizobia : Challenges and Opportunities (Review Article). *Journal 3 Biotechnology* (5): 355-377.
- Gujarati, D. 2003. *Basic Econometrics*. Fourth Edition, International. Edition West Point United States Military Academy, McGraw Hill Companies, USA.
- Habibie Muhammad H., Bendjamin B. L., Yosi A., Yopi & A. Lenggono. 2020. Operational Parameters of Small-scale Anaerobic Digester for Rural Areas in Indonesia to Support Sustainable Development Goals (SDGs). *International Conference on Chemical and Material Engineering* 1053: 012035.
- Hadi Sutrisno. 2002. *Metodologi Research*. BPFE UGM, Yogyakarta.
- Hairiah K. 2003. *Agroforestri : Tawaran Menuju Pertanian Sehat*. Prosiding Seminar Nasional Agroforestri. UGM Yogyakarta, 47-64.
- Hasibuan B. E. 2006. *Ilmu Tanah*. USU Press, Medan.
- Hampton M. Ozores & Stansly Philip A. 2005. Effects of Long-term Organic Amendments and Soil Solarization on Pepper and Watermelon Growth, Yield, and Soil Fertility. *HortScience* 40 (1): 80-84.
- Hanxi Wang, Jianling Xu, Xuejun Liu, DI Zhang, Longwei Li, Wei Li & Lianxi Sheng. 2019. Effects of Long-term Application of Organic Fertilizer on Improving Organic Matter Content and Retarding Acidity in Red Soil from China. *Soil & Tillage Research* 195: 104382.
- Harianhaluan.com. 2017. <https://www.harianhaluan.com/news/detail/64627/pupuk-kimia-rusak-sawah-hampir-50-persen-sawah-di-limapuluh-kota-tercemar>. Diunduh tanggal 12 April 2018.

- Hartatik Wiwik & L. R. Widowati. 2006. *Pupuk Organik dan Pupuk Hayati*. Balai Besar Litbang Sumber Daya Lahan Pertanian, Kementerian Pertanian. [http://balittanah.litbang.pertanian.go.id/ind/dokumentasi/buku/buku%20pupuk%20hayatipupuk%20organik/04pukan\\_wiwik.pdf](http://balittanah.litbang.pertanian.go.id/ind/dokumentasi/buku/buku%20pupuk%20hayatipupuk%20organik/04pukan_wiwik.pdf).
- Hartatik, W. & Setyorini, D. 2009. *Pengaruh pupuk organik terhadap sifat kimia tanah dan produksi tanaman padi sawah organik*. Seminar Nasional dan Dialog Sumberdaya Lahan Pertanian. Bogor (pp. 21-35).
- Hastuti, Purnomo, I. Sumardi, Budi S. D. 2019. Diversity Wild Banana Species (*Musa spp.*) in Sulawesi, Indonesia. *Biodiversitas* 20 (3): 824-832.
- Hermawan D. 2012. Karakteristik Fisikokimia Tepung Bonggol Pisang Kepok dan Mas dengan Cara Fermentasi Spontan. Skripsi. Fakultas Teknologi Hasil Pertanian, Jember.
- Hikmanudin, Ir., Cipto Utomo, Ir., M.Si., Arif Budi Purwanto, S, Hut., Nurudin Rumecko, SP., Budiyo, ST., Ardiansyah, ST., MM., Hafidhah Khusniyati, SP., Suyadi, Drs., Hadi Santoso, SE., Sunaryo, ST & Sukram, Ir., MP. 2017. *Aksi Mitigasi Perubahan Iklim*. Pokja Ekonomi Hijau, Purbalingga.
- Hossen S, Nasrin I, Rashidul A & Abdul B. 2015. Effects of different rates of compost application on methane emission and crop yield in Aman rice. *The Journal of Agriculture and Natural Resources Sciences* 2 (3): 530-536.
- Hou A. X., G. X. Chen, Z. P. Wang, O. V. Cleemput & W. H. Patrick. 2000. Methane and nitrous oxide emissions from a rice field in relation to soil redox and microbial and microbiological processes. *Soil Sciences Soc. Amer. J.* 64: 2180-2186.
- <https://ilmugeografi.com/ilmu-bumi/tanah-regosol> diunduh tanggal 27 Maret 2021.
- <http://www.stanford.edu>
- Hubeis Musa, Prof. Dr. Ir. H. MS. Dipl. Ing. DEA, Hardiana Widyastuti, S.Hut. MM & Nur Hadi Wijaya, STP. MM. 2013. *Prospek Pangan Organik Bernilai Tambah Tinggi Berbasis Petani*. IPB Press, Bogor.
- Hussain S., Shaobing Peng, Shah Fahad, Abdul Khaliq, Jinliang Huang, Kehui Cui & Lixiao Nie. 2014. Rice Management Interventions to Mitigate Greenhouse Gas Emissions: A Review. *Environ Sci Pollut Res*.
- Hutsch Birgit W. 2001. Methane Oxidation in Non-flooded Soils as Affected by Crop Production. *European Journal Of Agronomy* 14: 237-260.
- Ibrahim B. 2002. *Integration of Legume Tree Plant Type in Dryland Cultivation System and Their Effects on Soil Properties, Erosion, and Land Productivity*. Disertasi. School of Graduates, Universitas Hasanuddin, Makassar.
- Idham, Sudiarso, N. Aini & Y. Nuraini. 2016. Isolation and identification on microorganism decomposers of Palu local cow manure of Central Sulawesi, Indonesia. *Journal of Degraded and Mining Lands Management* Volume 3 No. 4: 625-629.
- Indawan Edyson. 2002. Penggunaan Biofertilizer pada Jerami Padi sebagai Sumbangan Hara dalam Sistem Pertanian Ramah Lingkungan. *Agromedia* Vol. 20 (2): 123-127.
- Indranada, H. K. 1994. *Pengelolaan Kesuburan Tanah*. Bumi Aksara, Jakarta.

- International Rice Research Institute (IRRI). 1998. *Methane Emission from Ricefields*. A project funded by the United Nations Development Programme Global Environment Facility. Los Banos, Philippines.
- Irianto Heru & Totok Mardikanto. 2010. *Metoda Penelitian dan Evaluasi Agribisnis*. Jurusan Agribisnis Fakultas Pertanian, Universitas Sebelas Maret, Surakarta.
- Jamilah, Ediwirman & Milda Ernita. 2015. The Effect of Fermented Liquid Organic Fertilizer and Potassium for Nutrient Uptake and Yield of Rice at Tropical Upland. *Journal of Environmental Research and Development* 9 (4): 1-6.
- Jasim, Ali Husain, Huda Ahmed Atab & Hameed Musa Abed. 2016. Effect Of Chemical and Organic Soil Fertilizers and Their Interactions with Foliar Fertilizers on Growth and Yiled of Broad Bean (*Vicia faba L*). *Annals of West University of Timisoara* Vol. 19 (2): 149-156.
- Jermasawadipong P, Murase J, Prabuddham P, Hasathon Y, Khomtong N, Naklang K, Akira W, Hiroki H & Kimura M. 1994. Methane Emission from Plots with Differences in Fertilizer Application in Thai Paddy Fields. *Soil Science and Plant Nutrition* 40 (1): 63-71.
- Jia Z, Cai Z, Xu H & Li X. 2001. Effect of Rice Plants on CH<sub>4</sub> Production, Transport, Oxidation and Emission in Rice Paddy Soil. *Plant and Soil* 230: 211-221.
- Jiang Yu, Yunlu Tian, Yanni Sun, Yi Zhang, Xiaoning Hang, Aixi Deng, jun Zhang & Weijian Zhang. 2016. Effect of rice panicle size on paddy field CH<sub>4</sub> emissions. *Biol Fertil Soils* 52: 389-399.
- Jouzi Zeynab, Hossein Azadi, Fatemeh Taherri, Kiumars Zarafshani, Kindeya Gebrehiwot, Steven Van Passel & Philippe Lebailly. 2017. Organic Farming and Small-Scale Farmers : Main Opportunities and Challenges. *Ecological Economics Journal* (132): 144-154.
- Kardinan Agus, Prof. Dr. Ir. M.Sc. 2016. *Sistem Pertanian Organik*. Intimedia, Malang.
- Kartasapoetra A. G. 1989. *Kerusakan Tanah Pertanian dan Usaha Untuk Merehabilitasinya*. PT. Bina Aksara, Jakarta.
- Kasem Sukallaya & Gopal B. Thapa. 2012. Sustainable Development Policies and Achievements in the Context of Agriculture Sector in Thailand. *Sustainable Development* 20: 98-114.
- Kasno A & Tia Rostaman. 2013. Serapan Hara dan Peningkatan Produktivitas Jagung dengan Aplikasi Pupuk NPK Majemuk. *Jurnal Penelitian Pertanian Tanaman Pangan* Volume 32 Nomor 3: 179-186.
- Katoh K, Chairaj P, Yagi K, Tsuruta H, Minami K, Cholitkul W. 1999. Methane Emission from Paddy Fields in Northern Thailand. *Japan International Research Center for Agricultural Sciences (JIRCAS) Journal* 7: 77-85.
- Kazmier & Leonard. J. 2005. *Schaum's Easy Outline – Statistik Untuk Bisnis*. Terjemahan P.A. Lestari, Penerbit Erlangga, Jakarta.
- Keesstra Saskia, Gerben Mol, Jan de L., Joop Okx, Co Molenaar, Margot de Cleen & Saskia Visser. 2018. Soil-Related Sustainable Development Goals: Four Concepts to Make Land Degradation Neutrally and Restoration Work. *Land* 7: 133.

- Keputusan Menteri Pertanian (2019) *Persyaratan Teknis Minimal Pupuk Organik, Pupuk Hayati, dan pembenah Tanah*. Keputusan Menteri Pertanian Republik Indonesia Nomor 261/ KPTS/SR. 310/M/4/2019, Jakarta.
- Kesumaningwati Roro. 2015. Penggunaan Mol Bonggol Pisang (*Musa paradisiaca*) sebagai Decomposer untuk Pengomposan Tandan Kosong Kelapa Sawit. *Ziraa'ah* Vol. 40 No. 1: 40-45.
- Khalil MAK & Rasmussen RA. 1992. The Global Source of Nitrous Oxide. *Journal Geophys Research* 97: 14651-14660.
- Khanal Uttam, Clevo Wilson, S. Rahman, Boon L. Lee & Viet-Ngu H. 2021. Smallholder Farmers's Adaptation to Climate Change and Its Potential Contribution to UN's Sustainable Development Goals of Zero Hunger and No Poverty. *Journal Cleaner Production* 281: 124999.
- Khudori. 2010. Kondisi Pertanian Pangan Indonesia. *Pangan* Vol. 19 No. 3: 211-232.
- Kim S. Y., Pramanik P., Bodelier P. & Kim P. 2014. Cattle Manure Enhance Methanogens Diversity and Methane Emission Compared to Swine Manure under Rice Paddy. *PLoS One* 9, e113593.
- Kleeman L. 2011. Organic Pineapple Farming in Ghana: A Good Choice for Smallholders? (No. 1671). *Kiel Working Papers* Available at: <http://www.pegnet.ifw-kiel.de/research/grants/results/kwp-1671.pdf> downloaded Juni 5, 2020.
- Kowaljow Esteban, Maria Julia Mazzarino, Patricia Satti & Cesar Jimenez-Rodriguez. 2010. Organic and Inorganic Fertilizer Effects on a Degraded Patagonian Rangeland. *Plant Soil* 332: 135-145.
- Kumar R. Rajesh, Bong Ju Park & Jae Y. Cho. 2013. Application and environmental risks of livestock manure. *J Korean Soc Appl Biol Chem* 56: 497-503.
- Kurniawati F.D, Setyanto P, Suntoro, Cahyani V.R. 2018. *The Dynamics of Methane (CH<sub>4</sub>) Emissions in Organic and Conventional Paddy Fields on Alfisols and Andisols at Karanganyar Regency, Indonesia*. International Conference on Climate Change. IOP Conference Series: Earth and Environmental Science 200. Surakarta, Indonesia.
- Lazcano Cristina, M. Gomez-Brandon, P. Revilla & J. Dominguez. 2013. Short-term Effects of Organic and Inorganic Fertilizers on Soil Microbial Community Structure and Function. *Biol Fertil Soils* 49: 723-733.
- Lindung. 2015. Teknologi Mikroorganisme EM<sub>4</sub> and MOL. Balai Pelatihan Pertanian Jambi, Kementerian Pertanian.
- Lingga Pinus & Marsono. 2002. *Petunjuk Penggunaan Pupuk*. PT. Penebar Swadaya, Jakarta.
- Liu J., Zang H., Xu H., Zhang K., Jiang Y., Hu Y & Zeng Z. 2019. Methane emission and soil microbial communities in early rice paddy as influenced by urea-N fertilization. *Plant Soil* 445: 85–100.



- Lu Y., Wassmann R., Neue HU & Huang C. 2000. Dynamics of dissolved organic carbon and methane emission in a flooded rice soil. *Soil Sci Soc Am J* 64 (6): 2011-2017.
- Lusy Nova D., Lena W., & Kristofel H. H. 2017. Karakteristik Kimia Pupuk Organik Cair dari Tiga Jenis Kotoran Hewan dan Kombinasinya. *Partner* No. 1: 452-463.
- Mahmood Ahmad, Riho Iguchi & Ryota Kataoka. 2019. Multifunctional Food Waste Fertilizer Having Capability of *Fusarium*-growth Inhibition and Phosphate Solubility: A New Horizon of Food Waste Recycle Using Microorganisms. *Waste Management* 94: 77-84.
- Makarim, A. K. & Suhartatik E. 2009. *Morfologi dan Fisiologi Tanaman Padi*. Balai Besar Penelitian Tanaman Padi, Subang.
- Manullang R. Rita, Rumini & Daryono. 2018. Combination Microorganism as Local Bio Activator Compost Kirinyuh. *International Journal of Scientific & Technology Research* 7: 1-5.
- Mayrowani Henny. 2012. Pengembangan Pertanian Organik di Indonesia. *Forum Penelitian Agroekonomi* Vol. 30 No. 2: 91-108.
- Meng Fanqiao, Yuhui Qiao, Wenliang Wu, Pete Smith & S. Scott. 2017. Environmental Impacts and Production Performances of Organic Agriculture in China: A Monetary Valuation. *Journal of Environmental Management* 188: 49-57.
- Mezuan, I. P. Handayani & E. Inoriah. 2002. Penerapan Formulasi Pupuk Hayati untuk Budidaya Pagi Gogo. *Jurnal Ilmu-ilmu Pertanian Indonesia* 4 (1): 27-34.
- Miles B. Mathew & Michael Huberman. 1992. *Analisis Data Kualitatif Buku Sumber tentang Metode-metode Baru*. Universitas Indonesia Press, Jakarta.
- Mitra P & Kaneko N. 2017. Impact of Aquatic Earthworms on Methane Emission Reduction from Paddy Field Soil in Japan. *Journal of Agricultural Science* Vol. 9 (10): 36-46.
- Muhibbuddin Anton, Lu'aali Addina, Abdul Latief Abadi & Atho'llah Ahmad. 2011. Biodiversity of Soil Fungi on Integrated Pest Management Farming System. *Agrivita* Vol. 33 No. 2: 111-118.
- Mulyono. 2012. *Pembuatan MOL dan Kompos dari Limbah Rumah Tangga (Making Mol and Compost from Household Waste)*. Agromedia Pustaka, Jakarta.
- Munadjim. 1983. *Teknologi Pengolahan Pisang*. PT. Gramedia Pustaka, Jakarta.
- Naveed Muhammad, Ijaz Mehboob, Masood A. Shaker, M. Baqir Hussain & Muhammad Farooq. 2015. Biofertilizer in Pakistan : Initiatives and Limitations (Review Article). *International Journal of Agriculture & Biology* Vol. 17 No. 3: 411-420.
- Nguyen S.G., Guevarra R.B., Kim J., Ho C.T., Trinh M.V & Unno T. 2015. Impacts of initial fertilizers and irrigation systems on paddy methanogens and methane emission. *Water Air Soil Pollut* (226): 309.
- Novalina, Wilyus, & Hanibal. 2017. The Effect of Different Liquid Organic Fertilizers on Seedling Growth of Six Upland Rice Varieties. *International Conference on Biology and Environmental Science*.

- Nuegebauer Maciej, Piotr Solowiej. 2017. The Use of Green Waste to Overcome the Difficult in Small-scale Composting of Organic Household Waste. *Journal of Cleaner Production* 156: 865-875.
- Novizan. 2005. *Petunjuk Pemupukan yang Efektif (Instruction for Effective Fertilization)*. Agromedia Pustaka, Jakarta.
- Nurmala Tuti, Aisyah D. Suyono, Abdul Rodjak, Tarkus Suganda, Sadeli Natasasmita, Tualar Simarmata, E. Hidayat Salim, Yuyun Yuwariah, Tuhpawan Priatna Sendjaja, Sulistyodewi Nur Wiyono & Sofiya Hasani. 2012. *Pengantar Ilmu Pertanian*. Graha Ilmu, Yogyakarta.
- Oo A.Z., Win K.T., Motobayashi T & Kimura S.D.B. 2016. Effect of Cattle Manure Amendment and Rice Cultivars on Methane Emission from Paddy Rice Soil under Continuously Flooded Conditions. *Journal of Environmental Biology* Vol. 37: 1029-1036.
- Oo A.Z., Sudo S, Inubushi K., Mano M, Yamamoto A., Ono K., Osawa T., Hayashida S., Patra P.K., Terao Y., Elayakumar P., Umamageswari K.V.C, Jothimani P & Ravi V. 2018. Methane and Nitrous Oxide Emissions from Conventional and Modified Rice Cultivation Systems in South India. *Agriculture, Ecosystems and Environment* 252: 148-158.
- Panjaitan Ernitha. 2015. *Kajian Lingkungan pada Sistem Pertanian Organik Tanaman Padi Sawah di Kabupaten Deli Serdang*. Disertasi. Sekolah Pascasarjana, Universitas Gadjah Mada, Yogyakarta.
- Panneerselvam. P., Halberg N. & Lockie S. 2013. Consequences of Organic Agriculture for Smallholder Farmers' Livelihood and Food Security. *Earthscan, London*: 21-44.
- Pas Aris Aksarah, Didy Sopandie, Trikoesoemaningtyas & Dwi Andreas Santosa. 2015. Aplikasi Konsorsium Mikrob Filosfer dan Rizosfer untuk Meningkatkan Pertumbuhan dan Hasil Tanaman Padi. *Pangan* Vol. 24 No. 1: 15-24.
- Pasaribu Amudi, Prof. Dr. M.Sc. Ph.D. 1975. *Pengantar Statistik*. Ghalia Indonesia, Jakarta Timur.
- Pesakovic Marijana, Z. Karaklajic-Stajic, S. Milenkovic, O. Mitrovic. 2013. Biofertilizer affecting yield related characteristic of strawberry (*Fragaria x ananassa Duch.*) and soil-organisms. *Scientia Horticulturae* 150:238-243.
- Phibunwatthanawong T., Nuntavun Riddech. 2019. Liquid Organic Fertilizer Production for Growing Vegetables Under Hydriponic Condition. *International Journal of Recycling of Organic Waste in Agriculture*.
- Pratiwi E.P.A., Shinogi Y. 2016. Rice husk biochar application to paddy soil and its effects on soil physical properties, plant growth, and methane emission. *Paddy Water Environment* 14 (4): 521-532.
- Prihastuti & Budhi S. Radjit. 2013. *Uji Sinergisme Mikroba dalam Pupuk Hayati Kemasan Terhadap Pertumbuhan dan Hasil Kacang Tanah di Lahan Kering Non Masam, Gresik*. *Agricultural Research and Information* Vol. 17 No. 1: 38-48.
- Purnomo Djoko, MTh. Sri Budiastuti & Umi Sarah. 2016. Empowerment of marginal land through organic cultivation of soybean in agroforestry. *The 2<sup>nd</sup> International*

- Rainforest Conference-Climate Change Mitigation Through Sustainable Rainforest Farming and Community-Based Livelihood.*
- Purnomo Djoko, Ahmad Yunus & Sri Budiastuti. 2011. Budidaya Padi Berwawasan Lingkungan dengan Metode System of Rice Intensification (SRI) dan Penggunaan Pupuk Organik Cair. *Jurnal Ekosains* Vol. III No. 1: 25-32.
- Purnomohadi Eri, Ujang Sumarwan, Asep Saefuddin & Eva Z. Yusuf. 2012. Analisis Persepsi, Perilaku Konsumsi dan Preferensi Terhadap Pangan Tradisional. *Jurnal Pangan* Vol. 21 No. 3: 297-312.
- Purwanto Edi, Samanhudi & Sudarmi. 2011. Studies of Shading Levels and Nutrition Sources on Growth, Yield and Andrographolide Content of Sambiloto (*Adrographis paniculata* Ness). *Agrivita* Vol. 33 No. 3: 300-306.
- Purwasasmita Mubiar, Dr. Ir. & Alik Sutaryat, Ir. 2014. *Padi SRI Organik Indonesia*. Penebar Swadaya, Jakarta.
- Purwasasmita M. 2009. Local microorganisms as trigger of life cycle in plant bioreactors. *Seminar Nasional Teknik Kimia Indonesia*. 19 –20 Oktober 2009.
- Putra S. 2012. The effect of single NPK compound fertilizer and leaf fertilizer on the increased production of Situ Patenggang paddy gogo varieties. *Agrotrop*. Balai Pengkajian Teknologi Pertanian Jawa Barat 2 (1): 55-61.
- Rahmi SP, MP. 2014. Kajian Efektifitas Mikroba *Azotobacter* sp. sebagai Pemacu Pertumbuhan Tanaman Kakao (*Theobroma cacao* L.). *Jurnal Galung Tropika* 3 (2): 44-53.
- Ranasinghe Achala, R. Jayasekera, S. Kannangara & Sena R. 2019. Effect of Nutrient Enriched Organic Liquid Fertilizers on Growth of *Albemonchus esculentus*. *Journal of Environment Protection and Sustainable Development* 5 (3): 96-106.
- Rangkuti Adil Parlaungan. 2009. Strategi Komunikasi Membangun Kemandirian Pangan. *Jurnal Penelitian dan Pengembangan Pertanian* Vol. 28 No. 2: 39-45.
- Rao Subba N. S. 2003. *Mikroorganisme Tanah dan Pertumbuhan*. UI Press, Jakarta.
- Rasyidin A. 2004. Penggunaan Bahan Limbah untuk Perbaikan Lahan Kritis. *Inovasi* Vol 1 No. XVI: 28-30.
- Regmi P. Punya & Karl E. Weber. 2000. Problems to Agricultural Sustainability in Developing Countries and Potential Solution : Diversity. *International Journal Of Social Economics* Vol. 27 No. 7/8/9/10: 788-801.
- Reijntes Coen, Bertus Haverkort & Ann Waters-Bayer. 1992. *Pertanian Masa Depan : Pengantar untuk Pertanian Berkelanjutan dengan Input Luar Daerah*. Penerbit Kanisius, Yogyakarta.
- Rigby D & D. Caceres. 2001. Organic Farming and Sustainability of Agricultural Systems. *Agricultural Systems* 68: 21-40.
- Roni N.G.K, Witariadi, N.N Candraasih K. & N. W Siti. 2013. Pemanfaatan Bakteri Pelarut Fosfat untuk Meningkatkan Produktivitas Kudzu Tropika (*Pueraria phaseoloides* Benth.). *Pasutra* Vol. 3 No. 1: 13-16.
- Rosmarkam Afandie & Nasih Widya Y. 2002. *Soil Fertility Science*. Kanisius Publisher, Yogyakarta, 2002.

- Rosadi Husni A. Y. 2015. Kebijakan Pemupukan Berimbang Untuk Meningkatkan Ketersediaan Pangan Nasional. *Pangan* Vol. 24 No. 1: 1-13.
- Rossel Raphael A. Viscarra & Johan Bouma. 2016. Soil Sensing : A New Paradigm for Agriculture. *Agricultural Systems* 148: 71-74.
- Roy T. Kanti, S. Rahma & P. Kumar Dev. 2013. Compost Fertilizer from Municipal Wastes and Its Application in Urban Agro-forestry Nurseries: A Case Study on Khulna City. *Journal of Bangladesh Institute of Planners* 6: 191-199.
- Ryan Peter R., Yves D., Linda S. Thomashow, & David M. Weller. 2009. Rhizosphere Engineering and Management for Sustainable Agriculture. *Plant Soil* 321: 363-383.
- Saebani & Beni Ahmad. 2008. *Metode Penelitian*. CV. Pustaka Setia, Bandung.
- Saha R, R. S. Chaudhary & J. Somasundaram. 2012. Soil Health Management under Hill Agroecosystem of North East India (Review Article). *Applied and Environmental Soil Science* Vol. 2012: 9.
- Salihin A. Karwan. 2003. *Sistem Pertanian Berkelanjutan*. Penerbit Kanisius, Yogyakarta.
- Sampanpanish P. 2012. Use of organic fertilizer on paddy fields to reduce greenhouse gases. *ScienceAsia* 38 (4): 323-330.
- Santoso Singgih. 2011. *Structural Equation Modeling (SEM) Konsep dan Aplikasi dengan AMOS 18*. PT. Elex Media Komputindo, Jakarta.
- Santosa Slamet, Edi Purwanto, Suranto, & Sajidan. 2018. Sustainability of organic agriculture system by plant growth promoting rhizobacteria (PGPR). *International Conference on Science, Education, and Humanities Research (ASSEHR)* Vol. 247: 459-464.
- Saptana Ashari. 2007. Pembangunan Pertanian Berkelanjutan Melalui Kemitraan Usaha. *Jurnal Penelitian dan Pengembangan Pertanian* Vol. 26 No. 4 : 123-130.
- Saputro Danang D., Burhan R. Wijaya & Yuni Wijayanti. 2014. Pengelolaan Limbah Peternakan Sapi untuk Meningkatkan Kapasitas Produksi pada Kelompok Ternak Patra Sutera. *Rekayasa* Vol. 12 No. 2 :91-98.
- Sarosa Samiaji, SE. M.Sc. Ph.D. 2012. *Penelitian Kualitatif : Dasar-Dasar*. PT. Indeks, Jakarta Barat.
- Saragih Sebastian E. 2008. *Pertanian Organik : Solusi Hidup Harmoni dan Berkelanjutan*. Penebar Swadaya, Jakarta.
- Schlegel A. J. 1992. Effect of composted manure on soil chemical properties and nitrogen use by grain sorghum. *Journal Production Agriculture* 5 (1): 153-157.
- Schurlock J. M. O., D. C. Dayton & B. Hames. 2000. Bamboo: an overlooked biomass resource?. *Biomass and Bioenergy* 19: 229-244.
- Schutz H., Holzapfel-Pschorn A., R. Conrad R., Rennenberg H & Seiler W. 1989. A 3-year continuous record on influence of daytime, season, and fertilizer treatment on methane emission rates from an Italian rice paddy. *Journal of Geophysical Research* 94 (D13): 16,406-16,416.



- Sekaran, U. 2003. *Research Methods for Business: A Skill Building Approach*. Fourth Edition, John Wiley & Sons, New York.
- Setianingsih, R. 2009. Study of the utilization of liquid organic fertilizer of local microorganisms (MOL) in priming, seedling age and increase in yield of rice (*Oryza sativa L.*): the application trial of system of rice intensification (SRI). *BPSB Propinsi DIY*, Yogyakarta.
- Setiawati Tia, Asep Z. Mutaqin, Budi I., A. An'amillah & J. Iskandar. 2017. Species diversity and utilization of bamboo to support life's the community of Karangwangi Village, Cidaun Sub-District of Cianjur, Indonesia. *Biodiversitas* 18 (1): 58-64.
- Setyanto P., A. B. Rosenani, R. Boer, C. I. Fauziah & M. J. Kahnif. 2004. The Effect of rice cultivars on methane emission from irrigated rice field. *Indonesian Journal of Agricultural Science* 5 (1): 20-31.
- Setyono P. 2015. *Cakrawala Memahami Lingkungan*. Sebelas Maret University Press, Surakarta.
- Sembel T. Dantje. 2010. *Pengendalian Hayati Hama-hama Serangga Tropis dan Gulma*, CV. Andi Offset, Yogyakarta.
- Setianingsih R. 2009. *Study of the Utilization of Liquid Organic Fertilizer of Local Microorganisms (MOL) in Priming, Seedling Age and Increase in Yield of Rice (Oryza sativa L.): Application Trial of System of Rice Intensification (SRI)*. Tesis. Universitas Sebelas Maret, Surakarta.
- Silverstone Rob. 1993. Organic Farming : Food for the Future?. *Nutrition & Food Science* No. 5: 10-14.
- Siregar Hadrian, Dr. 1980. *Budidaya Tanaman Padi di Indonesia*. Sastra Hudaya, Yogyakarta.
- Soedjais Zaenal. 2010. *Subsidi Pupuk Anorganik dan Pertanian Organik di Indonesia*. Sekolah Pascasarjana, Universitas Gadjah Mada, Yogyakarta.
- Soenandar Meidiantie, Muanis Nur Aeni & Ari Raharjo. 2010. *Petunjuk Praktis Membuat Pestisida Organik*. PT. Agro Media Pustaka, Jakarta.
- Soetrisno Loekman. 2002. *Paradigma Baru Pembangunan Pertanian*. Penerbit Kanisius, Yogyakarta.
- Somantri Ating Drs., Sambas Ali Muhidin S.Pd., 2006. *Aplikasi Statistika Dalam Penelitian*. Pustaka Setia, Bandung.
- Subagyono, Kasdi, Elsa, S. 2007. Climate and water source management for climate change anticipation (Pengelolaan sumber daya iklim dan air untukantisipasi perubahan iklim). *Jurnal Meteorologi dan Geofisika* 8 (1). Edisi ISSN 1411-3082.
- Subandi Dr. H.M. Drs. Ir. MP. 2014. *Mikrobiologi : Kajian dalam Perspektif Islam*. PT Remaja Rosdakarya, Bandung.
- Sudarma I Made, Dr., Ir., M.S. 2013. *Penyakit Tanaman Padi*. Graha Ilmu, Yogyakarta.
- Sugiyono, Prof. Dr. 2010. *Statistik untuk Penelitian*. Penerbit Alfabeta, Bandung.
- Sugiyono. 2014. *Metode Penelitian Kuantitatif Kualitatif dan R & D*. Penerbit Alfabeta, Bandung.

- Suhastyo, A. A. 2011. *Studi Mikrobiologi dan Sifat Kimia Mikroorganisme Lokal yang digunakan pada Budidaya Padi Metode SRI (System of Rice Intensification)*. Tesis. Sekolah Pascasarjana, Institut Pertanian Bogor, Bogor.
- Sunaryo Widi, Nurhasanah, Rahman, Aris Sugiarto. 2017. Identification and Characterization of Talas Banana, a Superior Local Cultivar from East Kalimantan (Indonesia), Based on Morphological and Agronomical Characters. *Biodiversitas* 18 (4): 1414-1423.
- Supriyadi Slamet. 2008. *Kandungan Bahan Organik Sebagai Dasar Pengelolaan Tanah di Lahan Kering Madura*. Fakultas Pertanian. Universitas Trunojoyo, Bangkalan.
- Suranto, Arief A. & Supyani. 2017. The Use of Electrophoretic Isozymes to Detect Tungro Infected Rice. *Agrivita Journal of Agricultural Science* 39 (2): 145-152.
- Sutanto Rahman. 2002a. *Pertanian Organik : Menuju Pertanian Alternatif dan Berkelanjutan*. Penerbit Kanisius, Yogyakarta.
- Sutanto Rahman. 2002b. *Penerapan Pertanian Organik : Pemasyarakatan & Pengembangannya*. Penerbit Kanisius, Yogyakarta.
- Sutejo M. 2002. *Pupuk dan Metode Pemupukan (Fertilizer and Fertilization Method)*. Rineka Cipta, Jakarta.
- Suwoyo H. S., Ambo Tuwo, Haryati & Hilal Anshary. 2019. Potential, Characteristic and Utilization of Shrimp Pond Solid Waste as Organic Fertilizer. *International Journal of Environment, Agriculture and Biotechnology (IJEAB)* Vol. 4, (2): 411-421.
- Tampubolon D. Biatna, Endi Hari Purwanto, Ellia Kristiningrum & Teguh Pribadi Adi Nugroho. 2013. *Pertanian Standar & Penilaian Kesesuaian*. PT. Indeks, Jakarta.
- Tang H, Xu Y, Xiao X, Liu J, Li W & Su J. 2017. Diversity and Composition of Methanotrophs in Paddy Soil as Affected by Different Long-term Fertilizer Management from Double-cropping Paddy Fields in Southern China. *African Journal of Microbiology Research* Vol. 11 (1): 16-27.
- Tombe Mesak, Prof. & Dr. Hendra Sipayung, SP, MM. 2010. *Bertani Organik dengan Teknologi Biofob*. Lily Publisher, Yogyakarta.
- Traore B, Samake F, Babana A & Hang M. 2017. Effect of Different Fertilizers on Methane Emission from Paddy Field of Zhejiang, China. *Africa Journal of Environmental Science and Technology* Vol. 11 (1): 89-93.
- Trinh Van Mai, Mehreteab Tesfai, Andrew Borrelli, Udaya Sekhar Nagothu, Thi Phuong Loan Bui, Vu Duong Quynh & Le Quoc Thanh. 2017. Effect of Organic, Inorganic and Slow-Release Urea Fertilisers on CH<sub>4</sub> and N<sub>2</sub>O emissions from Rice Paddy Fields. *Paddy Water Environmental* 15: 317-330.
- Usman Setiadi. 2000. *Metodologi Penelitian Sosial*. Bumi Aksara, Jakarta.
- Utama Zulman Harja, M., Prof., Dr., Ir., MP. 2015. *Budidaya Padi pada Lahan Marjinal : Kiat Meningkatkan Produksi Padi*. Penerbit CV. Andi Offset, Yogyakarta.

- Vaksmas A., T. A. van Alen, K. F. Ettwig, E. Lupotto, G. Vale, M. S. M. Jetten, C. Luke. 2017. *Stratification and Diversity of Methane-Oxidizing Microorganisms in a Nitrogen-Fertilized Italian Paddy Soil*. Doctoral thesis. Radboud University, Nijmegen.
- Viane J., J. Van Lancker, B. Vandecasteele, K. Willekens, J. Bijttebier, G. Ruyschaert, S. De Neve & B. Reubens. 2016. Opportunities and Barriers to On-farm Composting and Compost Application: A Case from Northwestern Europe. *Waste Management* 48: 181-192, 2016.
- Vimal Shobhit Raj, Jay Shankar Singh, Naveen Kumar Arora & Surendra Singh. 2017. Soil-Plant-Microbe Interactions in Stressed Agriculture Management : A Review. *Pedosphere* 27 (2): 177-192.
- Wahyuni S, T. Sopiawati & P. Setyanto. 2007. *Faktor-faktor Pembatas Tanaman terhadap Emisi Gas Metana (CH<sub>4</sub>)*. Prosiding Seminar Nasional Sumberdaya Lahan dan Lingkungan Pertanian, Badan Litbang Pertanian : 47-55.
- Waluyo D, Suharto. 1990. *Heritability, Genotype Correlation and Cross Print of Some Character of Red Beans (Phaseolus vulgaris L) Strain in Lowland*. Skripsi. Universitas Sebelas Maret, Surakarta.
- Wan Nianfeng, Xiangjun Ji, Jiexian Jiang, Hongxia Qiao & Kaihua Huang. 2013. A Methodological Approach and Chemical Fertilizers for Low-carbon Agriculture. *Ecological Indicators* 24: 344-352.
- Wang J., Chen Z., Ma Y., Sun L., Xiong Z., Huang Q & Sheng Q. 2013. Methane and nitrous oxide emissions as affected by organic-inorganic mixed fertilizer from a rice paddy in southeast China. *Journal of Soils and Sediments* 13: 1408-1417.
- Wang J, Xu T, Yin L, Han C, Huan D, Jiang Y & Wenhui Z. 2018. Nitrate addition inhibited methanogenesis in paddy soils under long-term management. *Plant, Soil and Environment* 64 (8): 393-399.
- Wani K. A., Mamta & R. J. Rao. 2013. Bioconversion of Garden Waste, Kitchen Waste and Cow Dung into Value-added Products Using Earthworm *Eisenia fetida*. *Saudi Journal of Biological Sciences* 20: 149-154.
- Wassmann R, Schutz H, Papen H, Rennenberg H, Seiler W, Aiguo D, Renxing S, Xingjian S & Mingxing W. 1993. Quantification of Methane Emissions from Chinese Rice Fields (Zhejiang Province) as Influenced by Fertilizer Treatment. *Biogeochemistry* 20:83-101.
- Wenlin Zhou, Lou Yunsheng, Ren Lixuan, Han Yan, Meng Yan & Wu Lei. 2014. Application of Controlled-Release Nitrogen Fertilizer Decreased Methane Emission in Transgenic Rice from a Paddy Soil. *Water Air Soil Pollution* 225: 1897.
- Widiyawati Ida, Sugiyanta, Ahmad J & Rahayu W. 2014. Peran Bakteri Penambat Nitrogen untuk Mengurangi Dosis Pupuk Nitrogen Anorganik pada Padi Sawah. *J. Agron. Indonesia* 42 (2): 96-102.
- Widjaja E. A., Rahayuningsih Y., Rahajoe J. S., Maryanto I., Waluyo E. B. & Semiadi G. 2014. *Recent Biodiversity of Indonesia*. Lipi Press, Jakarta.

- Widjajanto Didik W., Endang D. Purbajanti, Sumarsono & C. S. Utama. 2017. The Role of Local Microorganisms Generated from Rotten Fruits and Vegetables in Producing Liquid Organic Fertilizer. *J applied Chem. Sci* 4: 325-329.
- Wihardjaka A & Nursyamsi D. 2012. Pengelolaan Tanaman Terpadu pada Padi Sawah yang Ramah Lingkungan. *Pangan* Vol. 21 No. 2 Hal. 185-196.
- Wild Alan. 1993. *Soils and The Environment : An Introduction*. Cambridge University Press, Great Britain.
- Winarso Sugeng. 2005. *Kesuburan Tanah : Dasar Kesehatan dan Kualitas Tanah*. Penerbit Gava Media, Yogyakarta.
- Wrzaszcz Wioletta, Ph.D & Konrad Prandacki, Ph.D. 2015. *Environmentally Sustainable Agriculture in Poland-Economic Assessment*. European Journal of Sustainable Development, 4, 2 : 429-438.
- Xie Baohua, Xunhua Zheng, Zaixing Zhou, Jiangxin Gu, Bo Zhu, Xin Chen, Yi Shi, Yiyong Wang, Zhichun Zhao, Chunyan Liu, Zhisheng Yao & Jianguo Zhu. 2010. Effects of Nitrogen Fertilizer on CH<sub>4</sub> Emission from Rice Fields : Multi-Site Field Observations. *Plant Soil* 326: 393-401.
- Yanti Y., Fuji F. Astuti, T. Habazar & Chainur R. Nasution. 2017. Screening of Rhizobacteria from Rhizosphere of Healthy Chili to Control Bacterial Wilt Disease and to Promote Growth and Yield of Chili. *Biodiversitas* 18 (1): 1-9.
- Zhang Wenzhao, Rong Sheng, Miaomiao Zhang, Guiyun Xiong, Haijun Hou, Shuanglai Li & Wenxue Wei. 2018. Effects of continuous manure application on methanogenic and methanotrophic communities and methane production potentials in rice paddy soils. *Agriculture, Ecosystems and Environment* 258: 121-128.
- Zhou B., Wang Y., Feng Y & Lin X. 2016. The application of rapidly composted manure decreases paddy CH<sub>4</sub> emission by adversely influencing methanogenic archaeal community: a greenhouse study. *Journal of Soils and Sediments* 16: 1889-1900.
- Zhu Zhenke, Tida Ge, Shoulong Liu, Yajun Hu, Rongzhong Ye, Mouliang Xiao, Chengli Tong, Yakov Kuzyakov & Jinshui Wu. 2018. Rice rhizodeposit affect organic matter priming in paddy soil: the role of N fertilization and plant growth for enzyme activities, CO<sub>2</sub> and CH<sub>4</sub> emissions. *Soil Biology and Biochemistry* 116: 369-377.
- Zulkifli Arif. 2014. *Dasar-dasar Ilmu Lingkungan*. Penerbit Salemba Teknika, Jakarta Selatan.