BIO-DATA

1. Name : **DR. ABDUL HAKIM, V.M.**

2. Address

i) Permanent : Pookkillath House
Tavanur (P.O)
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Phone : +91 494 2966725.

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ii) Official : Professor (SWCE)
Department of Soil and Water Conservation Engineering
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Tavanur (P.O), Malappuram (Dt), Kerala. PIN – 679 573.

Mobile : +91 9446279626

E-mail : abdulhakkim.vm@kau.in

3. Sex : Male

4. Age and Date of Birth : 55 Years 30-05-1968

5. Father's Name : Muhammedunni, V.P.

6. Educational Qualifications

Degree	Year of Passing	University	Percentage of Marks
B.Tech (Agrl. Engg.)	**1990**	**Kerala Agricultural University**	**84.0 %**
M.Tech (Soil & Water Engg.)	**1993**	**Kerala Agricultural University**	**90.0 %**
Ph.D (Soil & Water Cons. Engg.)	**2009**	**Tamil Nadu Agricultural University**	**93.0 %**
PG Diploma in Agrl. Extension Management	**2012**	**MANAGE, Hyderabad.**	**78.0 %**
Certificate Course in Organizational Behaviour	**2020**	**Albedo School of Business Management**	**A Grade**

7. Languages Known : English, Hindi, Malayalam, Tamil and Arabic

8. Exposure to GIS Software : ILWIS, IDRISI, MAP Info etc.

9. Experience: Total 29 Years.

1. **29 years of teaching, research and extension experience in the field of Soil and Water Conservation Engineering.**
2. **Presently working as Professor** (**Grade Pay Rs.10, 000)**, Department of Soil and Water Conservation Engineering, Kelappaji College of Agricultural Engineering and Technology (Kerala Agricultural University), Tavanur**, w.e.f 11.08.2012.**
3. Handled the charge of **Head, Department of Land & Water Resources and Conservation Engineering**, Kelappaji College of Agricultural Engineering and Technology (Kerala Agricultural University), Tavanur **for a period of 7 years and 8 months from 19.07.2010 to 21.03.2018.**
4. Handled the full additional charge of **Professor & Head, Agricultural Research Station (ARS), Anakkayam for a period of 3 years from 06.02.2015 to 21.03.2018.**
5. Handled the charge of **Principal Investigator, Precision Farming Development Centre (PFDC),** an externally aided project funded by National Committee on Plasticulture Application in Horticulture (NCPAH), Government of India, functioning at Kelappaji College of Agricultural Engineering and Technology (Kerala Agricultural University), Tavanur **for a period of 5 years and 4 months from 12.11.2012 to 21.03.2018.**
6. Experience in the field of Soil and Water Conservation, Irrigation and Drainage Engineering, Micro Irrigation, Protected Cultivation, Precision Farming etc.

A. **Research Experience**

1. Handled the charge of Principal Investigator of Precision Farming Development Centre (PFDC), Tavanur from 12.11.2012 to 21.03.2018. During this period undertaken number of research trials on various aspects of precision farming, including:
   i. Development of precision farming package for tomato under rainshelter.
   ii. Development of precision farming package for capsicum under protected cultivation.
   iii. Development of precision farming package for salad cucumber under protected cultivation.
2. Served as the Co-investigator of the multi-institutional collaborative project on "Watershed studies in selected Districts of Kerala with special emphasis on tribal settlements" jointly implemented by Centre for Earth Science Studies (CESS), Thiruvananthapuram, National Institute of Technology (NIT), Kozhikkode and Kerala Agricultural University.
3. Guided one Ph.D thesis entitled "Design, Development and Perfomance Evaluation of a Low Cost Automation System for Polyhouses" in the discipline "Soil and Water Conservation Engineering".

4. Guided eight M. Tech thesis viz. "Optimization of greenhouse ventilation for humid tropics", “Effect of seal formation due to infiltration of liquid dairy manure into the soil", “Design, development and evaluation of an automated drip irrigation system”, “Comparative evaluation of the performance of naturally ventilated polyhouse and rainshelter on the performance of cowpea” and “Development and evaluation of a solar powered automated fertigation system”, “Comparative evaluation of Naturally Ventilated Polyhouse and Rainshelter on the performance of Tomato” and “Soil Erosion Risk Assessment in Kunthipuzha Sub-watershed Using MMF Model and Remote Sensing” for M.Tech (Soil and Water Conservation Engineering).
5. Guided fifteen B.Tech projects for Agricultural Engineering graduate students in the field of “Soil and Water Conservation Engineering”..
6. Associated with the following projects as co-investigator:
    i. Response of coconut to different methods of irrigation.
    ii. Effect of irrigation and mulching on growth and yield of coconut.
    iii. Effect of Irrigation on growth and yield of cashew.
    iv. Response of nutmeg to drip and basin methods of irrigation.
    v. Comparative study of drip and basin methods of irrigation on soil water status, growth and yield of coconut.
    vi. Matching and reconcilliating water supply with crop demands in consideration of crops diversification and water application methods at distributary level.
7. Undertaken the project “Assessment of Water Availability at Distributary Level and to Device Interventions for its Optimized Performance” as Principal Investigator.
8. Undertaken the project “Assessment of Hydraulic Properties of Tile Drainage System” as Principal Investigator.
9. Undertaken the thesis “GIS Integrated Site Specific Drip Fertigation” for the partial fulfillment of the requirements of Ph.D Programme in Soil and Water Engineering.
10. Undertaken the topical research “Comparison of the Performance of Green House and Shade House” as Part of Ph.D Programme in Soil and Water Engineering.
11. Undertaken the thesis work “Effect of land use on water yield from small agricultural watersheds of Western Ghats of Kerala” as a part of the M.Tech Programme.

B. **Teaching Experience**

    1) Handled various courses in Agricultural Engineering for B.SC (Agri.) students.
    2) Handled various courses in the field of Soil and Water Conservation Engineering for B.Tech (Agrl. Engg.), M.Tech (Soil and Water Conservation Engg.) and Ph.D (Soil and Water Conservation Engineering.

C. **Extension Experience**

1. Organized a National Workshop on "Precision Farming Strategies for Enhancing Horticultural Production" on 25.05.2015 at KCAET, Tavanur.
2. Organized a National Seminar on "Hi-tech farming – Marching towards Attaining Sustainability" at Calicut on 21.01.2013 and 22.01.2013.
3. Organized a National Level workshop on "Problems and Prospectus of Polyhouse Cultivation in Kerala" on 24.06.13 at Trivandrum.
4. Organized a seminar on "Precision Farming" at Haripad on 28.06.2013.
5. During past 5 years, organised more than 150 training programmes at different parts of the State on various aspects of Water Conservation / Precision Farming for the Officers/Field staff of Agriculture department and farmers.
6. Organized a one day workshop on "Intellectual Property Rights" funded by KSCSTE at KCAET, Tavanur.
7. Handled many classes at different parts of the State on various aspects of Precision Farming for the Officers/Field staff of Agriculture department and farmers.
8. Handled classes for Officers of Agriculture and Irrigation Departments and farmers on various aspects of Water Management throughout the State addressing the Water Scenario of Kerala.
9. Organized "**World Wetland Day 2016**" on 02.02.2016 at KCAET, Tavanur with the financial support from KSCSTE.
10. Organized "**National Science Day 2016**" on 23.02.2016 at KCAET, Tavanur with the financial support from KSCSTE.
11. Organized "**Ozone Day 2016**" on 28.09.2016 at KCAET, Tavanur with the financial support from KSCSTE.
12. Organized "**National Technology Day - 2017**" on 15.05.2017 at KCAET, Tavanur with the financial support from KSCSTE.

10. Special Assignments Undertaken

1. **Serving as the member of Academic Council of D.Y. Patil Agriculture & Technical University, Talsande, Kolhapur, Maharashtra.**
2. **Serving as the as the external member of Board of Studies of Faculty of Agricultural Engineering of Tamil Nadu Agricultural University, Coimbatore.**
3. **Serving as the member of Technical Committee for the evaluation of "Hi-tech Plug Tray Nursery" of Vegetable and Fruit Promotion Council, Kerala (VFPCK) at Nadukkara.**
4. **Serving as the peer reviewer of the International Journal on "Water and Environment Research".**

5. **Serving as the peer reviewer of "Agricultural Research", Official Publication of the National Academy of Agricultural Science.**
6. **Served as the member of Joint Inspection Team (JIT) constituted by Ministry of Agriculture, Govt. of India for the evaluation of National Horticulture Mission (NHM) projects implemented in Kerala.**
7. **Served as the member of expert team constituted by Ministry of Agriculture, Govt. of India for the evaluation of National Mission on Micro Irrigation (NMMI) projects implemented in the states of Tamil Nadu and Karnataka.**
8. **Served as the technical expert for the "Wick Irrigation Project" implemented by State Horticulture Mission (SHM), Kerala.**
9. **Served as the Member of State Micro Irrigation Committee (SMIC), Government of Kerala.**
10. Served as the member of the evaluation committee of the project "Design and development of SMARTFARM system for Precision Farming implemented by Centre for Development of Advanced Computing, Trivandrum.
11. Serves as the external examiner of Ph.D and M.Tech thesis evaluation of Acharya N.G Ranga Agricultural University, Andhra Pradesh.
12. Serves as the external examiner of Ph.D and M.Tech thesis evaluation of Tamil Nadu Agricultural University.
13. Serves as the external examiner of Ph.D and M.Tech thesis evaluation of University of Agricultural Sciences, Raichur.
14. Serves as the examiner of various courses of M.Tech/B.Tech programmes of University of Agricultural Sciences, Raichur.
15. Served as the member of the team constituted for pre-hand appraisal / evaluation of soil conservation projects proposed by District Soil Conservation Officers under Tribal Sub Plan, Kerala.
16. Served as the member of the expert team constituted by the chief of Tribal Re-settlement and Development Mission (TRDM) for recommending suitable soil and water conservation plan and appropriate cropping system for re-settlement area at Marayoor in Idukki District of Kerala.
17. Served as the member of the committee constituted by Govt. of Kerala for preparation of a project for revitalization of SGC, Munderi, Malappuram District, Kerala.
18. Established a meteorological observatory after procuring all the instruments at Kelappaji College of Agricultural Engineering and Technology, Tavanur, Kerala Agricultural University.
19. Established a well equipped Irrigation Engineering Laboratory at Kelappaji College of Agricultural Engineering and Technology, Tavanur, Kerala Agricultural University, after importing various equipments from USA.

11. Merits/achievements

1. **"Best Professor in Soil and Water Conservation Engineering Studies"** award in the Agriculture Innovation Congress 2020.
2. **"Hi-Tech Mithram Award 2017"** presented by Kazhcha, Trissur
3. **"Haritham Krishi Vigyan Award - 2017"** of Haritham, Thrissur.
4. "**Best Faculty Award 2016**" of Indian Academic Researchers Association, Thiruchirappalli, Tamil Nadu.
5. "**Outstanding Achievement Award**" in the field of Soil and Water Engineering on the occasion of International Conference on Advancing Frontiers in Biotechnology for Sustainable Agriculture and Health (AFBSAH-2016).
6. "**Best Scientist Award 2015**" of the leading monthly Agricultural Magazine "Malarum Velanmai" published from Coimbatore, Tamil Nadu,
7. "**Teacher Excellence Award 2015**" of Confederation of Education Excellence (CEE), New Delhi.
8. Received the **"Eminent Scientist Award 2014"** of Bhratha Samskarika Samithi for the outstanding contribution towards the promotion of Soil Conservation, Micro Irrigation and Precision Farming activities in Kerala.
9. Received the **best paper award** in the **National Conference on Water, Environment and Society (NCWES)** held at JNTU, Hyderabad from 30.06.2014 to 01.07.2014.
10. Received a certificate of appreciation from the Hon'ble Vice-chancellor of Kerala Agricultural University for designing a lift irrigation system for the University main campus.
11. Selected as Scientist-B by Indian Council of Agricultural Research through Agricultural Research Service Examinations.

12. Memberships

1. Fellow – Institution of Engineers (India) – **FIE.**
2. Life Member – Indian Society of Agricultural Engineerng (ISAE)
3. Life Member – Soil and Water Conservation Society.
4. Life Member – Energy Conservation Society, Kerala.

13. Publications

A. Books

1. **Dr. Abdul Hakkim, V.M.**, Dr. Sajeena, S., Dr. Thulasi, V. and Dr. Renjith, M.T. (2023). Open Precision Farming. State Horticulture Mission – Kerala.
2. **Dr. Abdul Hakkim V. M**. & Sajeena.S. (2014). GIS Integrated Site Specific Drip Fertigation. LAP LAMBERT Academic Publishing, Germany.

3. **Dr. Abdul Hakkim V.M**., Dr. Berin Pathrose and Hareesh M Nair. (2014). Greenhouse Management and Operations. Farm Information Bureau, Trivandrum.

B. Research Publications

1. Sajeena, S., Smegha, N.C. and **Abdul Hakkim, V.M.** (2023). Effect of Bakkikayam regulator on groundwater resources using visual MODFLOW – A case study. Indian Journal of Soil Conservation. 51 (2): 110 – 116.
2. Subhasree, N., Sajeena, S., Prasanthi, K. and **Abdul Hakkim, V.M.** (2022). Spatial Variability Mapping of Soil Chemical properties using GIS and GPS. International Journal of Environment and Climate Change. 12(12): 512-520.
3. Sajeena, S., Swathy, P.S. and **Abdul Hakkim, V.M.** (2022). Prediction of the extent of saline water advancement in the coastal stretch of Kadalundi river basin, Malappuram district, Keralausing visual Modflow: A case study. The Pharma Innovation Joirnal2022, SP-11(3): 365-372.
4. Navneet Sharma., **Abdul Hakkim, V.M.** and Atul Kumar Singh. (2021). Development and field evaluation of a lo-cost automated drip irrigation system. Journal of Soil and Water Conservation. 20(2): 188-194.
5. Navneet Sharma., **Abdul Hakkim, V.M.** and Atul Kumar Singh. (2020). Development and Evaluation of Soil Moisture Sensors in Sandy Loam and Laterite Soils. Journal of Soil Salinity and Water Quality. 12(2): 179-186.
6. **Abdul Hakkim, V.M.** (2020). Precision Farming for Natural Resources Conservation and Management. Proceedings of National Web-Conference on Technological Approaches for Resource Conservation and Management for Environmental Sustainability. Academy of Natural Resources Conservation and Management (ANRCM), Lucknow. pp. 22-27.
7. Shaheemath Suhara, K.K., **Abdul Hakkim, V.M.**, Anu Varughese and Priya G Nair (2020). Soil Erosion Risk Assessment in Kunthipuzha Sub-watershed Using MMF Model and Remote Sensing. Proceedings of the National Conference on Emerging Trends in Civil Engineering. pp. 417-425.
8. Abhilash Joseph, E., **Abdul Hakkim, V.M.** and Sajeena, S. (2020). Precision Farming for Sustainable Agriculture. International Journal of Agriculture Innovation and Research. 8(6): 543-553.
9. Anjaly, C.S. and **Abdul Hakkim, V.M.** (2017). "Development and performance evaluation of a solar powered automated fertigation system". In: Proceedings of 4th National Conference on Water, Environment and Society (NCWES-2017) (Ed. Giridhar, M.V.S.S). pp. 84-91.ISBN: 978-93-5230-182-9
10. Anjaly, C.S. and **Abdul Hakkim, V.M.** (2017). **Automated and Non-Automated Fertigation Systems inside the Polyhouse - A Comparative Evaluation**. International Journal of Current Microbiology and Applied Science 6(5): 2328-2335. doi: https://doi.org/10.20546/ijcmas.2017.605.260

11. Mufeedha, K., **Abdul Hakkim, V.M**., Rajendran, P., Subhapriya, V., Likitha, P.N. and Ranjisha. (2016). Comparative protein profiling study of selected tomato varieties grown in polyhouse and shade house. International Research Journal of Engineering and Technology. 3(5): 684-691.
12. Mufeedha K. and **Abdul Hakkim V.M.** (2016). Protein quantification and comparison of three tomato hybrid varieties grown in polyhouse and shade house. Zenith International Journal of Multidisciplinary Research. 6(8): 14-26.
13. Jinu A. and **Abdul Hakkim V.M**. (2016). Automatic microclimate control in greenhouses. International Journal of Engineering Science and Computing. 6(8):2941-2946.
14. Anjaly, C.S. and **Abdul Hakkim V.M**. (2016). Fertigation automation system for polyhouse. International Journal of Engineering Science and Computing. 1-7
15. Ajay Gokul A.J. and **Abdul Hakkim V.M**. (2016). Comparative evaluation of naturally ventilated polyhouse and rainshelter on the performance of cowpea. International Journal of Engineering Science and Computing. 6(6): 8037-8039.
16. **Abdul Hakkim, V.M**., Arunya S. Kumar, Athulya, T.K. and Sahla, N. 2016. "Standardisation of irrigation requirement of cowpea under naturally ventilated polyhouse". In: Proceedings of National Conference on Water, Environment and Society (Ed. Giridhar, M.V.S.S). pp. 276-283.
17. **Abdul Hakkim, V.M**., Abhilash Joseph, E., Ajay Gokul, A.J. and Mufeedha K. (2016). Precision farming: the future of Indian agriculture. Journal of Applied Biology and Biotechnology. (2016). 4(6): 068-072. doi: 10.7324/JABB.2016.40609.
18. **Abdul Hakkim, V.M**., Abhilash Joseph, E., Ajay Gokul, A.J. and Mufeedha K. (2016). Fertigation- a novel and efficient means for fertilizer application. (2016). International Journal of Current Research 8(8): pp. 35757-35759.
19. **Abdul Hakkim, V.M**., Abhilash Joseph, E. and Ajay Gokul, A.J. (2016). Development of precision farming package for bottle gourd under rainshelters of Kerala homesteads. In: Advances and Challenges in Plant Breeding, Biotechnology and Conservation (Eds. Smitha, R.B., Prakashkumar, R., Pradeep, N.S., Mohanan, K.V. and Madhusoodanan, P.V.) Malabar Botanical Garden and Institute for Plant Sciences, Calicut, Kerala, India. pp. 159-164. ISBN: 978-81-931285-0-3.
20. **Abdul Hakkim, V.M**., Abeena, M.A., Mamatha Prabhakar and Sibin C Baby. (2016). Impact of grow lights on plant growth in vertical farming under simulated growing environment. International Journal of Latest Engineering and Management Research 1(3): 5-11.
21. **Abdul Hakkim, V.M**. (2016). Rainshelter- a low cost technology for high value crops. In: Souvenir- National seminar on "Resource based precision farming: need of the day". (Eds. Subhash, C.S. and Braja, K.H.). pp. 43-47.
22. Navneeth Sharma, **Abdul Hakkim.V.M**. and Atul Kumar Singh. (2015). Development and performance evaluation of low cost soil moisture sensor for saline irrigation water. Journal of Soil and Water Conservation 14(3): 227-231.

23. **Abdul Hakkim, V.M**. (2015). Site specific drip fertigation. In: Proceedings of National Conference on Water, Environment and Society (Ed. Giridhar, M.V.S.S). pp. 446-453.
24. **Abdul Hakkim, V.M**. (2015). Scope of solar powered microirrigation in Kerala. In: Souvenir-Workshop on Integration of solar power in precision farming: Scope and sustainability. Precision Farming Development Centre, IIT, Kharagpur. pp.8-15.
25. **Abdul Hakkim, V.M**. (2015). Precision farming techniques suitable for Kerala. In: Pooppoli and National Agri Fiesta Souvenir (2015). (Eds. Rajendran, P. and Smitha R.). pp. 45-49.
26. **Abdul Hakkim, V.M**. (2014). Precision farming techniques suitable for kerala. Proceedings of XXVII National Convention of Agricultural Engineers. The Institution of Engineers (India). Pp. 33-38.
27. **Abdul Hakkim, V.M**., Jomol, T. J., Rasmina, P. and Remya, V.M. (2014). Impact study of regulator cum bridges. In: Proceedings of National Conference on Water, Environment and Society (Ed. Giridhar, M.V.S.S). pp. 199-205.
28. **Abdul Hakkim, V.M.** and Jishachand, A.R. (2014). Effect of Drip Irrigation Levels on Yield of Salad Cucumber under Naturally Ventilated Polyhouse. International Organization of Scientific Research Journal of Engineering. 4(4): 18-21.
29. **Abdul Hakkim, V.M.** (2014). Effect Site Specific Drip Fertigation on Yield of Chilli. International Organization of Scientific Research Journal of Engineering. 4(1): 33-41.
30. Sajeena, S., **Abdul Hakkim, V.M.** and Kurien, E.K. (2014). Identification of Groundwater Prospective Zones Geoelectrical and Electromagnetic Surveys. International Journal of Engineering Inventions. 3(6): 17-21.
31. **Abdul Hakkim, V.**M. (2014). Precision Farming Techniques Suitable for Kerala. Proceedings of XXVII National Convention of Agricultural Engineers. The Institution of Engineers (India). Pp. 33-38.
32. Sajeena, S., **Abdul Hakkim, V.M.** and Kurien, E.K. (2013). Erodibility and Runoff Potential of Three Well Defined Series of Laterite Soils in Kerala under Simulated Rainfall Conditions. International Journal of Engineering Research and Development. 8(7):42-48.
33. **Abdul Hakkim, V.M.**, Praveena, N., Rakhi, J.F. and Ajay Gokul, A.J. (2013). Impact Study of Koottayi Regulator Cum Bridge. International Journal of Engineering Research and Development. 9 (4):1-4.
34. **Abdul Hakkim, V.**M. (2013) Role of Micro Irrigation and Fertigation in Precision Farming. Proceedings of National Seminar on Hi-tech Farming – Marching towards Attaining Sustainability. National Committee on Plasticulture Applications in Horticulture (NCPAH). Pp. 100-109.
35. **Abdul Hakkim, V.**M. (2011). Improving Crop Production through Effective Soil and Water Conservation Measures. Proceedings of All India Seminar on Recent Trends in Agricultural Mechanisation for Efficiency Improvement. The Institution of Engineers (India). Pp. 33-37.

36. Sajeena, S., **Abdul Hakkim, V.M.** and Kurien, E.K. (2008). Erodibility of three well defined soils in Kerala under simulated rainfall conditions. Indian Journal of Soil Conservation. 36 (2).
37. **Abdul Hakkim, V.M.,** Nandakumar, V. and Sajeena, S. (2004). Runoff Variation due to Land Use Change in Small Watersheds of Western Ghats. J. Soil and Water Conservation. 3 (3 & 4).
38. Nandakumar, V., Rajendran, P., Ajithkumar, C.E., **Abdul Hakkim,V.M** and Raju, K. (2004). Modelling Sediment Yield from the Microwatersheds of Western Ghats. J. Soil and Water Conservation. Volume 3 (3 & 4).
39. **Abdul Hakkim, V.M.** and Chandrakaran, C. (2004). Hydrology of High and Midland Watersheds of Kerala. Proc. Annual Convention of ISAE, 2004.
40. **Abdul Hakkim, V.M.,** Sreekumaran, V., Santhakumari, G. and Ittiaverah, P.J. (1998). Assessment of Water Availability at Distributary Level and to Device Interventions for its Optimised Use. Proc. Tenth Kerala Science Congress, 1998.
41. **Abdul Hakkim, V.M.,** Santhakumari, G. and Sreekumaran, V. (1998). Management of Irrigation Canals for Improved Performance, Proc. Annual Convention of ISAE, 1998.
42. **Abdul Hakkim, V.M.** and Xavier Jacob, K. (1995). Effect of Land Use on Water Yield from Small Agricultural Watersheds of Western Ghats of Kerala. , Proc. Annual Convention of ISAE, 1995.
43. Xavier Jacob, K., **Abdul Hakkim, V.M.,** Abdul Wahab, V.S., Asha Joseph. and Saji Kuriakose, M. (1992). Studies on Consumptive Use of Water for Wetland Paddy in Tavanur Region of Kerala. Proc. Annual Convention of ISAE, 1992.

C. Popular Articles

Published a number of popular articles in the field of Water Management, Soil and Water Conservation and Micro Irrigation.

D. **Booklets / Folders**

Sl. No.	**Author(s)**	**Year of Publication**	**Title**	**Categories of Literature**
1	Dr. Abdul Hakkim V. M.	2017	"An Overview of Precision Farming Development Centre"	Folder
2	Dr. Abdul Hakkim V. M.	2017	'Mazhamara – Kerala Karshakarkkayi Chilavu Kuranjoru Haritha Griham'	Folder
3	Dr. Abdul Hakkim V. M.	2017	'Jalasechanathodoppam Valaprayogavum'	Folder
4	Dr. Abdul Hakkim V. M. and others.	2016	'Sookshmajalasechanam'	Booklet
5	Dr. Abdul Hakkim V. M. and others.	2013	"Precision farming"	Booklet
6	Dr. Abdul Hakkim V. M. and others.	2013	"Fertigation"	Booklet

14. Referees

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I hereby declare that the information given above are true to the best of my knowledge and belief.

Tavanur,

22.10.2023. **DR. ABDUL HAKKIM, V.M.**