MY MEETING NOTES

Online Training programme on Advances in Agricultural Extension Research, organized by MANAGE and KAU, 2-4 May 2023

Pallavi Shaktawat and Sharmistha Swayamprava share their experiences as participants in the training program on "Advances in Agricultural Extension Research" organized by the National Institute of Agricultural Extension Management (MANAGE) and Kerala Agricultural University (KAU), held from May *2-4 May, 2023.*

CONTEXT

Agricultural extension research is the engine that drives the growth of the extension body of knowledge. The relevance of extension research depends on the problem it addresses. It deepens the understanding of issues to enable informed decision-making. Researchers need to be equipped with robust extension research methodologies, tools, and techniques in order to develop valid and reliable findings useful for problem-solving.

The National Institute of Agricultural Extension Management (MANAGE) and Kerala Agricultural University (KAU) jointly organized a 3-day online training program on "Advances in Agricultural Extension Research" from 2-4 May, 2023. The training was designed to equip participants with essential skills and knowledge required to carry out high quality research in the social sciences. A dynamic group of participants from various professional backgrounds and academic disciplines came
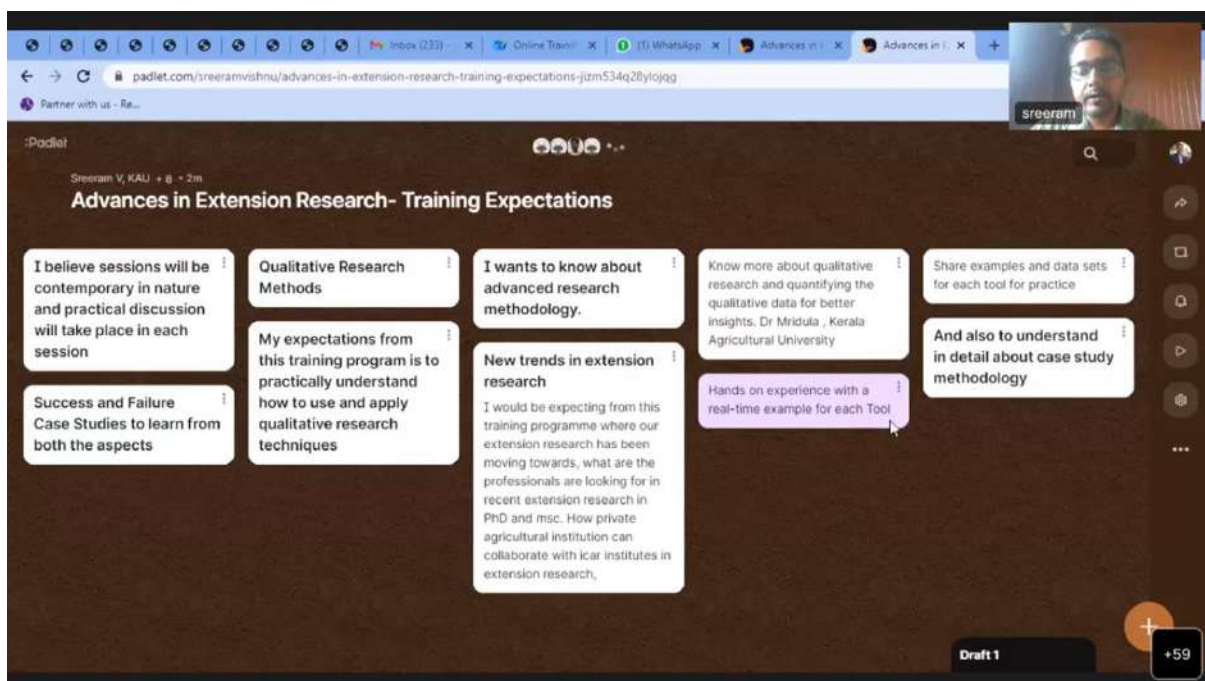
together for the training program which was conducted by highly experienced researchers from India and abroad with a strong track record. The lectures and in-depth discussions enabled participants to learn various theoretical concepts and research techniques and how to apply them in their research.

DAY 1

Orientation to the training programme

The online training program began with Dr. Sreeram V., Assistant Professor, KAU, welcoming the participants and brief remarks by Dr. Saravanan Raj, Director, Agricultural Extension, MANAGE. The participants were taken through the training program, its collaborators, and objectives, setting the context for the training. An ice-breaking session saw a brief self-introduction by presenters and participants.

Dr. Saravanan Raj, who provided an overview of the evolving potential of agricultural extension, highlighted the emerging research methodologies and advances in extension and how they are evolving globally. He underlined how new competencies like data science and analysis, communication outreach, and collaboration and partnership building are required for current extension research. He also dwelt on recent trends such as digital and ICT-based extension, precision agriculture, gender mainstreaming, and data-driven decision making in agricultural extension.

Technical Sessions

Following are details of the various sessions conducted.

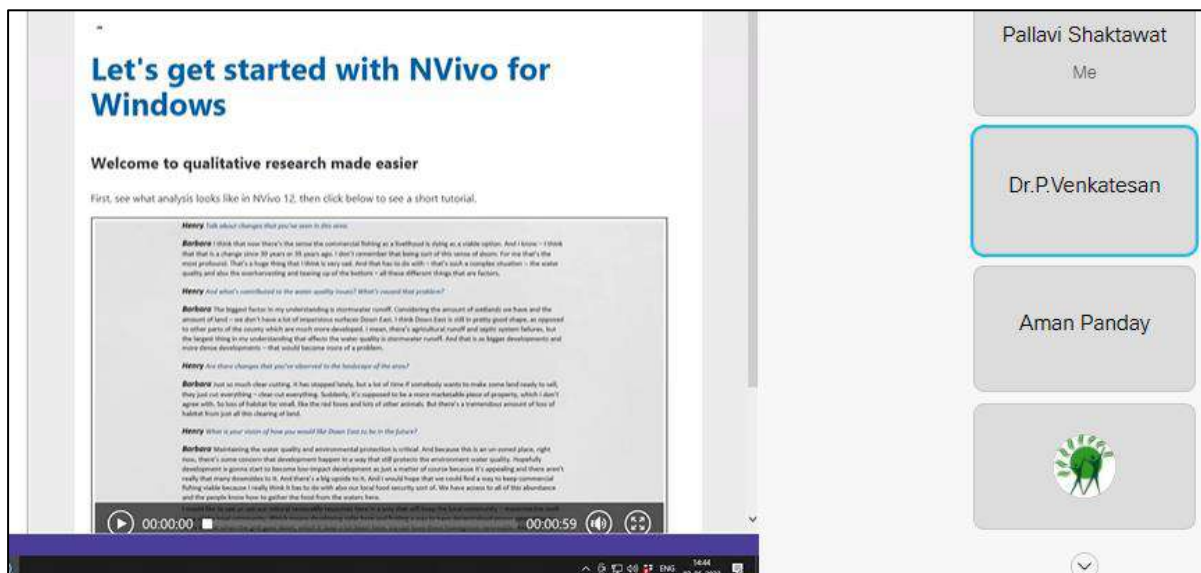### Session 1: Agricultural extension: An exciting profession for the future

In this session, Dr. P Sethuraman Sivakumar, Principal Scientist, Central Tuber Crops Research Institute (CTCRI), mentioned recent agricultural development pathways such as climate-smart agriculture pathway, sustainable entrepreneurship pathway, and nutrition-smart pathway. He dwelt on advanced research methods in behavioural research involving the use of advanced statistical techniques like structural equation modeling and experimental designs to explore complex relationships between variables. He explained how extension research should focus on the processes and effects of specific pathways in the social system and elaborated on the procedure for conducting

advanced behavioural research in agricultural extension. He suggested the use of online tools like Paper Digest, Canva, Grammarly, Paperpal (https://paperpal.com), Writefull (https://www.writefull.com/), DeepL (https://www.deepl.com/translator), and Kudos(https://info.growkudos.com/landing/researchers).

Session 2: Qualitative research: An introduction to thematic analysis

Describing Thematic Analysis, Dr. P. Venkatesan, Principal Scientist, Extension Systems Management Division, ICAR-NAARM, defined it as a method for systematicallyidentifying, organizing, and offering insights into patterns of meaning (themes) across a data set. Usually, it collects data at sight and through different sources like newspapers, social media, and blogs. He also spoke on the types of thematic analysis and how to conduct them with examples. This was followed by a practical demonstration of thematic analysis using NVivo software.

Session 3: Lab experiments and lab in-field experiments

In this session, Mr. Subash S. P (Junior Researcher, ATSAF Fellow, ZEF,University of Bonn), talked about bounded rationality and irrationality in the case of human beings. He elaborated on cognitive

bias, confirmation bias, framing, endowment effect, anchoring bias, decoy effect, status quo bias, and nudge using relatable and exciting examples. We learnt about lab experiments and artefactual/ lab-in-field experiments.
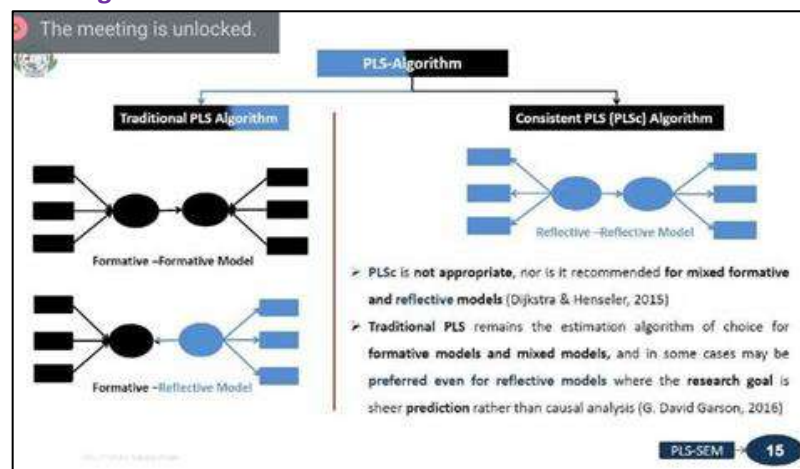

Laboratory experiment is a tool in empirical social science analysis which is carried out by splitting standard subjects randomly into treatment and control and administering a test. A lab in-field experiment mimics laboratory experiments, except that non-standard subjects are used. This was followed by the demonstration of the Mentimeter app to capture participants' responses under random sampling conditions. Finally, he spoke about the concept, advantages, and applications of framed field experiments/Randomized control trials and recommended some blogs, books, and research papers to obtain greater clarity. Behavioral research and its role in policy advocacy were also discussed.

DAY 2

Session1: Structural Equation Modelling

Day 2 started with a session by Dr. Mahesh B. Tengli, Assistant Professor, School of Social Sciences, CPGS-AS, CAU (Imphal), Meghalaya, on 'Partial Least Square - Structural Equation Modelling (PLS-SEM),' which is a multivariate analytical approach commonly used in social sciences. He explained the concept, conditions under which PLS-SEM is used and the steps to use it. There was also

a discussion on types of constructs and model specification, after which Dr. Tengli gave a practical demonstration on using Sart-PLS4 software to do a PLS-SEM analysis of a collected data set.

Session2: Social Network Analysis

This session was conducted by Dr. Sreeram V., Assistant Professor, Kerala Agricultural University. Social network analysis is an analytical technique used to quantify and visualize the relationship and relationship changes between people. We can employ it to study the patterns of relationships, communication and influence within a network. It can be used to identify key individuals or groups and understand the spread of information or influence. To illustrate the significance of social network analysis, Dr. Sreeram started with the exampleof patient tracing during the Covid-19 pandemic. The session included an explanation of the concept, related terminologies like node, edge/tie, centrality, cohesion, network relationships, properties, theories, and levels of network analysis. Dr. Sreeram also provided some literature to understand how the technique is being applied in research. Using Gephi software, he demonstrated how to do a social network analysis.

Session3: Basic Scale construction techniques in behavioural science research

Dr. Sanjit Maiti, Senior Scientist, ICAR-NDRI, spoke on 'Basic Scale construction techniques in behavioural science research' and covered the theoretical foundations of scale construction, including the different types of scales and their properties. He elaborated on the process of item development, including how to ensure the validity and reliability of the scale. The practical aspects of scale construction were also covered, such as using software for data analysis and interpretation using dummy data sets for better understanding.

Session4: Application of Analytical Hierarchy Process (AHP) in behavioural research

In this session, Dr. Saikat Maji, Assistant Professor, IagS, BHU, gave an introduction to multi-criteria decision-making with the basic idea of decision analysis. He described the analytical hierarchy process as a decision-making method used to help individuals or groups in systematic and logical evaluation of different alternatives faced in complex decision-making situations. AHP helps to clarify goals, identify relevant criteria, and evaluate alternatives in a consistent manner. He also discussed the application of AHP in behavioural research, steps to conduct analysis and shared details on software programs for AHP analysis, such as AHP Analyser - project Prioritization online application developed by Dr. S. K. Soam and team.

DAY 3

Session1: Quantifying farmer's choices: An application of conjoint analysis in agriculture

This session by Dr. Praveen K. V., Scientist, ICAR-IARI, on 'Quantifying farmer's choices: An application of conjoint analysis in agriculture,' described the concept of conjoint analysis, its application to study customer judgment, factors to be considered while designing new products, identifying market potential, and how to formulate an experimental plan, and collecting preferences. A hypothetical example made understanding of this multivariate analysis technique much more lucid. Conjoint analysis is useful when a company needs to decide which features to prioritize while creating a product, what customers are willing to pay for a new service or a new feature on a product as well as

in forecasting a new product's demand. This survey-based analytical tool can be used by researchers to understand how customers develop preferences for a type of product, services or ideas.

Example of conjoint analysis

- In a popular example of conjoint analysis (Green and Wind, 1973), a company interested in marketing a new carpet cleaner wants to examine the influence of five factors on consumer preference - package design, brand name, price, a Good Housekeeping seal, and a money-back guarantee.

- There are three factor levels for package design, each one differing in the location of the applicator brush; three brand names (K2R, Glory, and Bissell); three price levels; and two levels (either no or yes) for each of the last two factors. The following table displays the variables used in the carpet-cleaner study, with their variable labels and values.

Variable name	Variable label	Value label
package	package design	A*, B*, C*
brand	brand name	K2R, Glory, Bissell
price	price	$1.19, $1.39, $1.59
seal	Good Housekeeping seal	no, yes
money	money-back guarantee	no, yes

Session2: Bibliometric analysis

The topic 'Bibliometric analysis" was dealt by Dr. Praveen K. V., Scientist, ICAR-IARI, New Delhi. Bibliometric analysis measures the number of scientific activities in our domain of interest using bibliographic data in scientific and technical literature and is commonly used in social science research. It involves applying quantitative methods to bibliographic data, such as citations, to gain insights into patterns, trends, and impact of publications. It is used to identify influential publications, map research domains, for literature review and knowledge synthesis, and to trace recent trends in research over time. He suggested the use of bibliometric data sources like Scopus, Web of Science, Pubmed, and Dimensions. He demonstrated bibliometric analysis using dimensions database and VOS viewer software. Among the other softwares mentioned were Bibliometrix/ Biblioshiny of R-programming package, Citespace, and Gephi.

Bibliometric analysis of food system studies

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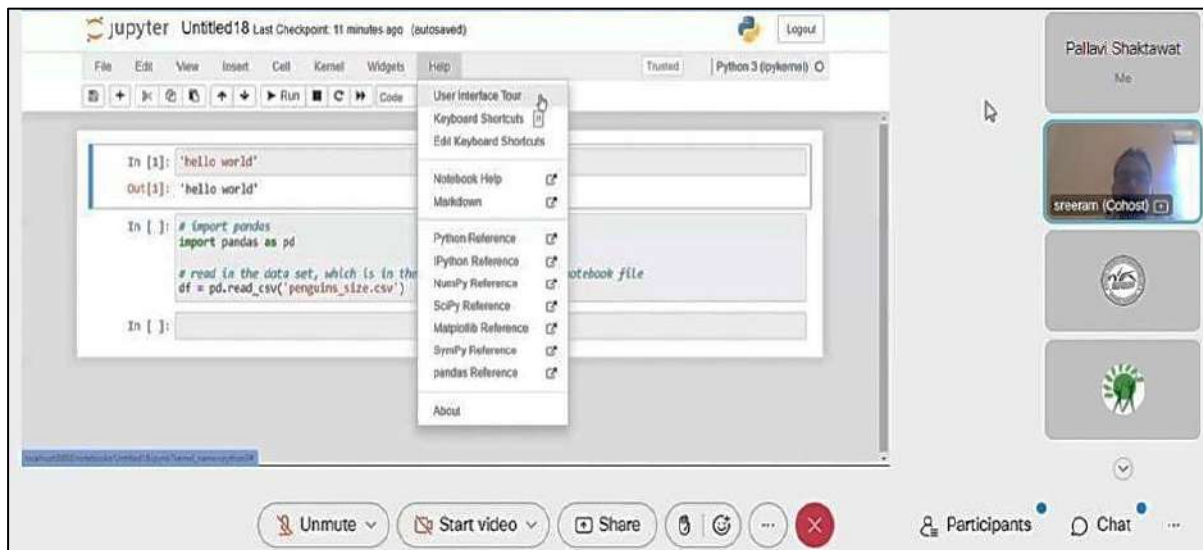praveenkv@iari.res.in

Session 3: The art and craft of writing research articles in social sciences

Dr. Archana R. Sathyan, Assistant Professor, Kerala Agricultural University, conducted this session on 'The art and craft of writing research articles in social sciences'. She suggested solutions to fundamental problems faced by researchers while publishing their work, such as how to write an article, choose the right journal to publish, contents of the article and its structure. While mentioning about predatory journals, which are the publications with no peer review system, no true editorial board, that charge huge publication fees and usually publish low-quality papers, she suggested a website 'beallslist.net' which lists such publishers. She also explained the basic terminology related to publishing, such as impact factor of journals, Hirsch's H-Index, and i10-Index.

Session 4: Data visualization for research: An introduction to Python

In the session on 'Data visualization for research: An introduction to Python' by Dr. Sreeram V., the

participants were taken through the process of using Python program language to make scatter plots, histograms, and box plots with data. The speaker demonstrated the creation of attractive visualization of research data using a Jupyter Notebook on the Anaconda navigator interface.

Session 5: Research priorities in agricultural extension

In a lecture titled 'Research priorities in agricultural extension,' Dr. Saravanan Raj discussed how the United Nations Sustainable Development Goals have shaped FAO's extension research priorities. Apart from global extension research priorities like climate change, food security, and the growing relevance of agri-food chains, national research priorities include the facilitation and promotion of innovations, business incubators, consumer studies, gender, social equity issues, and the application and improvement of modern Information and Communication Technology.

In extension, he underlined the need for greater focus on research in the domains of governance (partnership and pluralism in extension, financial sustainability of extension process, strategy development, and farmer-extension-research linkage); advisory methods (farmer-to-farmer extension, Farmer Field Schools, ICT, innovation platforms, and management information system); and capacity building and management and policy environment. He also highlighted how cross-cutting themes like engaging youth and creating gender balance, value chain linkage through

extension, climate-smart and nutrition-sensitive extension should be given utmost importance by researchers. While mentioning various researchable issues in agricultural extension management, the speaker also emphasized that social science researchers need to be in tune with Artificial Intelligence, Internet of Things, and nutrition-sensitive agriculture, among other things.

VALEDICTORY SESSION

The training program concluded with a valedictory session, wherein a vote of thanks was given by Dr. Sreeram. He acknowledged the efforts and contributions made by everyone and expressed his appreciation to MANAGE for providing an opportunity to conduct the training program and to KAU for its meticulous planning and flawless execution.

The session was followed by Dr. Saravanan Raj extending his gratitude to the collaborating institutions (MANAGE and KAU) for their unwavering support and technical guidance and to the participants for their enthusiastic and active participation. He urged the participants to apply the learning's from the training program in their professional endeavors. The participants were informed that the training certificates would be provided based on active participation and evaluation scores from Questionnaire responses.

OUR IMPRESSIONS

The training program was an enriching and enlightening experience, covering both theoretical and practical aspects of qualitative and quantitative research techniques applicable to extension research, delivered by experienced researchers with in-depth knowledge of the subject matter. The interactive training allowed participants to discuss the best practices in use and their application. The group discussions and doubt-clearing sessions were constructive. The trainers were knowledgeable, engaging and patiently explained the concepts using practical examples to make it more relatable, and answered all our questions, while providing additional resources to help participants deepen their understanding of the subject.

Overall, the training program was well-structured, and the topics covered were relevant and timely. The practical nature of the training was particularly beneficial for researchers and development practitioners involved in social science research. The training oriented us towards quality extension research and provided us the necessary skills and knowledge to conduct high-quality research in agricultural extension. Undoubtedly, the training program was a demonstration of outstanding instruction and mentorship offered and sharing of knowledge and skills.

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