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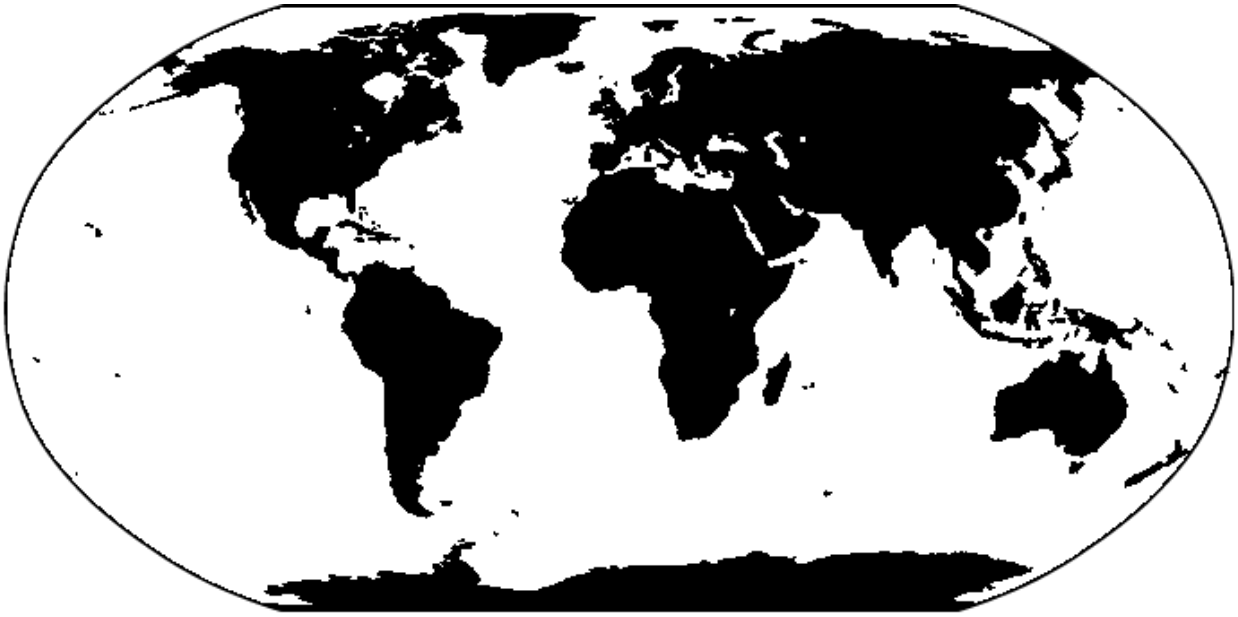

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Editorial Board

The editorial board consists of the editors, the past editor and other members representing regions of the world.

From the Executive Editor

The end of the year is always a good time for reflection. As I look back at 2014, I am pleased by the quality of scholarship that continues to be shared in *JIAEE*. The addition of the hit counter is yielding valuable information about the articles that resonate with our readers and it is clear to see our readers value multiple forms of scholarship but particularly the scholarship of application and the scholarship of teaching and learning (Boyer, 1990). These values are strongly consistent with AIAAE's focus on "developing new programs in agricultural and extension education and improving or strengthening existing programs and institutions of education to have a positive impact on development efforts worldwide" (AIAEE, 2014, Constitution preamble section, para. 1). I hope to see authors continue to advance our collective knowledge of best practices in the year ahead.

In 2014, the journal got a new online image as a part of a Web site overhaul led by Dr. Gary Wingenbach of Texas A&M University in collaboration with Dr. George Chronis of Cybersense (our Web provider). The new site is more visually appealing, easier to navigate, and hosts valuable information about our Association, annual conference, and *JIAEE*. On behalf of the editorial team, I'd like to thank Drs. Wingenbach and Chronis for their efforts to improve the online experience for AIAEE members and *JIAEE* readers.

Finally, I would like to recognize the significant loss we have experienced this year with the passing of Dr. Barnabis Dlamini. Dr. Dlamini was a long-time member of AIAEE, Outstanding Achievement Award winner, Editorial Board member, and accomplished scholar. Dr. Dlamini regularly attended the annual conference and was known for his good humor and infectious smile. Our thoughts continue to be with Dr. Marietta Dlamini and the Dlamini family.

Sincerely,

Amy Harder
Executive Editor, *JIAEE*

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The *New Extensionist*: Roles and Capacities to Strengthen Extension and Advisory Services

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Abstract

Extension and advisory services (EAS) perform an important role in agricultural development and help reduce hunger and poverty. Development efforts are increasingly complicated because of challenges such as natural resource depletion and climate change. Agricultural development frameworks have moved from a linear to a more complex systems perspective. Many scholars today use the agricultural innovation systems (AIS) framework as a conceptual model. This framework has three basic elements: all of the actors in the system that brings about agricultural innovation, their interactions, and the institutions and policies governing their interactions. Taking this approach while dealing with the challenges of development today implies new roles and capacities for extension. The authors discuss these new roles and capacities based on an action inquiry process of global dialog and consensus building, to present a vision for EAS within AIS, called the new extensionist *(Sulaiman & Davis, 2012). The authors explore individual roles and capacities, and also those at the organizational and system level (Sulaiman & Davis, 2012). The authors discuss the importance of agricultural education in developing these roles and capacities, and bringing more knowledge to bear on the issue.*

Keywords: Agricultural Innovation System, Capacity-building, Curriculum, Development

Introduction

Extension and advisory services (EAS) perform an important role in agricultural development and help to reduce hunger and poverty (Davis, 2008; Sulaiman & Holt, 2002). These services need new capacities to address current agricultural challenges and to better contribute to innovation (Sulaiman & Davis, 2012). Their role in doing so within the larger agricultural innovation system needs to be understood better.

Agricultural development frameworks have moved from a linear to a systems perspective. Many extension scholars today are using the agricultural innovation systems (AIS) framework as a conceptual model (Davis & Heemskerk, 2012; Klerkx, Hall, & Leeuwis, 2009). This framework considers all of the actors in the system, their interactions, and the institutions and policies governing their interactions in the process of innovation development (Spielman, 2005).

Other authors described important changes in extension related to these broader development frameworks. Swanson and Rajalahti (2010) described the different paradigms in extension from technology transfer to facilitation extension. Swanson (2010) and Rivera (2009) described the roles and changes resulting from pluralistic (multi-provider) and market-oriented extension reforms.

Taking these changes in development thinking and extension approaches into account implies new capacities and roles for extension. This is because extension has the potential to perform critical brokering, intermediation, and facilitation roles within the system: between different service providers and between farmers, researchers, policymakers, and market actors.

The authors present the process conducted at a global level in response to demands from regional extension networks to articulate a new view of EAS within AIS, the *new extensionist*. The authors discuss the content of the *new extensionist* and make recommendations to agricultural extension and education on how to use this vision to improve EAS globally. They recommend adaptations at the national and local level to sustain and up-scale the *new extensionist* approach and accompanying capacity strengthening activities.

The Global Forum for Rural Advisory Services (GFRAS) initiated the *new extensionist* concept to clarify and promote the importance of EAS within rural development, keeping in view the new challenges faced by farmers and the fresh insights from applying innovation systems concepts in agricultural development. GFRAS did so as part of the Global Conference on Agricultural Research for Development (GCARD). The GCARD produced a roadmap that emphasized "actions to enhance capacities to generate, share, and make use of agricultural knowledge for development" among all actors involved in agricultural innovation" (FAO, 2011, p. 5).

The *new extensionist* concept is a global view of EAS that "reinvents and clearly articulates the role of EAS in the rapidly-changing rural and agricultural context" (Davis & Sulaiman, 2013, p. 2). It argues for an expanded role of EAS within AIS and the development of new capacities at different levels to play this role. The *new extensionist* defines EAS as all the different activities that provide the information and services needed and demanded by farmers and other actors in rural settings to "assist them to develop their own technical, organizational, and management skills and practices" so as to improve their livelihoods and well-being (Christoplos, 2010, p. 3). EAS includes actors from the public, private, and civil society sectors.

While the *new extensionist* concept is not necessarily new with regard to the competencies that individuals need, the expanded role of EAS in the AIS is novel, as is the focus on organizational and system-level capacities (Davis & Sulaiman, 2013). The *new extensionist*

vision implies changes in EAS organizations and systems, as well as the reskilling of individuals to contribute better to "increasing the productivity and effectiveness of agricultural systems to improve the livelihoods of smallholder farmers" (Davis & Sulaiman, 2013, p. 2). According to Sulaiman and Davis (2012, p. 16), when new capacity strengthening approaches are introduced, "sustainability issues should be considered early" on, and "project design should be founded on a realistic assessment" of resources to sustain them. Sustainability is also "dependent on institutional, cultural, and motivational factors" (Sulaiman & Davis, 2012, p. 16).

Conceptual Framework

As mentioned, the *new extensionist* paper was developed by the Global Forum for Rural Advisory Services based on the AIS framework. It also uses the capacity development framework of the Food and Agriculture Organization (FAO).

Development scholars and practitioners increasingly recognize the AIS concept as a useful framework to design projects and other interventions to promote agricultural innovation and equitable growth (World Bank, 2012). Key actors in the AIS include agricultural research, extension, and education (see Figure 1). However, their role varies according to physical and socio-economic contexts. The AIS approach also considers farmers, the private sector, policy-making institutions, and other actors that contribute to innovation. Applying the innovation systems framework in different settings provides insights on innovation processes and helps to explore potential roles for extension in the AIS (Davis & Heemskerk, 2012; Rivera & Sulaiman, 2009; Sulaiman & Hall, 2002). The added value of the AIS framework for extension is that it helps users to see the role and organization of extension in relation to the "actors, processes, institutions, and policies that are critical for innovation" (Sulaiman & Davis, 2012, p. 4).

Research insights from the application of AIS show that "EAS can better contribute to the process of innovation if they could play new roles, undertake new functions, devise appropriate strategies, and build new capacities" (Sulaiman & Davis, 2012, p. 4). Research also shows that, the traditional task of communicating new knowledge and information just by public extension is not enough to stimulate innovation (Leeuwis & van den Ban 2004; Spielman, 2005; Sulaiman, Hall, Kalaivani, Dorai, & Reddy, 2012). Actors in the AIS have to perform many other supportive roles to enable innovation.

The FAO has a corporate strategy on capacity development that guides thinking about capacity development in EAS (see Figure 2). The strategy shows capacity development as functional and technical requirements across three levels: individual, organizational, and an enabling environment (or system) level.

The individual level "relates to knowledge, skills (technical and managerial), and attitudes that can be addressed through facilitation, training, and competency development" (FAO, 2010, p. 4).

The organizational level "relates to public, private, and civil society organizations and networks of organizations in terms of a) strategic management functions, structures, and relationships; b) operational capacity (relationships, processes, systems, procedures, sanctions, incentives, and values); c) human and financial resources (policies, deployment, and performance); d) knowledge and information resources; and e) infrastructure" (FAO, 2010, p. 4).

The enabling environment (system) level "relates to political commitment and vision; policy, legal, and regulatory and economic frameworks; national public sector budget allocations and processes; governance and power structures;

infrastructure; incentives; and social norms" (FAO, 2010, p. 4).

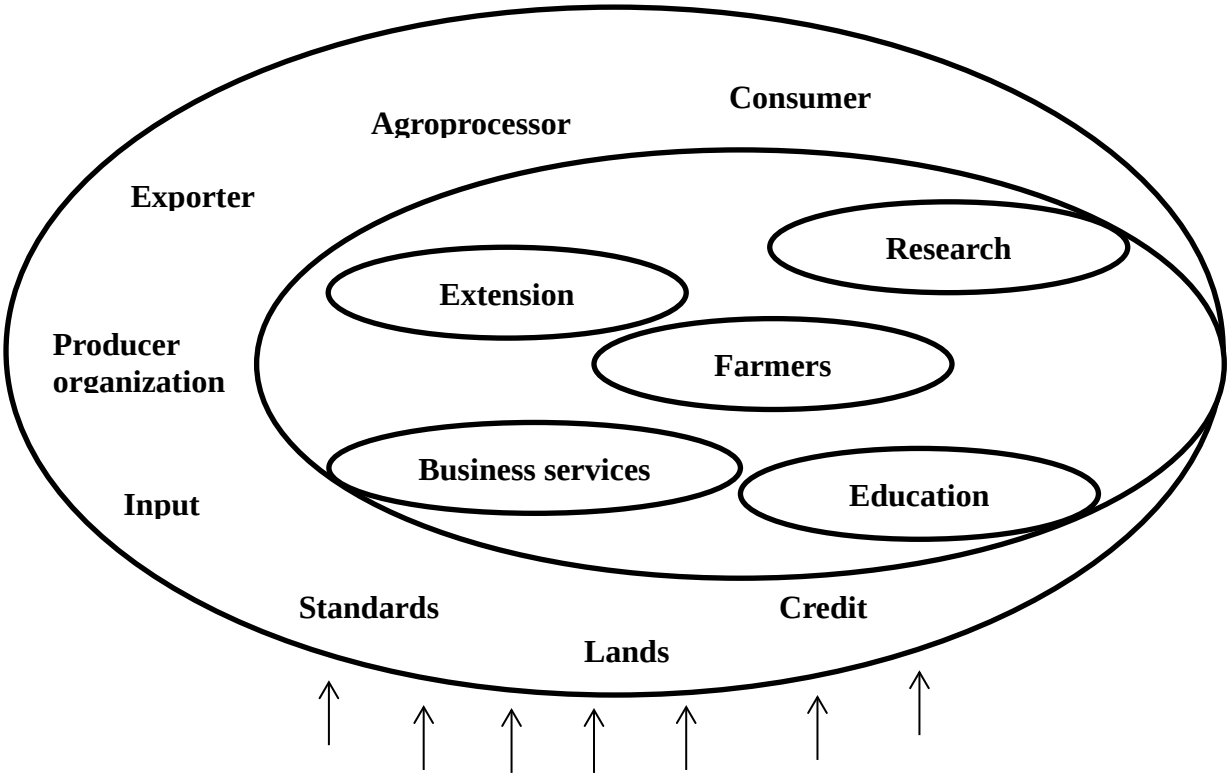

Figure 1. A stylized agricultural innovation system. Adapted from R., Birner, K. Davis, J. Pender, E. Nkonya, P. Anandajayasekerem, Ekboir, J., . . . Cohen, M., 2006, Development Strategy and Governance Division Discussion Paper 37, p. 22.

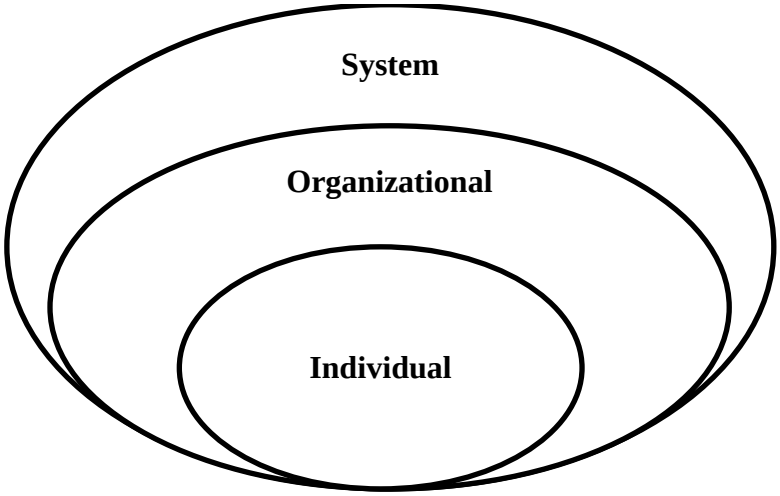

Figure 2. Capacity levels (FAO, 2010).

EAS also need capacities at these different levels if they are to play new and more effective roles within the AIS. Research by Swanson (2006) shows the

importance of adjusting national strategies due to the changing role of extension today. Specifically, Swanson suggests a change of focus from food security to income and employment, organizing farmers into groups to better reach them, and decentralizing extension for better accountability (Swanson, 2006, p. 6). These strategies all require capacity at all these levels.

Development of the *New Extensionist* Concept

Design

The research design was based on a form of action inquiry using contemporary dialog and survey methodology to find consensus on the *new extensionist* concept. Action inquiry, which involves iterative reflection by practitioners and scholars, is based on the work of Lewis (1946) and has been used in educational research (McKernan, 1991). According to Spielman, (2005), "action research has been a fundamental tool in identifying agricultural innovation systems approaches in developing countries and establishing 'proof of concept'" (p. 35). Similarly, action inquiry was used to find consensus and establish proof of concept for the *new extensionist.*

Position Paper

Based on a literature review, a position paper (Sulaiman & Davis, 2012) was developed in 2012 (see Figure 3) detailing the role of advisory services; the need for enhanced capacities for EAS at individual, organizational, and system levels; existing capacity constraints at national, regional, and global levels; and recommendations to strengthen the capacities and role of EAS.

The position paper stated that EAS collectively performs wide range of roles, including developing networks, organizing producers, facilitating access to credit, input and output services, convening innovation platforms, facilitating knowledge management, promoting gender equality, supporting adaptation to climate change, and disseminating new knowledge through training and demonstrations (Sulaiman & Davis, 2012).

Regarding capacities, the paper stated that at the individual level, EAS need staff with an understanding of technical knowledge plus skills to manage social processes. Table 1 details the capacities required for individuals staffing EAS.

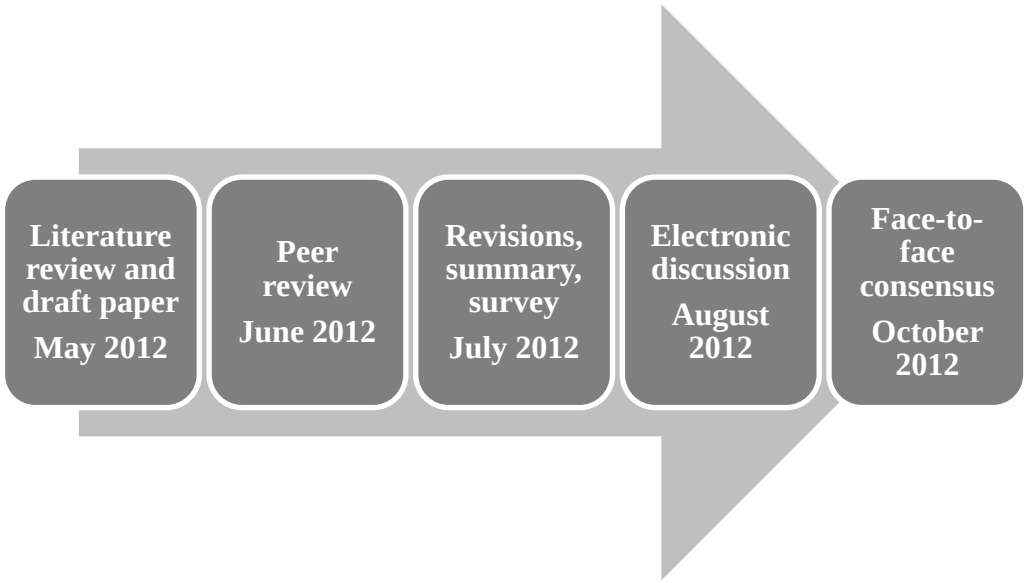

Figure 3. Timeline of the development of the "new extensionist" concept.

Table 1

Capacities Required at the Individual Level in EAS

Technical	Functional
Good understanding of appropriate/relevant/new technologies/practices/ standards/regulations/ policies in agriculture and natural resource management Technical options to support climate change adaptation; agribusiness; value addition and value chain development; improving resource use efficiency; application of biotechnology; intellectual property and farmer rights; use of new information and communication technologies (ICTs)	Community mobilization (organizing producers and rural women into different types of interest/activity groups) Farmer organization development (organizing, sustaining, and federating farmer organizations to take up new extension and advisory service tasks in agriculture and linking them to new source of knowledge and services) Facilitation (facilitating discussions, enabling consensus building and joint action, accompanying multi-stakeholder processes) Coaching (guided self-reflection and expert advice for improvement) Reflective learning (organizing experience-sharing workshops and facilitating learning) Mediating in conflicts (by improving dialogue and helping to reach agreement) Negotiating (helping to reach a satisfactory compromise or agreement between individuals or groups and developing negotiating capacity among other stakeholders) Brokering (creating multi-directional relationships among the wide range of actors) Networking and partnership development Advocating for changes in policies and institutions Leadership (capacity to inspire and motivate) Managing resources (human and financial) Critical thinking Problem solving Self-reflection and learning from mistakes Service mindedness Accountability Responsibility Dedication/commitment Working in multi-organizational and multi-sectorial teams Working with rural women and using gender sensitive extension approaches

Note. Adapted from R. V. Sulaiman and K. Davis, 2012, *The new extensionist: Roles, strategies, and capacities to strengthen extension and advisory services*, p. 8. Adapted with permission.

At the organizational level, EAS need capacities manage human and financial resources, facilitate partnerships and learning, and mechanisms to deal with institutional, legal, and regulatory issues (Sulaiman & Davis, 2012) (see Table 2).

Table 2

Capacities Required at the Organizational Level in EAS

Broad areas	Specific areas to support capacity strengthening
Strategic management functions	Leadership (inspiration and motivation), vision building, change management, capacity to respond to emergencies, policy relations, advocacy
Structures	Ability to structure the organization as different units in the organizational hierarchy and ensure the different units relate and are flexible
Relationships	Clearly defining authority, roles, and responsibilities and resources among different units within an organization and across organizations within the AIS; building trust; creating time and space for learning from each other
Processes, systems, and procedures	Planning, organizing, leading, and controlling methods used in internal communication, performance assessment, human resource development, financial management, learning, monitoring and evaluation, ensuring accountability to different stakeholders and the range of approaches used to deliver extension and advisory support
Values, incentives/rewards	Integrity, science-based knowledge, inclusion, partnership, learning, mechanisms to reward and incentivize good performance, acceptable standards which govern behavior of individuals in an organization, opportunities for feedback and reflection, reputation
Human resources	Ability to provide adequate number of staff and access to experts in other organizations to complement and supplement its expertise; clear job descriptions, well-defined roles and tasks, career development and incentives, access to new knowledge, mechanisms to mobilize, nurture, and retain human resources

Financial resources	Ability to provide adequate budget for staff salaries, operational expenses, and investments, and to develop and implement programs benefiting smallholders; or a sustainable business model that keep the organization in business
Knowledge and information resources	Knowledge management including relationship management to access skills and knowledge to deal with new challenges and opportunities
Infrastructure	Ability to support EAS in terms of mobility, telecommunication, ICT, buildings and training facilities, roads, market infrastructure

Note. Adapted from *The new extensionist: Roles, strategies, and capacities to strengthen extension and advisory services*, p. 11, by R. V. Sulaiman & K. Davis, Lindau: Global Forum for Rural Advisory Services. 2012. Adapted with permission.

At the system level, capacities for interaction, learning, and adaptation are important. The enabling environment could be influenced by building the capacities detailed in Table 3.

Table 3

Capacities at the Enabling Environment Level in EAS

Capacity of policy-making bodies to adapt policies based on lessons learned from policy implementation, for reflective learning and adaptive change management
Initiating joint activities and collaboration between organizations in the AIS and the actors of the agricultural sector
Supporting organization of workshops, seminars, joint research, commissioned studies, and joint evaluation that would bring out major areas that need policy attention
Organizing sector coordination mechanisms and multi-stakeholder working groups to develop and manage relationships among multiple actors and collectively develop strategic directions and policies for the sector
Generating adequate data that are required for evidence-based policy advocacy and decision making
Sharing information on the activities of the EAS with farmers and their organizations, researchers, policymakers, and policy-makers (use of websites, policy briefs, social networking sites)
Managing relationships with the media (communication and media management)

Note. Adapted from *The new extensionist: Roles, strategies, and capacities to strengthen extension and advisory services*, p. 11, by R. V. Sulaiman & K. Davis, Lindau: Global Forum for Rural Advisory Services. 2012. Adapted with permission.

A panel of experts from different sectors peer-reviewed the position paper in mid-2012. Following revision, the authors created and sent a two-page summary of the paper to international agricultural listservs with an invitation to an online survey. The survey consisted of seven questions with Likert–type and yes/no

responses, with the option of providing open-ended responses. More than 200 global respondents took part in the survey in mid-2012, and many joined an ensuing in-depth electronic discussion, which enabled dialogue and consensus on the concepts and recommendations. Finally, the authors presented and affirmed the position paper contents in a face-to-face meeting at the GCARD in October 2012, a global gathering of stakeholders from the entire agricultural sector, including extension.

Following the global conference, GFRAS again revised the paper and thereafter convened a small group of global extension experts in early 2013 to prioritize the *new extensionist* recommendations for different regions. As a result of this meeting, a consortium on extension education and training under GFRAS formed at this meeting, with the purpose of championing, refining, and disseminating the *new extensionist* concept (GFRAS, 2013). The consortium began to exchange and examine extension curricula worldwide, develop a guide on how to identify capacity gaps, and to support the Association for International Agricultural and Extension Education's professional development core group regarding the *new extensionist* concept (AIAEE, 2013).

Survey respondents who reviewed the position paper came predominantly from development agencies, research, education, and public advisory services. Even though they came from all over the world, areas such as Australia and the Caribbean were under-represented. Overall, the response to the position paper was positive and the respondents affirmed the concept and recommendations. Respondents supported the core roles suggested in the paper, except for the suggested role of mediating conflicts. Respondents also considered most of the capacities suggested to fulfill these roles to be essential and in need of further development. Respondents agreed that the paper was useful for raising awareness of the importance of EAS. On the whole agreement was reached that the recommendations at the three different levels (national, regional, global) were actionable and clear.

Following up on comments from the survey respondents and experts, an electronic discussion debated further on the need to focus on gender issues, the role of private and civil society EAS, and the use of information and communication technologies (ICTs).

In the GCARD meeting at the end of 2012, agricultural development stakeholders met in a session to discuss and affirm the paper's contents. Four main outcomes emerged from that meeting:

1. Participants endorsed the *new extensionist* recommendations for essential capacities to strengthen advisory services;
2. GFRAS regional networks will use the revised *new extensionist* concept to advocate for strengthening knowledge and advisory services;
3. GFRAS will catalyze dialog to prioritize and implement the recommendations to strengthen knowledge and advisory systems; and
4. Key elements included reaching grassroots, women and youth, and adapting ICTs.

Thereafter, global extension experts met in early 2013 to define a plan of priority activities for the next two years that would best contribute to enhancing the capacity of EAS to effectively play their part in AIS as aligned with the GCARD agenda. Participants at the meeting put major focus on education and training as well as other recommended actions (see Table 4). The experts called for research on extension and the promotion of extension science. The group formed a consortium of education and training institutions to conduct research on and curricula reform of extension. Finally, the

participants stated the need to contextualize the recommendations to various regions of the world.

The *new extensionist* concept continues to be taken forward by educators and practitioners. The summary was translated into Arabic and French and used as a starting point for discussions on how to strengthen extension in some regions of the world. The consortium continues to collect and document curricula and to identify core competencies needed by extension professionals, as well as methodologies to identify capacity gaps.

Table 4

Priority Actions to Strengthen EAS by Different Regions of the World

Action	Region
Survey EAS providers, analyze EAS models, conduct research	Africa, Latin America, Pacific, South Asia
Support establishment of regional networks and synergize their activities	Asia, Caribbean, Latin America, Pacific
Develop curricula for vocational and continuing education and skill up-grading; regular curricula revision	Africa, Asia, Caribbean, Latin America, North Africa, South Asia
Develop policy briefs and position papers to influence policy processes	Asia, Caribbean, Latin America, Pacific

Recommendations and Conclusions

Much global interest exists surrounding the role of EAS and how to strengthen these institutions to contribute to innovation and reducing hunger and poverty. The use of the AIS framework and the FAO strategy for capacity development help to frame the roles EAS can play and the capacities needed to perform at the individual, organizational, and system levels (see Figure 2). The position paper by GFRAS made 12 recommendations for national-level capacity strengthening, five for the regional level, and seven for the global level. These recommendations also detailed which actors should take lead. Agricultural education and training have a major role, as well as extension scholars and researchers. Five major recommendations relevant for agricultural education and training emerged from the paper:

1. The agricultural education and extension community should revisit the competencies of individual extension personnel as well as the organizations and systems. We need reformed agricultural education curricula to further strengthen the roles and capacities of extension to better contribute to agricultural development. We must share and examine curricula to see if they are suitable for extension today. We need methodology on how to identify capacity gaps at the individual, organizational, and system level.
2. Along with revised curricula, the international agricultural extension community should develop delivery mechanisms to support the expanded role of EAS. This includes developing improved and targeted curricula (pre- and in-service) for extension and rural advisory services and creating demand-driven courses by local or

regional entities with strong support from international and regional networks and partners. We should create and promote a certification model, in consultation with regional employers and educators, which links modules and curricula to skills required for employment.

3. Extension scholars and research institutes should conduct research on extension and its role within the AIS. We need research on many fronts, but specific recommendations from this paper are to better understand the contribution of extension to agricultural innovation and on the capacities needed for effective performance of extension as a system. We must promote extension science that is recognized as a valid and evolving discipline.
4. Regional and national extension and education institutions should prioritize and adapt the *new extensionist* recommendations to their specific realities, that is, be contextualized, before being up-scaled and out-scaled. The *new extensionist* position paper is rather generic, and although it makes recommendations for national and regional levels, these recommendations must be examined and implemented for the specific needs of different regions and countries.
5. Finally, extension educators and professionals around the world need to advocate the *new extensionist* principles within their regions and with the wider development community, to promote the important role that EAS play in rural development.

EAS have a critical role to play in development today. Much work is needed to retool the community to adequately address the new and evolving challenges. Interested professionals from extension education are welcome to engage with the GFRAS consortium on extension education and training to conduct research on extension education, reform curricula, and share knowledge with one another. GFRAS is also keen to work with the regional EAS networks and country chapters; national governments, and donors to support changes at the organizational and enabling environment levels as recommended in this paper. Without fundamental changes in the conceptual and operational dimensions of EAS, its ability to address the new and evolving challenges in promoting agricultural innovation will be compromised. The *new extensionist* offers an opportunity for EAS to reform itself and remain relevant in the days to come.

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Listening to Collaborate: Professional Development for Postsecondary Agricultural Education and Training Instructors Teaching Technical Subjects in Nigeria

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Abstract

Implementing high quality professional development for postsecondary Agricultural Education and Training (AET) instructors is a critical step in facilitating inclusive economic development in Nigeria. Most technical agricultural graduate programs in Nigeria do not include training in instructional methods, creating lesson plans, or assessment techniques and lecturers are usually forced into learning the craft of teaching through trial and error. Unfortunately, poor teaching and a lack of innovative strategies do little to break the status quo view that agriculture is a distasteful option for youths. It is likely that economic and social progress in Nigeria will be attenuated if AET systems cannot attract and motivate capable students to engage in addressing the critical problems surrounding food security, sustainability, and climate change. The purpose of this grounded theory study was to create a conceptual model for addressing the process oriented professional development needs of postsecondary AET instructors teaching technical subjects in Nigeria.

Keywords: Agricultural Education, Nigeria, Professional Development, Process Approach

Introduction / Theoretical Framework

High quality instruction and functional Agricultural Education and Training (AET) systems are pivotal to the growth and development of any nation. In many parts of the developing world, high quality learning and training experiences for agricultural producers, processors, and entrepreneurs through AET systems have been elusive (Oladele, 2008). However, in recent years a resurgence in the drive to use AET has been fueled by a recognition of its potential impact on economic and human capital development (Akryod & Smith, 2007). Globally effective AET instructors are needed for the implementation of authentic learning opportunities which assist pupils in mastering the foundations they will need as productive adults (Wu, Ho, Nah, & Chau, 2014).

The current study was undertaken during an intensive four week institute for postsecondary Career and Technical Education (CTE) instructors in Nigeria. The study focused on agricultural educator institute participants in order to create a deeper understanding of their process oriented professional development needs and serve as one output of the institute which can inform future Agricultural Education and Training (AET) programing. The research project was designed to create a conceptual model for professional development for postsecondary AET instructors in Nigeria. The project was also implemented to foster the development and dissemination of customized professional development workshops and resource materials for postsecondary AET instructors in Nigeria which could be enacted using a train the trainer model.

Contextual learning theory postulates learning occurs only when learners process and connect novel information or knowledge to their own established frames of reference (Owens & Smith, 2000). Contextual learning theory emphasizes learning is nested within interactions with the environment and the mind of the learner seeks meaning through the interpretation of those interactions (Perkins, 1999). Therefore, knowledge and experiences are contextualized and the connection between what is learned and how it fits into reality is explicit (Gredler, 2001).

Contextual learning theory provides a foundational guide for the creation of learning experiences that foster deep connections between the concepts that are being learned and how the knowledge will actually be utilized. It follows then, based on contextual learning theory, that knowledge and the process of learning are viewed as outcomes of the interactions between specific activities, contexts, and cultures (Brown, Collins, & Duguid, 1989). When learning is contextualized, learning activities and the actual physical environment provide scaffolding structures which promote knowledge construction, facilitate long term memory encoding, and promote organization for memory recall (Clifford & Wilson, 2000).

In order to operationalize contextual learning theory as a part of the institute planning process researchers designed the current research study to coincide with opportunities for reflection and assessment. It was critical, from the perspective of the researchers, to use the data gathering activities and interactions with participants as a model which they could transform for their own purposes. In this way, participants were the authors of their own contextualized conceptual model for facilitating the creation of information regarding professional development needs and methods for facilitating programing.

It was important to nest the institute within the broader context of the AET system in Nigeria. As part of the contextualization process it was important to

focus on system factors that would play a part in shaping the results of the institute and current research study. Institute planners recognized the need to frame the AET system in Nigeria as a context in which researchers have found: (a) AET instructional practices were not in line with the principles of modern learning theory which stresses the active role of learners, the need for reflective feedback loops, and the need to account for individual differences; (b) valid information for producers and processors was available, however, the construction and implementation of high quality instruction to help learners understand and apply that information was constrained; and (c) producers and processors recognized the potential impact that improved AET instruction and robust outreach opportunities could have on reducing knowledge gaps related to crop and animal performance (Chukwuone, Agwu, & Ozor, 2006; Okoedo-Okojie & Edobor, 2013; Oladele, 2008; Olugenga, 2004). It was within the aforementioned nested context that the researchers undertook the current study and set about creating a conceptualization of the process oriented professional development needs of postsecondary AET instructors teaching technical subjects in Nigeria.

Purpose / Objectives

The purpose of this study was to generate a grounded theory which serves as a conceptual model for designing postsecondary AET instructor professional development in Nigeria. The research question that was used to guide the current study was: What are the process oriented professional development needs of postsecondary AET instructors teaching technical subjects in Nigeria? In addition to the guiding question, the following questions were utilized with the postsecondary AET instructor participants to provide a common point of entry into the research interview episodes.

1) What is important about AET and the AET system in Nigeria?
2) What kinds of AET teaching and training experiences have you had?
3) What is important to know about postsecondary AET instructors in Nigeria?
4) What information is critical for understanding AET professional development for postsecondary instructors in Nigeria?
5) How should AET professional development be organized?
6) What are the opportunities for change AET professional development?

Methods / Procedures

Participants for the current grounded theory research study were purposefully selected from a population of 40 individuals participating in a World Bank sponsored institute designed to provide upskilling experiences for postsecondary CTE educators in Nigeria. The potential sample of research participants consisted of 17 agricultural education faculty teaching technical subjects at universities or polytechnic colleges. The remaining 23 institute participants were either business, trade and industrial, or family and consumer science instructors teaching technical subjects at universities or polytechnics across Nigeria. The study included eight participants, three of whom were female. Participants were purposefully selected for the study based on: (a) recommendations from institute collaborators from Nigeria with system wide expertise regarding AET technical content areas; (b) the location of their institution of employment; and (c) their number of years of AET teaching and training experience. The participants ranged in age from 32 to 58 years. Three of the

participants had a doctoral degree as their highest degree attained and the other five had a Master's degree as their highest degree attained. Two of the participants had obtained their doctoral degree outside of Nigeria, while the remaining doctoral degree holder had attained his/her doctoral degree from an institution in Nigeria. All of the Master's degree holders had attained their degree from an institution in Nigeria. All participants had at least five years of teaching or training experience within the AET system and at least three years of experience training producers or processors. The Approval for carrying out the study was granted by the Human Subjects Committee at the State University of New York at Oswego and the Vice Chancellor of the University of Nigeria at Nsukka.

The guiding question for the study emerged from a needs assessment and a review of literature that were carried out in preparation for conducting the institute for postsecondary CTE educators in Nigeria. The questions utilized to provide a common point of entry into the interview episodes arose from preliminary institute planning conversations with AET professionals regarding their perceptions of professional development within the AET system in Nigeria.

A grounded theory methodological context and data analysis procedures were utilized in this study as a means to better understand the professional experiences and future needs of the participants at a conceptual level. While quantitative research stresses the importance of generalizability, the goal of the qualitative approach is "to understand the particular in depth, rather than finding out what is generally true of many" (Merriam, 1995, p. 57). As defined by Denzin and Lincoln (1994), qualitative research is a multi-faceted method, involving an interpretive and naturalistic approach to carrying out inquiry. Within qualitative methods of research, the perceptions and experiences of participants are meticulously enumerated through the employment of thick description. In defining thick description, Schwandt (2007) state that:

> to thickly describe perceptions and experiences is actually to begin to interpret them by recording the circumstances, meanings, intentions, strategies, motivations, and so on that characterize particular episodes. It is this interpretive characteristic of description rather than detail per se that makes it thick. (p. 296)

Within qualitative research trustworthiness can be defined as the methodological procedures and sources used to establish a high degree of harmony between the participants' expressions and the researcher's interpretations of them (Creswell, 2005). A variety of strategies and techniques were employed to support the overall trustworthiness of the current research. Sufficient time and space were given to the data collection process to support trustworthy research outcomes. The research study employed colleagues as external agents to address issues of trustworthiness (Charmaz, 2006). The two external agents compared the theme of the research with: (a) the selection of participants; (b) the articulations between the transcript data, open codes, and axial codes; and (c) the articulations between the axial codes, selective codes, and categories that formed the grounded theory. The external agents also assisted in providing trustworthiness by reviewing the methods utilized within the study and monitoring the harmony between the AET instructors' expressions and the researcher's interpretations to ensure that the grounded theory was reflective of the participants'

experiences (Creswell, 2005). The researchers also included member checks as a way to support the trustworthiness, however, only three follow-up interview member checks were able to be conducted because of technical difficulties.

In order to construct an emic account of the perceptions and experiences of the agricultural educator participants thick descriptions were incorporated which include the cultural framework and meanings which emerged from the data (Patton, 2002). The research procedures engaged the researchers and participants in a process of constructing a detailed narrative. The narrative data was analyzed line by line utilizing the constant comparative method. From the data analysis emerged an abstraction which depicts the perceptions and understandings of a conceptual model for the professional development needs of AET instructors in Nigeria.

Figure 1 provides a conceptual illustration of the general analytic process within the grounded theory method of research. For this project the researchers began by collecting data through the use of interviews. Simultaneous to the data collection the researchers began note taking which initiated the process of organizing the data and recording reflexive thoughts for later analysis. As data collection continued the researchers began the coding process which served to identify elements or facets of interest by organizing slices of data substantively related to the research area (Charmaz, 2006).

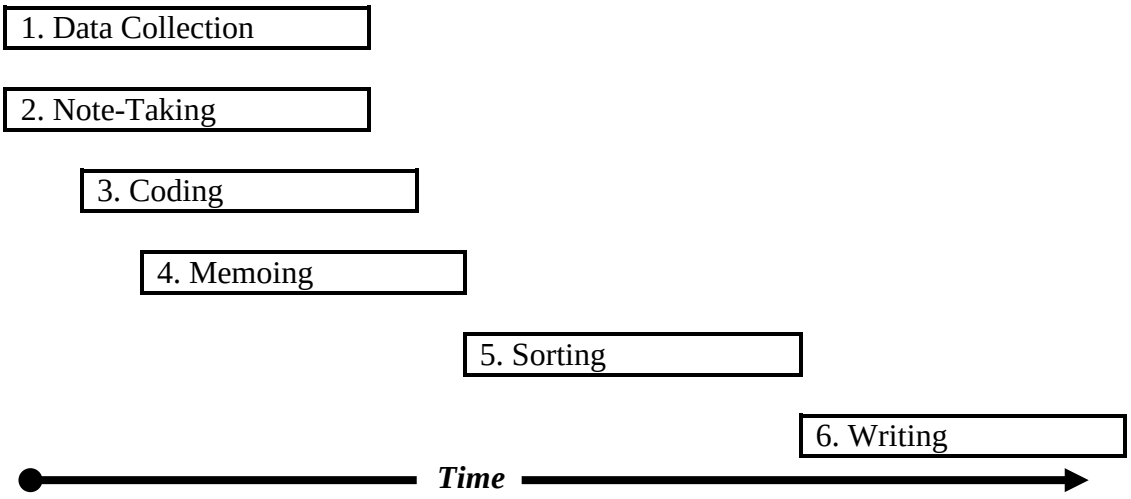

Figure 1. A conceptual illustration of the data collection, analysis, and reporting process in grounded theory research studies (Creswell, 2005)

Figure 2 represents a conceptualization of the coding process which forms an essential element of the grounded theory method. Figure 2 illustrates that the open coding process consists of gleaning words, phrases, and ideas from the narrative data gathered from in depth interviews. Open coding consists of a close line-by-line reading of the data in order to identify as many concepts as possible without being concerned with how they are connected (Schwandt, 2007).

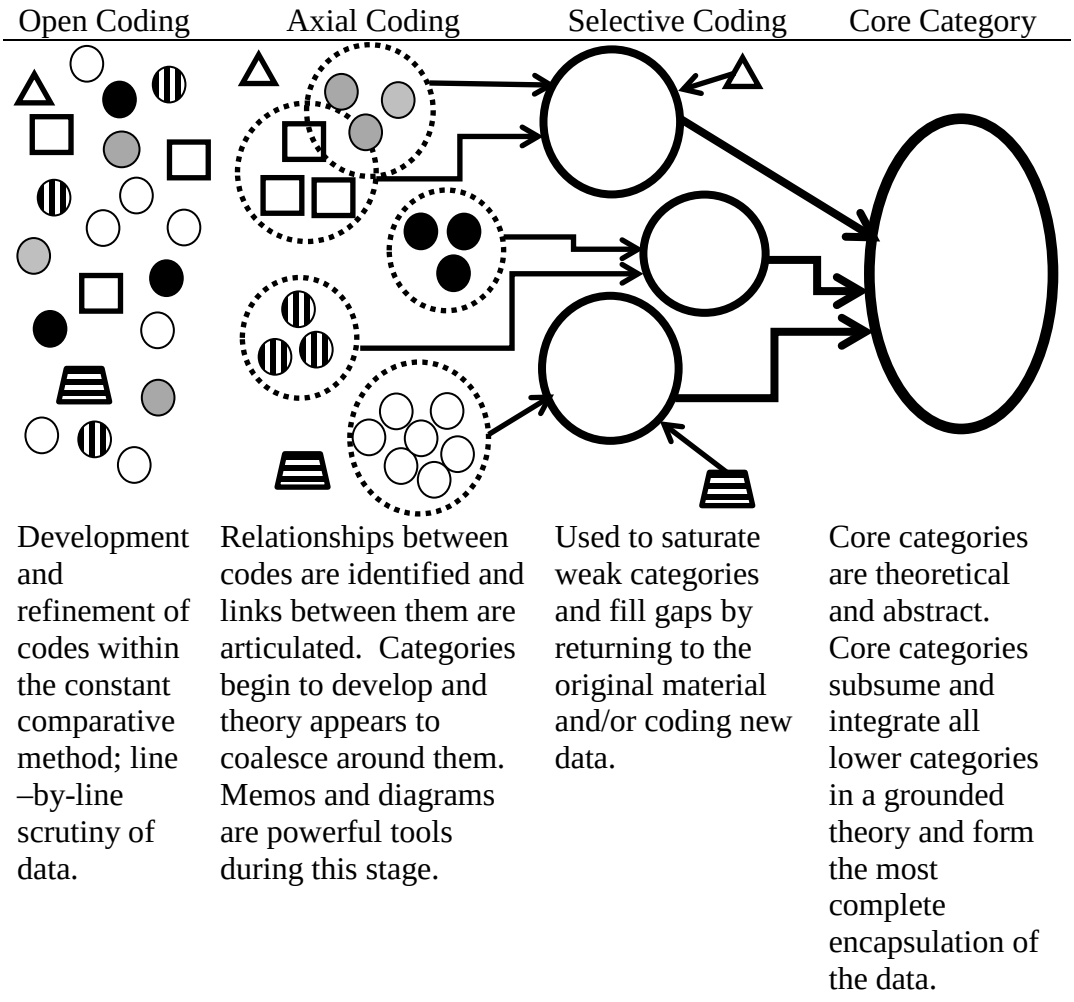

Figure 2. A conceptual illustration of the three iterative stages of coding outlined in grounded theory procedures (Charmas, 2006; Strauss & Corbin, 1997)

Figure 2 illustrates that the process of open coding forms the basis for axial coding. During the process of axial coding the data is reassembled in order to begin to identify connections between elements that were coded within the open coding process. As the axial coding process progresses coded elements coalesce to form categories. Figure 2 illustrates that following axial coding the researchers employ the process of selective coding. The selective coding stage is utilized to refine data categories by filling gaps and reviewing coded elements in order to assess the density of the categories that have been established. The selective coding process integrates the connections between the coalescing categories and further

strengthens within category connections as well.

Figure 2 reveals the process of selective coding is followed by the formation of a core category. Formation of a core category is a key milestone within the grounded theory research process. The formation of a core category represents a point at which the properties and dimensions of the central concepts and conceptual relationships have emerged from the data. It is also the point at which the category which best captures the essence of the phenomena being investigated in all its complexity and variation emerges from the fog (Groenewald, 2008).

Data for the current study were collected utilizing eight 45 minute digitally recorded in depth interviews. In an effort to protect the confidentiality of the participants, pseudonyms were utilized to enable a more robust discussion of the findings and data was never connected to any of the participants' names, institutions, or specializations. Within the framework of the research study the reseachers utilized the software program NVivo 7 for much of the grounded theory data analysis. NVivo is a software platform designed to support analytic methods used to build and test grounded theory from unstructured qualitative data. The NVivo software platform was utilized to analyze all the transcribed data generated through the digitally recorded interviews, the researchers' notes, and researchers' memos.

Interviews were conducted in the presence of both lead researchers. Researcher one was raised in Nigeria and completed all of his university studies, including all graduate work, at institutions in Nigeria. Researcher two was raised in the United States and completed all of his university studies at institutions in the United States. It was critical to have researchers with divergent lived experiences because when creating, providing, and assessing worthwhile international professional development activities, considerations must be made to acknowledge and address the needs of the educators within the cultural context and site based constraints of the program (Baird, McIntosh, & Özler, 2011). Further, it is critical to build understanding that addresses perspectives surrounding various issues and specific terminology to avoid confusion and the waste of valuable resources (Hospes, 2013).

The use of interviewing allowed the researchers to understand the experiences of the agricultural educators and the meaning they constructed from those experiences (Charmaz, 2006). During the interview process the researchers were careful to provide enough time to capture the perceptions and experiences of the participants as they related to the context of interest. By asking the participants probing questions from a variety of perspectives, the researchers were able to improve the likelihood that the results of the study would exhibit greater trustworthiness (Creswell, 2005; Patton, 2002).

Once initial interviews began to be conducted, the researchers were immersed in the constant comparative method of forming open, axial, and selective codes. As the coding process moved forward coded elements had begun to coalesce around a central concept. The central concept that emerged from the data is best defined as cooperative collaboration. External agents were asked to review the initial transcript data and the open, axial, and selective codes that emerged from the data. One external agent was a colleague within the Department of Agricultural Education at the University of Nigeria at Nsukka and the other was an AET practitioner working on a related, but separate USAID project. Both external agents agreed with the direction of the

research study, however, they questioned how several terms were being defined by the participating agricultural educators.

The researchers attempted to complete follow-up phone interviews after the institute had been completed and they had returned to the United States. The researchers were successful in conducting follow-up phone interviews with three of the participants. The follow-up interviews were conducted to clarify the meaning around vague definitions of terms, brought up by the external agents, and allow participants to affirm whether coding diagrams were in harmony with their intended expressions. The follow-up phone interviews were used as a form of member checking that gave participants an opportunity to add new information concerning the research context. The fact that only three of the research participants could be reached for follow-up interviews represents a limitation to the study, however, the researchers believe an adequate analysis was carried out with the available data.

In the wake of the follow-up phone interviews, the researchers continued to enact the constant comparative method which did not facilitate the emergence of any new elements from the combination of the original interview data and the follow-up phone interview data. Once the researchers determined no new elements had emerged from the follow-up interviews, they were satisfied that a sufficient level of theoretical saturation had been attained. Theoretical saturation is defined here as the point at which no new coded elements or connections between elements emerge from the data.

Theoretical saturation signals the point in grounded theory studies at which theorizing the events under investigation is considered to have come to a sufficiently comprehensive end (Creswell, 2005). The achievement of theoretical saturation is a function of the theoretical proclivities of individual researchers which are a function of their prior research experiences, their experiences with the context, and the judgments of their colleagues (Merriam, 1995). In a very real sense theoretical saturation is a process that is particular to an individual researcher working on a particular study. When theoretical saturation is reached depends on such factors as sample variation, length of time in the field of study, and researcher experience (Groenewald, 2008). Moreover, because theories are always subject to revision, theoretical saturation represents what Glaser and Strauss (1967) described as a pause in the never-ending process of theory development (as cited in Charmaz, 2006).

Results / Findings

The purpose of this grounded theory study was to create a conceptual model for addressing the process oriented professional development needs of postsecondary AET instructors teaching technical subjects in Nigeria. The research question that was used to guide the current study was: What are the process oriented professional development needs of postsecondary AET instructors teaching technical subjects in Nigeria? The research process constructed a conceptual model which explicates the lived experiences, perceptions, and ideas of the AET instructor participants.

Figure 3 illustrates the conceptual model and contextually depicts the core category identified through the research process as cooperative collaboration. The core category that emerged through the data collection and analysis process is the main storyline of the narrative and it captures the essence of the participants' meanings. In the current study, the use of coding resulted in 54 open codes, 21 axial codes, and 8 selective codes. The core category of cooperative collaboration illustrates the

main theme within the framework for professional development and includes the following concepts: (a) lateral cooperation for collaboration; (b) sustained cooperation for collaboration; and (c) reciprocal cooperation for collaboration.

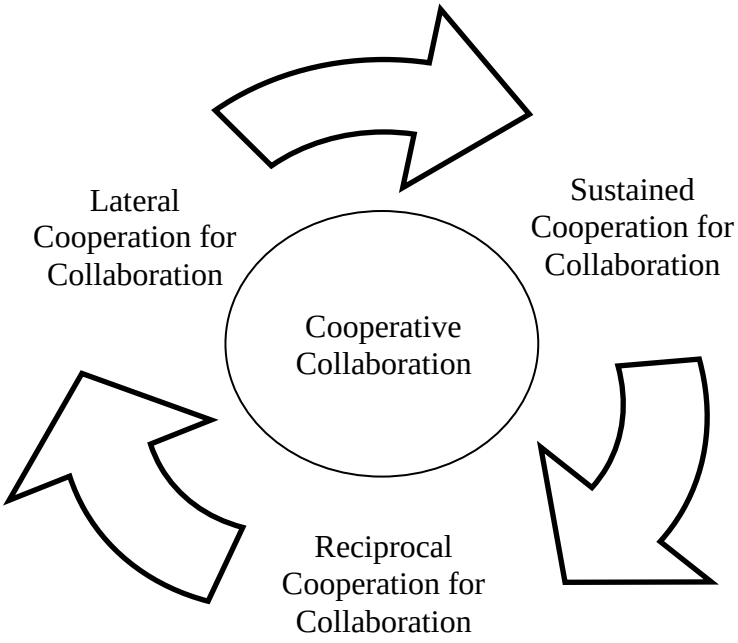

Figure 3. A graphic representation of the conceptual model for the professional development needs of postsecondary agricultural educators teaching technical subjects in Nigeria

For the participants in the study the core category of cooperative collaboration conceptually defined preferred professional development processes and outcomes. Table 1 illustrates quotes from participants that typified the core category of cooperative collaboration. The AET instructors revealed that currently little if any input from their ranks effects the creation or enactment of professional development experiences or opportunities. From the perspective of the participants there were not opportunities for instructors to work together to build professional development opportunities. Further, the participants believed that what they needed was access to opportunities for organized cooperation in order to seek potential collaborators for participatory professional development.

Specifically, the participants talked about ways to establish connections across institutions in order to utilize shared resources and utilize best practices established through pathway models of assessment. Further, the AET instructor participants began to express methods for cultivating cooperative collaboration between federal ministries (Federal Ministry of Agriculture and Rural Development; Federal Ministry of Education), postsecondary institutions, and NGOs to support the creation of instructional resources and Information Communication Technologies (ICT) access. The actions and expressions of the AET instructors are supported by previous research that found that the AET system and cooperation within the system were limited because of weak

institutional development, conflict, corruption and a lack of overall direction (Chukwuone, Agwu, & Ozor, 2006).

Table 1

Example Quotes that Typified the Core Category of Cooperative Collaboration

"How is it known … how is it known what is critical for our professional development. We are not asked to contribute and there is no help to focus on what we believe is important … that should be started, a plan for instructors to work more together" Rooney
"When there is professional development, it is most often too far away and only people with sponsorship can make the travel, more attention should be focused at different places. We should receive assistance to build our own chances (opportunities for professional development)" Robben
"We need do not have any chance to determine topics for professional practice improvement or help each other plan for instruction for professional improvement." Wambach
"Part of what we need is to have travel money to work together and plan more effectively, without money for travel we cannot start planning in an organized way that incorporates the ideas of all of the people." Torres
"The ministry (Federal Ministry of Agriculture and Rural Development) wants to build capacity of agriculture as an area of business, this must be led first by working with instructors to ensure what is taught is important and that the students make high achievements." Drogba

Subsumed under the core category was the sub-category of lateral cooperation for collaboration. Table 2 illustrates quotes from participants that typified the sub-category of lateral cooperation. The participants revealed the instruction and professional development for instructors has a top down arrangement. Such an arrangement does not provide places or spaces for lateral contributions of stakeholders. In addition, the hierarchical arrangement limits participatory actions and stifles creativity in both designing professional development and ensuring that it is well presented. The data reveal that a model of professional development should create opportunities for lateral contributions to professional development and limit the effect that hierarchical structures play determining professional development outcomes. This idea was particularly expressed by the female participants who revealed a complete lack of lateral shared power experiences with respect to creating and enacting professional development.

Table 2

Example Quotes that Typified the Sub-Category of Lateral Cooperation for Collaboration

"We (women) do not have ways to have an impact on it (professional development), the higher ups make all the decisions … and there are not many women in (AET) technical subjects." Wambach
"If only the same few people make decisions and decide what is important nothing new will come about … also they choose the same people to present topics … to be better we need change that is led by the instructors" Lingor

Another sub-category subsumed underneath the core category of cooperative collaboration was entitled sustained cooperation for collaboration. Table 3 shows participant quotes that typified the sub-category of sustained cooperation for collaboration. Participants voiced that sustaining cooperation over time is very difficult and often opportunities to engage in professional development are not consistently offered and have no follow-up. As part of the dialogue participants were keen to establish sustained opportunities that were organized and operationalized at consistent times. Participants also sought to utilize technology in order to maintain connections between individuals and use a method of keeping track of opportunities at different levels of scale (institution; state; nation).

Table 3

Example Quotes that Typified the Sub-Category of Sustained Cooperation for Collaboration

"After an institute there is nothing else and no one is aware of what happens … cooperation needs to be built and then people in leadership need to help sustain the peoples' cooperation" Ronaldo
"Travel is very difficult and is expensive for projects and institutions.…It should be considered to have regularly scheduled institutes and use centers; maybe to partner with ITF (Industrial Training Fund)" Torres
"Using technology to maintain contact and learn more about results is critical" Drogba

The sub-category of reciprocal cooperation for collaboration was also included in the findings from the data. Table 4 illustrates participant quotes that typified the sub-category of reciprocal cooperation for collaboration. The participants indicated that there are times people take advantage of opportunities for personal gain, but they would not carry-out the necessary exercises or activities to truly benefit from the experiences. Participants also revealed that many times people in charge of planning or carrying out professional development would not contribute effort and this would cause the event or opportunities to fall apart. The participants voiced that methods for

incentivizing reciprocal participation would be an important component of ongoing professional development that had an impact on the practice of AET faculty at the postsecondary level.

Within the scope of the study there were no significant deviations from the main themes which emerged from the data. However, two of the female participants talked about aspects of their personal lives which were described, by the participants, as being separate from the realm of their professional development. Essentially, the scope of the deviations centered on work life balance challenges. While these findings did not fit well within the overall data and represented outlier information, the content of the outlier data may prove to be important for some readers.

Table 4

Example Quotes that Typified the Sub-Category of Reciprocal Cooperation for Collaboration

"We rely on professional dispositions and that is not always reliable … putting rewards in place for actions would lead to greater impacts" Robben
"People doing work for institutes should receive credit … leaders that are only in name have a way of making things fall apart" Wambach

Conclusions

The purpose of this study was to generate a grounded theory which can serve as a conceptual model for designing postsecondary AET instructor professional development in Nigeria. AET has potential to create living wage and improved food security opportunities for people across Nigeria and it can also be a powerful tool for national level sustainable economic growth. However, improvements within the Nigerian AET system must be made. Improvements in pedagogy and updated curriculum through postsecondary AET instructor professional development could have a large impact on the development of agricultural employment and entrepreneurial opportunities across Nigeria. However, because of a variety of constraints work must be undertaken to improve postsecondary AET instructor professional development.

Perhaps it would be helpful here to synthesize the descriptions of the categories identified through the research process and depicted in Figure 3: lateral cooperation for collaboration; reciprocal cooperation for collaboration; and sustained cooperation for collaboration. In a lateral context ownership and control are shared across a greater number of people. Sharing ownership and control raises the sense of buy in from stakeholders and enhances the overall meaning of their experiences (Johnson & Johnson, 2009). Those effects in turn are likely to increase feelings of growth and development on the part of the active stakeholders (DeJaeghere & Baxter, 2013; Deutsch, 1949). Further the coordination of efforts is likely to raise the diversity of ideas and novel strategies for addressing challenges. It follows then that ownership and increased feelings of growth and development fostered by lateral interactions will likely lead to more sustained cooperation for collaboration. And sustaining cooperation for collaboration is part of a process of identifying and focusing

on shared goals with respect to skills, experiences, and connections (Nwankwo, Olukotu, & Abah, 2013).

Within the sustainment of cooperation for collaboration peers serve as guides for goal attainment and data is created and utilized continuously to support individuals and teams in making progress down specified pathways. Data will create more opportunities for transparency which will reduce conflicts of interest highlighted in the category of reciprocal cooperation for collaboration. Further increased data collection and sharing across a lateral context will support higher levels of positive interdependence and will incentivize mutual helping behaviors (Johnson & Johnson, 2009) thereby supporting further reciprocal cooperation for collaboration.

Recommendations

Based on the findings this study there are four central recommendations for practice. It is recommended that ideas for the content and delivery of professional development should emerge from the ranks of the participants in ways that eliminate a top down expression of preconceived concepts. This idea is echoed by Olugenga (2004), who found the input of effective and experienced faculty was critical to the creation of novel opportunities which were beneficial to the vocational development of students. As much as possible beliefs about what is needed should be suspended until faculty participants have explored possibilities cooperatively with potential external partners. Creating information about professional development needs arising from the ranks of participants could take several forms. One method could include the use of instructor, ministry, and employer focus groups to determine areas of competency that are most in need of improvement. Another method would be to utilize peer instructor observations so that it is possible to quickly employ instructors utilizing high quality content and instruction as exemplars. Utilizing peer observations as models for driving change is supported within the literature and could be also be a way to foster peer collaboration (Johnson & Ridley, 2004). Observations and reflections about those observations would help AET postsecondary instructors to quickly adapt their own content and methods using what they learned vicariously.

The second recommendation for practice is that designs for AET instructor professional development should consist of sustained efforts that: (a) have short and long term goals; and (b) should leverage technology to maximize the impact of the experiences and help instructors to become more familiar with useful emerging technologies. This recommendation is supported by Okoedo-Okojie and Edobor (2013), who found sustained seminar opportunities should be organized for AET technical instructors. Further, it is likely seminars would be particularly useful for promoting professional development centering on content and technologies which AET instructors do not perceive can have an influence on their interactions with students, producers, or processors (Okoedo-Okojie & Edobor, 2013).

Sustaining professional development efforts may take the form of cohorts or teams that work together over an extended period of time to develop content and improve their teaching methods (Richter, Kunter, Klusmann, Ludkte, & Baumert, 2010). Such cohorts could also be sources of collaboration and if members are located at dispersed institutions social media or other communication technology could be incorporated as a tool. In a way this echoes the recommendation of Oladele (2008), who indicated repeated contacts within the AET system would be helpful for increasing the adoption of best practices and as a

mechanism for strengthening professional networks through consistent communication.

The third recommendation for practice is that opportunities to incentivize cooperative collaboration should be designed within postsecondary AET instructor professional development plans and activities. Further, one of the focus points of the incentive should be to support sustained commitment. One method of infusing incentives may be to create opportunities for professional development cohorts to lead AET professional development institutes and allow cohort members to utilize and keep selected planning and instructional resources. Under this scenario cohort planners may be able to keep some of the text resources, software, or iPads that were purchased to plan or operationalize the professional development experiences.

The fourth recommendation for practice is that professional development for postsecondary AET instructors in Nigeria should empower instructors to create lateral structures for designing, implementing, and assessing professional development as egalitarian opportunities for all stakeholders, particularly women. Again the cohort model of professional development would be well suited to address this recommendation. Instructor professional development cohorts tend to build lateral connections and a more level playing field for the participants (Richter et al., 2010). One way to actuate the empowerment of women to guide professional development for postsecondary AET instructors in Nigeria would be to create female cohorts. In addition to designing and implementing professional develop to address the needs of women, the method would put participants in close connection with valuable colleagues that could support them in many ways (Groves & Hinton, 2013).

Building opportunities for women may be considered even more critical when one recognizes that the total number of applied agricultural scientists being trained is insufficient to support the needs of AET systems in developing countries across the world (Mohamedbhai, 2012; Okoedo-Okojie & Edobor, 2013; Olugenga, 2004; Urama, Chika, Ozor, Kane, & Hassan, 2010; Vergot & Momol, 2007). Creating more opportunities around advancing the instructional capacity of female AET instructors may have value added benefits related to educating and training more women to become applied scientists (Ayonmike, Okwelle, & Okeke, 2013). In addition, creating more stable lateral structures for professional development of female AET instructors may indirectly support the improvement of applied science applications which directly impact agricultural systems in developing countries. At the very least, targeting the improvement of professional development opportunities for female instructors within AET systems is likely to create a more equitable system for all people. It is recommended that projects and research explore the implementation of a female cohort model for AET instructor professional development and more work be carried out to explore how women in the AET sector deal with the interface between professional and personal lives.

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Envisioning the Future of Extension and Advisory Services in the Caribbean

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Abstract

Recent efforts have begun to renew collaborative relationships between actors leading extension systems throughout the Caribbean Community. Successful collaborations are built upon a shared vision. This study was conducted to determine the degree to which a shared future vision for extension and advisory services (EAS) existed within CARICOM countries. A qualitative approach was used to investigate the perceptions of EAS directors from nine CARICOM countries. Similar concerns about the future relevance of EAS were expressed. More diversity existed when considering primary stakeholders and delivery methods. The formal adoption of a shared vision for the region and creation of supportive policies are recommended.

Keywords: Vision, CARICOM, Extension, Caribbean, Relevance

Introduction

The countries washed by the waters of the Caribbean Sea vary widely in size, topography, ethnicity, language, agriculture production systems, primary sources of income, income levels, and styles of governance. Yet these countries are linked through the Caribbean Community (CARICOM), an organization of 15 member nations and five associate members (Caribbean Community Secretariat, 2011). Geographically, CARICOM starts with Jamaica in the northern Caribbean to Trinidad and Tobago in the southern Caribbean, but also includes Belize in Central America and Guyana and Suriname in South America.

In most CARICOM countries, the extension service is administered by the public sector (Global Forum for Rural Advisory Services (GFRAS), 2011), such as the Ministry of Agriculture or a similar Ministry. It is usually national in scope, covers most agricultural commodities, and, in some instances, forestry and fisheries. Jamaica has an alternative national system known as the Rural Agricultural Development Authority (RADA) which is a semi-autonomous statutory authority of the government (GFRAS, 2011). Apart from the Ministries of Agriculture, commodity extension services are also provided in some countries such as for banana in St. Lucia and rice in Guyana. Limited services are provided by the Caribbean Agricultural Research and Development Institute, some larger input suppliers, non-governmental organizations, and farmers' associations.

Extension in the region is based on the British model, a lasting effect from the colonial era. A review of Caribbean extension systems found technology transfer is still the dominant approach (Ganpat & De Freitas, 2010). The elaborate extension system left by the British has weakened overtime. Issues such as "inadequate budgetary support, weak policy framework, low staff morale, high farmer to officer ratio, inadequate research support, inadequate extension education at the tertiary level, competition from other information providers, low perception of extension held by decision-makers and political interference" (GFRAS, 2013, p. ii) have contributed to the erosion of extension service quality.

The continued predominance of budget-constrained extension services administered by the public sector has been a continuing cause of concern. In 1999, Campbell noted increased pressure for public sector extension to demonstrate impacts to justify the level of investment by governments and funding agencies. The pressure was even more intense in countries with pluralistic systems, because "private sector extension was delivering greater benefits to improve both quality and standard of living" (Campbell, 1999, p. 55).

Swanson and Davis (2014) observed similar weaknesses within public sector extension and noted:

> Public extension systems in the Caribbean nations have yet to pursue the range of different extension models as seen elsewhere globally. Institutional reforms are lacking, such as enhanced client orientation and participation; decentralization of service delivery; outsourcing of service delivery; and co-financing of services by direct beneficiaries. There are, nonetheless, hints of reform and development in a few of the Caribbean countries (p. 8).

Since 1962, one influential body in advancing extension in the region has been The University of the West Indies (UWI) through its Faculty of Agriculture at St. Augustine, Trinidad. The UWI Faculty

provided joint leadership with the now-defunct Midwest Universities Consortium for International Activities (MUCIA) in the last serious attempt to modernize extension, the Caribbean Agricultural Extension Project (CAEP) in the mid 1980's (Ganpat, 2013; Seepersad, 1994). The CAEP was funded by the United States Agency for International Development to increase the effectiveness of national public sector and commodity extension systems in bringing about farmer adoption of improved agricultural practices and to improve the long term effectiveness of regional institutions to backstop and support national extension services.

As part of the CAEP, the Diploma in Extension was introduced at UWI (Ganpat, 2013). This Diploma program was a one year full-time professional study program developed in response to a concern by regional governments that extension officers lacked formal extension training. Students came from several Caribbean countries, including those not in CAEP. Low participation led to the demise of the program shortly after funding was exhausted.

Nearly thirty years have passed since the collapse of CAEP with little to no regional coordination of extension. However, political attention is again turning to public extension. Policy makers are scrutinizing the extension services and demanding extension in the region be modernized to adequately support regional food security goals. Because of this concern and strident calls by policy makers for a modernized extension service in the region (e.g., Jagdeo initiative), a meeting of regional extension directors was convened in Trinidad in February 2013 by the UWI Faculty of Agriculture with financial support from the Global Forum for Rural Advisory Services. The main purpose of this meeting was to set in place mechanisms for the effective coordination and delivery of extension and advisory services (EAS) across the region for the next decade, as well as to discuss ways to provide mutual support, strengthen linkages, and access training opportunities. This study is an outgrowth of that initial meeting. The study was conducted to facilitate the conversation about the future of Caribbean EAS and will be used to guide renewed collaborative organizational efforts.

Theoretical Framework and Review of Literature

This study used Kouzes and Posner's (2007) Exemplary Leadership model as a theoretical framework. Among the model's principles, organizational leaders are encouraged to focus on creating "a shared vision" (Kouzes & Posner, 2007, p. 99) to prioritize needs and determine future direction and foci. The importance of collaborative organizational vision-setting is nearly ubiquitous among leadership theories (e.g. Kantabutra, 2009; McLean, 2006).

Creating organizational visions requires two commitments of leadership: envisioning the future and enlisting others (Kouzes & Posner, 2007). The future orientation of an organizational vision sets it apart from organizational missions that describe present purposes and operations (Kantabutra, 2009; Thompson, Peteraf, Gamble, & Strickland, 2013). Visions should "communicate what an organization wants to look like in the future" (McLean, 2006, p. 436) and present "the big picture of what you want to achieve" (Hofstrand, 2009, p. 1).

The second major component of modern leadership theories (e.g. Kantabutra, 2009; Kouzes & Posner, 2009; McLean, 2006) is the importance of collaboration that incorporates the perspectives of multiple stakeholders within an organization or discipline. Kouzes and Posner (2009)

asserted “the only visions that take hold are shared ones” (p. 21). Collaborative vision-setting also requires communication and mutual respect (Keeling, 2013). Shared vision-setting processes “foster collaboration and team spirit” (Sidhu, 2009, p. 439) within an organization or system. These factors contribute to improved motivation (Baetz & Bart, 1996; Kouzes & Posner, 2009; McNamara, 2013) and performance (Sidhu, 2003) within organizations.

Agricultural extension systems commonly use collaborative decision-making exercises and vision-setting as a precursor to more detailed strategic planning. In the Cooperative Extension Service of the United States, vision statements are often the foundation of state- or county-level strategic plans (e.g. North Carolina State University, 2013; University of Kentucky, 2013). In Texas, Boleman and Cummings (2005) found collaborative planning that included diverse perspectives increased the applicability of programming and operations and led to future successes in delivering extension services.

Collaborative vision-setting is also a key element of international extension systems and planning, where it is less commonly conducted but equally important. In a study on Ghanaian agricultural education and extension, Zinnah, Steele, Carson, and Annor-Frempong (2005) found visions developed without adequate input from stakeholders were misunderstood by constituents. The result was implementation of programming that did not adhere to the goals of the organization. Conversely, Duvel (2004) found hosting a national workshop in South Africa with representatives from national and state governments, non-governmental organizations, and stakeholders from the agricultural sector to create broader visions and guiding principles resulted in guiding principles that were better suited for a range of diverse local conditions and were more easily incorporated into extension programming. Duvel recommended a similar strategy to regional or national governments forming large-scale extension policies.

Purpose & Objectives

The ability of the participating extension directors to establish a shared organizational vision is strongly related to the degree to which renewed efforts to collaborate and modernize extension within the Caribbean will be successful (Kouzes & Posner, 1997). The purpose of the study was to understand how CARICOM extension directors envision the future. Specifically, the objectives were to describe future views of Caribbean extension and advisory services (EAS) in 2020 by each respondent, and to compare and contrast the future views among respondents.

Methods

A basic qualitative design (Merriam, 1998) was used to achieve the study objectives. Basic designs are used to “discover and understand a phenomenon, a process, or the perspective and worldviews of the people involved” (Merriam, 1998, p. 11). A basic design was appropriate for the purpose of understanding how CARICOM extension directors envision the future.

According to Lincoln and Guba (1985), “naturalistic inquiry relies upon *purposeful* [*sic*] rather than representative sampling” (p. 102). A combination of maximum variation and convenience sampling (Patton, 1980) was used. The attendees at the Regional Extension Directors’ meeting held in Trinidad during the period February 28 – March 1, 2013 were recruited to participate in the study. The attendees at that meeting agreed to support the study. Although this method of recruitment was convenient, it also fulfilled

the intent of maximum variation sampling, as the attendees represented unique countries whose local conditions may have influenced their visions for the future of EAS.

A researcher-developed survey instrument, adapted from prior visioning research conducted by Harder, Place, and Scheer (2011) with extension professionals in the U.S., was used to elicit responses from participants. Participants received an explanation of the purpose of the study, a brief explanation of the methodological process, and a description of how their responses would be used. Then, the participants were given five open-ended questions that asked them to describe (a) what Caribbean EAS should be doing in 2020, (b) for whom Caribbean EAS should be doing those things, (c) why those things are important, (d) what success will look like if Caribbean EAS is operating with excellence in 2020, and (e) what values will guide the work of Caribbean EAS? The questions were grounded in McLean's (2006) conjecture that a vision should specify what the organization will do or be, for whom it will do those things, and what values will guide the work.

Data collection occurred via e-mail from July to December in 2013. One of the researchers, who had an established relationship with the population, e-mailed the survey instrument to the potential participants. Twelve directors were initially contacted. They had previously committed at the regional meeting to assist with the survey. A two week period was given to respond. This deadline was not kept by most participants and the researcher sent multiple reminders.

Responses were received from directors in ten CARICOM countries (Antigua, Barbados, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad). While Trinidad and Tobago are one country, the islands have separate extension systems and only Trinidad's system was represented in this study. One additional country was excluded from analysis because the participant based his/her responses on a vision for a regional extension board rather than a vision for locally delivered EAS.

Data were analyzed following the procedures of a template analysis (King, 2012). A template analysis is commonly used for textual data, including interview transcripts, diary entries, and open-ended responses for written questions, as were used in this study. In template analysis, an initial coding template is developed by the researcher to organize themes from the data "in a meaningful and useful manner" (King, 2007, para. 1). Hierarchical coding provides a framework for organization such that broad themes are eventually subdivided into narrower concepts. *A priori* themes may be used on the initial template; in this study, the *a priori* themes aligned with the five stem questions. The initial template was further developed after analyzing four of the participants' responses using line-by-line coding. Per King (2007), the initial coding template was then used to guide the coding of the entire data set with appropriate modifications occurring as new themes emerged that were not captured in the initial template. The themes that emerged from the line-by-line coding of individual responses were used to address the first objective, which was to describe each respondent's future views of Caribbean EAS in 2020 by each respondent. The final template that resulted from analyzing the collective group of responses provided the basis for addressing the second objective, which was to compare and contrast the future views among respondents.

Qualitative research carries with it the potential for researcher bias. Two of the

researchers for this study are faculty members teaching extension education at large universities. They have a combined 40 years of experience working directly for government-led extension in their home countries. The third researcher was a doctoral candidate in extension at the time of the study. One of the researchers is from the Caribbean; the other two researchers are from the United States. All researchers share a common interest in developing the capacity of extension systems.

Several methodological decisions were made to limit the potential for bias. First, the researcher who collected the data, and is well acquainted professionally with the participants, did not participate in the initial analysis of the data. Although this researcher's prolonged engagement with extension in the Caribbean helped establish the credibility of the study in that respondents were more likely to trust him (Lincoln & Guba, 1985), there existed a danger of introducing the bias associated with going native in the analysis of data. Therefore, the second researcher independently analyzed the participant responses, which were stripped of any identifying information.

Some researchers (e.g., Mays & Pope, 1995) hold the view that inter-rater reliability is an important technique for qualitative research. However, other qualitative methodologists argue inter-rater reliability "does not serve our understanding of being credible in naturalist research" (Anzul, Ely, Freidman, Garner, & McCormack-Steinmetz, 2003, p. 164). In 1997, the former editor of *Qualitative Health Research*, Morse, argued:

> [A] comprehensive understanding of data bits cannot be acquired in a few objective definitions of each category. Moreover, it cannot be conveyed quickly and in a few definitions to a new member of the research team who has been elected for the purpose of determining a percentage agreement score. This new coder does not have the same knowledge base as the researcher … and therefore does not have the same potential for insight or depth of knowledge required to code meaningfully (p. 446).

Barbour (2001) contended "The greatest potential of multiple coding lies in its capacity to furnish alternative interpretations and thereby to act as the 'devil's advocate'" (Multiple coding, para. 3). Such a process does not require multiple coders or the calculation of inter-rater reliability. Anzul et al. (2003) instead "endorse the idea of checking and honing our findings with a support group" (p. 164). Consistent with Anzul et al., an internal debriefing was conducted with the research team following the initial analysis to discuss the findings and develop the final interpretation of the data.

The researchers sought to establish trustworthiness using techniques recommended by Lincoln and Guba (1985). An audit trail consisting of the raw data, data analysis templates, memos, and drafts of the findings was kept. Regular communication regarding the study took place between the researchers, including a face-to-face meeting to discuss the initial data analysis. The team approach to this study was itself a technique to help establish trustworthiness as the use of multiple investigators is a form of triangulation (Lincoln & Guba, 1985). Additionally, two professionals, who were uninvolved in the research, were included in the process as peer debriefers. Finally, a member check was conducted via e-mail to allow respondents to verify the accuracy and interpretation of the findings.

Findings

The Future of Caribbean EAS, According to Respondent

The findings for the first objective are presented by respondent to capture the uniqueness of each respondent's perspective on the future of EAS in the Caribbean. Further, the findings have been written to represent the synthesized results of the line-by-line coding of each respondent's answers to the five open-ended questions, with illustrative quotes interwoven. Respondents provided different levels of depth to the prompts provided on the survey instrument; accordingly, there is considerable variance in summary depths for their responses.

Respondent 1 (R1).

A changing agricultural context in the Caribbean has created the need for farmers/producers to view themselves as small business owners as a pathway to financial security and improved quality of life. R1 stated "Farmers or rural producers are operating in a different environment from when the extension function was first concretised [*sic*]." Environmental changes included "greater and wider ranging competition;" increasingly complex production, marketing, and promotion systems; and longer and wider value chains with "more actors and types of actors." EAS must be prepared to provide "services within the framework of farming as an entrepreneurial activity, income stream and livelihood option" so that clientele "can in fact graduate from being a primary extension beneficiary or target."

Additionally, R1 observed "The entry age and the educational background of farmers/producer [*sic*] has changed significantly" with younger, more educated individuals entering farming in comparison to historical trends. The new generation of farmers/producers is prepared to access technology to find answers to their questions so "the role of extension as the provider of *fertiliser or dewormer information* [*sic*] is not as critical as previously." Instead, EAS will provide value-added services – beyond the farm gate – such as assistance with social media usage and debating the merits of using loans for business expansion. Such services will require EAS officers to blend traditional roles with contemporary ones so they are able to "be technological change agents, non-formal educators, motivators, animators, and empowers (*sic*)."

EAS' future relevance and productivity is dependent upon its officers being "able to respond to the changing environment of the farmer/producer and facilitate their decisions" in all aspects of farming, not only production. Although technology transfer will remain a priority, the technologies will be entrepreneurial in nature, "i.e., production tech, promotion tech, marketing tech, networking tech, delivery tech, credit tech, savings tech, etc." This will require an EAS workforce capable of acting as small business advisors.

Respondent 2 (R2).

EAS' role will be to work with multiple actors within the agricultural value chain. These actors include "producers, processors, traders, credit institutions, agricultural service providers, consumers" and more, within an agricultural realm. Such work will occur systematically through the development of innovative, "high impact programs" using "multidisciplinary teams" to provide "individuals with problem solving information which will result in the ultimate development of the user of the service." Such capacity development will occur through "technology transfer, advisory work and human resource development."

Outcomes of high impact EAS programs will result in increased production and human capacity, improved quality of

life, "increased incomes for farmers and all other stakeholders," improved country and regional economic self-sufficiency through increased consumption of domestic commodities, and increased export. Conversely, successful EAS work will lead to "reduced imports of selected agricultural commodities to the region." Ultimately, if EAS is operating with excellence in 2020, there will be "achievement of food security in the Caribbean."

Respondent 3 (R3).

To be a valued and relevant organization in a changing environment, EAS' role should be to promote improved livelihoods and increased food security. Historically, "Good extension organizations in the Caribbean have contributed immensely to the development of rural communities." Moving forward, EAS must concentrate on contemporary challenges to achieve success.

EAS will work "to improve livelihoods in rural communities" while acknowledging "the importance of the human being, particularly those who are disadvantaged." This pro-poor philosophy will be realized by "training, coaching and educating" rural people/communities to lead to improvements in knowledge, skills, and attitudes. More specifically, sustainable agriculture will be promoted "to ensure a level of food and nutrition security within rural communities." Supportive policies will reflect and support this role for EAS.

Respondent 4 (R4).

Present methods of EAS are inadequate: "The contact farmer method of training farmers is not producing the desired results." Although still strongly committed to efficiently serving farmers, future work must move away from a historical top-down, contact farmer approach to "a more participatory approach" for training farmers, who are the primary clientele for EAS. Done successfully, EAS will create "improvement in the overall livelihoods of farmers."

Respondent 5 (R5).

EAS' role will be to enhance food security in the Caribbean region; these services "are critical to the development of the Caribbean." Linkages between multiple actors in the agricultural value chain, including researchers, farmers' groups, and credit lenders will be facilitated by EAS. EAS will continue to provide advisory services and training to farmers to increase productivity. Together, EAS' efforts will contribute to a "Productive Caribbean Agricultural sector."

Respondent 6 (R6).

EAS will be a knowledge broker in a complex, interrelated public sector that includes "allied service providers (e.g. planning, water & the environment, funding agencies, finance, research, education, social services, regulation, trade/commerce)." It will serve the Caribbean by promoting innovative, sustainable agricultural solutions to better position farmers within the value chain, thereby enhancing their livelihoods. According to R6, "A value chain approach is necessary for optimal returns from the sector" while a focus on sustainable agriculture is necessary due the sector's "significant negative impact on the environment and therefore its vital natural resources."

EAS will be committed to making measurable progress towards attaining food security for the Caribbean, cooperating with "individual governments and related stakeholder entities," and reducing praedial larceny. To accomplish these outcomes, EAS will facilitate "timely access to requisite information on the appropriate technologies, practices, inputs and associated impact therefrom." Success will

be dependent upon "adequate inputs from other sectors."

Respondent 7 (R7).

Technology has changed the environment in which EAS operates. The "developments in communication methodologies dictate that there be improvements in the way service providers interact with clientele." Embracing technology will be part of EAS' evolution into "knowledge brokers for clientele." Clientele include schools, producer cooperatives, interest groups (e.g. diabetic and hypertensive groups), marketing entities, and input suppliers. EAS will seek to increase "productivity of clientele and their agri businesses" by providing timely access to needed information, and in so doing, will increase demand for its services and will "have won the confidence of clientele for being reliable and relevant." Collaborations inside and external to the region and a commitment to "becoming 'learning organizations'" will drive EAS as it strives to determine "best practices in terms of service delivery and technical advisories."

Respondent 8 (R8).

EAS will continue its long tradition of "advising" and "demonstrating" new techniques to its clientele, farmers. A value of "honesty" will guide its work. Looking forward, EAS will "continue to improve the livelihood of farmers."

Respondent 9 (R9).

EAS' role will combine the best of its historical roots with innovative new approaches to empower clientele to improve their livelihoods. EAS will continue as "an information resource provider" but will also serve as "Networking facilitator to clients, promoting functional value chains among farmer cooperatives and companies." Advice will continue to focus on agricultural development while expanding an emphasis on marketing opportunities. "Personal interaction with all stakeholders" will continue to be emphasized. Stakeholders will include "all persons along the value chain" as well as "youth to harness their potential to contribute to the [agricultural] sector."

The Internet will be an important tool for communicating with all actors in the value chain, enabling EAS to reach additional clients "and not only in the country in which extension operates." Expanding linkages with clientele as well as with other non-governmental extension service providers will strengthen EAS' ability to "be at the forefront of information providers and collaborators" in an open market. Although "much more than excellent extension is required" to achieve a "well functioning agricultural sector," successful EAS will be characterized by "clients who are empowered to have successful operations."

Similarities and Differences among Future Views of Caribbean EAS

Respondents' responses reflected three broad themes as they considered the future of Caribbean EAS in 2020: delivery models, stakeholders, and relevance. Within each primary theme are contained secondary and tertiary themes, all derived from the participants' responses and the analysis of their responses.

Delivery models.

Respondents described different models of EAS delivery that will be used in 2020. Some respondents favored a more traditional approach to EAS, focused on the continuation of the technology transfer model (R1, R2, R7, R8) and its top-down (R5) approach. The traditional models discussed align with a belief that the role of

EAS should be to train (R3, R4, R5) clientele. However, respondents also suggested more innovative models of EAS that align with a desire to empower (R1, R2, R3) clientele. EAS will serve as a facilitator (R1, R5, R6, R9) or knowledge broker (R7, R9), follow a participatory (R4) model, and/or actively influence policy (R3). A blend of approaches was advocated to achieve the common goals of improving livelihoods (R1, R2, R4, R6, R8, R9) and increasing food security (R2, R3, R5, R6).

Stakeholders.

Respondents explicitly identified farmers (R4, R5, R6, R8) as a primary audience for EAS; sometimes they identified farmers as the only audience (R4, R8). Similarly, producers (R2, R7, R9) were explicitly identified as target audiences. Only one respondent (R1) named both producers and farmers. A philosophical divide was observed between the respondent who advocated a pro-poor (R3) orientation to selecting target audiences, while another specifically stated EAS should work with all income levels (R1). Value chain actors (R1, R2, R6, R7, R9), agricultural organizations (R5, R7), and youth/schools (R7, R9) were also mentioned by respondents as target audiences in 2020. A few respondents indicated less traditional audiences, such as allied service providers (planning commissions, funding agencies, finance, social services, regulation, trade/commerce) (R6), Ministries of Agriculture (R5), consumers (R2), and banks/credit institutions (R1, R2), would become clientele for EAS moving forward. Respondents who suggested these types of clientele were more likely than their peers to envision EAS playing an important role in developing capacity within the agricultural value chain.

Relevance.

The concept of relevance was discussed by many respondents as they sought to frame their thoughts on the future of EAS; statements about relevance often served as qualifiers for descriptions of what future success would look like. Concerns about declining relevance (R1) and uncertainty about future relevance (R1, R3, R7) contrasted with expressions of an overt desire for increased relevance (R3). Influences on relevance were perceived to be a changing environment (R1, R3) in terms of socio-economics (R3) and technology (R1, R7). Inadequate delivery methods (R1) were noted and the increased use of technology (R7, R9) was mentioned as a solution for improving relevance. Evidence of relevance in 2020 was thought to include clear demand for services (R7) and a willingness of clientele to pay fees for service (R7).

Conclusion, Recommendations, and Implications

The findings of this study showed that while extension directors have been working with limited interactions with each other, they have some commonalities in their vision, desires, and expectations for effective EAS in the region.

The three major themes distilled from the responses by directors need special attention if EAS is to be strengthened in the region. The issue of relevance has to be addressed as top priority. GFRAS (2013) noted low perceptions of extension held by governments; the repeated emphasis by the directors for EAS to be viewed as relevant suggests they are aware of this issue. Their concern is justified, given Campbell's (1999) observations of the increasing pressure for public sector extension to prove its worth.

A perceived lack of organizational relevance can lead to undesirable carryover effects on personnel. Staff who feel

irrelevant to national agricultural development may become de-motivated, further weakening what level of service is being provided. Regional and national plans need to clearly define the role and value of EAS in agricultural development. Revisions to government policies may also contribute to the development of a shared EAS vision across CARICOM by addressing the appropriate/preferred scope of programs, use of varied extension approaches (e.g. technology transfer vs. participatory), and identification of target clientele.

In some of the countries surveyed, the vision of the modern clientele base has expanded beyond traditional farmers and producers to include other actors in the value chain like marketers and processors. Moreover, some directors noted the need to work with allied service providers. These findings support Swanson and Davis' (2014) observation that some Caribbean EAS systems are more progressive than others. Agricultural development may by stymied if all the actors in the value chain are not given the required attention; however such a pursuit will require financial and human resources that may exceed the projected capacity of a single country system. Continuing to work independently is likely to limit the potential of Caribbean EAS systems to be impactful.

In this regard, the Caribbean Agricultural Extension Providers Network (CAEPNet), a newly formed grouping of extension directors and professionals, has a role to play to champion the placement of EAS on the policy-making agenda of governments across the region. The annual meeting of Agriculture Ministers presents an opportunity for EAS advocates to make an argument for its relevance. Extension directors and their officers need formal assurance that they have the support of government and recognition that their work contributes meaningfully to meeting food security and economic livelihood goals.

With regard to delivery methods to be pursued, some indication of the preferred method could be suggested in a regional policy statement. Consistent with Ganpat and De Freitas (2010), the findings indicated some directors prefer the traditional top-down, technology-transfer approach. Others directors are willing to embrace more participatory approaches focused on farmer empowerment and learning. This situation highlights the opportunity for extension research in this area to determine which approach or mix of approaches may be most appropriate.

Research is needed to identify best practices suitable for countries or groups of countries in the region. Collaboration with extension departments in other universities which have strong extension research capabilities, and are familiar with Caribbean systems, will add to the capacity of Caribbean academic institutions such as the UWI to conduct the needed research. Action areas for extension research should be identified for the region and external funding pursued to address the resource limitations of most regional governments.

This study provides a foundation for the development of a shared vision (Kouzes & Posner, 2007) for EAS in the Caribbean. Effective leadership requires partnership with other extension stakeholders and the inclusion of multiple perspectives to generate shared objectives and direction for the Caribbean region (Kouzes & Posner, 2007). Working together, a renewed Caribbean coalition such as the CAEPNet can generate the motivation and support needed to ensure EAS achieves its shared vision of future success.

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Farmers' Satisfaction with Extension Services in the Organization of Eastern Caribbean States

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Abstract

The economies of most countries in the Organization of Eastern Caribbean States (OECS) are dependent on farming, most of which is done mainly by small farmers in mixed cropping systems. The government is also the main provider of extension services. This study sought to assess farmers' satisfaction with the extensions services and identify areas for improvement. Some 462 farmers in five OECS countries were selected and surveyed in 2013. A farmers' satisfaction index was developed based on 26 statements in a Likert-type scale, and used as the dependent variable. Data were analyzed using STATA 9 and descriptive frequencies and multiple linear regression results were presented. Results showed that farmers' overall satisfaction with extension was moderate. Farmers' age, gender, education level, size of farm, number of parcels farmed, number of extension visits received, and whether farmers operated on a full time or part time basis significantly influenced farmers' level of satisfaction. Recommendations included: the redefinition of target farmers, as well as the scope of extension programs for intervention to meet these states' food security goals; the improvement of the technical capacities of extension officers; the expansion of group development work; and the increased use of ICTs for information dissemination and the provision of ICT hardware for extension staff.

Keywords*:* Satisfaction, Extension, Small Farmers, Caribbean

Introduction

Most countries across the English speaking Caribbean depend on agriculture to generate much needed foreign exchange, to provide a base for employment for citizens and to provide key food commodities for local consumption. Despite this reality, the importance of agriculture as a major economic sector has declined within the Caribbean over the last two decades (Ganpat, 2010). Governments, through the various Ministries of Agriculture, administer extension services to the farming communities. The scope of these services varies among countries. The organization of extension, its structure, and method of operation are based on the English model since most countries were once colonies of the British Empire. The main difference however, is that in addition to the provision of education services to farmers, agents of extension are also required to attend to a range of other non-agriculture related issues.

In spite of their financial constraints, governments are well aware of their responsibilities to pay attention to the needs of farmers and have been promoting diversification of the sector (Barker, 2009). If farming communities are satisfied with the efforts of the government, the economy will prosper and therefore, the entire OECS benefits. However, if farmers are not satisfied, the authorities need to determine the extent of farmers' dissatisfaction, and more importantly, the issues that give rise to such dissatisfaction. This should be the basis for any intervention. Indeed, at the regional level, the Caribbean Community of nations (CARICOM) has listed the strengthening of Research and Development, which includes extension services, across the Caribbean, as one of the main pillars for economic development (Private Sector Commission, 2004).

The Organization of Eastern Caribbean States (OECS) is a political union of seven full member Caribbean countries including Antigua and Barbuda, St Vincent and the Grenadines, Grenada, Dominica and St Lucia, St Kitts and Nevis and Montserrat. Two associate members are Anguilla and the British Virgin islands. These countries share: (a) a common historical background of plantation agriculture and the subsequent production of a single export crop, namely banana, for the European market, (b) a common currency, and (c) a common judicial system, just to name a few (Smith, 2010). In recent years, due to the decline in the banana market, there has been a shift away from production of such primary products to the production of a wider range of commodities for local consumption to an increasingly more sophisticated and discriminating consumer and for exports to niche markets overseas (Ganpat, 2014). This involves a shift to an expanded small-scale farming community (often less than 1 acre) thus increasing the size of small-farm populations in these countries. As these farmers seek to earn better incomes and improve their living standards, the provision of extension services is critical to them.

The level of training that extension staff in these countries possesses comes to the fore. Most extension staff are required to have at least Diploma-level training in agriculture. However, persons in these countries are required to travel and stay abroad to acquire such training. This is because this level of training is done in countries outside of the OECS (Trinidad, Jamaica and Guyana).The effort is thus expensive and a major obstacle to officers' career advancement, as well as governments' goals. As a result, over the years, as extension staff in these countries exit the system, some of the vacancies are filled with persons from the secondary level education system who may or may not have done agricultural science as a taught subject – an increasing action in recent times.

One consequence of this is that the knowledge and skills required to interact effectively with food producers and empower them with the key knowledge and skills necessary to make wise and appropriate food production decisions are inadequate. Farmers have recognized this and constantly complain about the inadequate service they receive in some areas. There are no extension specialists or extension researchers in OECS countries, and no reports or assessments have been done to investigate the issues related to farmers' satisfaction. For farmers to produce and earn decent livelihoods for themselves and their families, they require an extension service that satisfies their needs in a timely and effective manner.

Therefore, objectives of this study were to: (a) assess the level of satisfaction farmers have with the extension services, (b) describe the main sentiments that contribute to their satisfaction levels, (c) identify the set of demographic factors that are related to farmers' satisfaction levels, and (d) make recommendations for an improved service.

Literature Review

Clientele Satisfaction and Its Importance to Organizations

According to Rope & Pöllänen (as cited in Ihalainen, 2011), when an organization manages to serve its customers well enough and make them happy, they tend to create long-term, customer-satisfied relationships. Satisfied customers have a positive impact on the company's results and to a greater extent their image, as satisfied customers are more willing to tell others about the good service they received. Consequently, companies spend a fair amount of effort assessing their customers' satisfaction. When measuring customer satisfaction, it is important to get useful information from the company's customers, which can be used to improve the company and its services (Wilson & Peterson, 1992). This information allows management to acquire precise ideas of what customers want, which facilitates the development of targeted services. Therefore, measuring customer satisfaction should be a continuous process, and is regularly carried out, as the results will be more beneficial.

This research was done to assess client satisfaction (farmers) within a multidisciplinary organization (extension service) across a wide geographical region. Research goals were focused on capturing a better understanding of the level of service that prevails, as well as the gaps in service delivery.

In order to understand why service gaps exist in a public sector organization, and to identify ways of addressing or eliminating them, it is necessary for such organizations to have clear, meaningful input from their clients. One area that has been gaining significant attention within organizations is understanding client satisfaction. There are many different ways of gathering this information and it is common for organizations to design tools for specific client-input exercises. Many of the tools have been designed to gain information about expectations, experiences, and even needs from the organization.

According to Farris, Bendle, Pfeifer, and Reibstein (2010), client satisfaction is defined in terms of how products and services supplied by a company meet or surpass customer expectation. It is often used interchangeably with the term customer satisfaction, and it provides organizations with quantifiable numbers on customers, "whose reported experience with a firm, its products, or its services exceeds specified satisfaction goals" (Farris et al., 2010, p 154). Often times, businesses will use this information as a metric for measuring and making internal improvements" (Farris et al., 2010).

Client satisfaction is typically based on there being direct service or interaction between the client and the organization or its agents. While this is often the most common form of interaction to measure client satisfaction, the theory of customer satisfaction leadership may be more relevant. This theory posits that the customer does not necessarily have to buy anything or even be directly and personally in contact with the company; the customer needs to just be in contact with the company (Malhotra & Birks, 2007). The extension organization-farmer interaction is applicable to this theory.

One of the most important concepts in customer satisfaction leadership is contact surface. Contact surface (Rope & Pöllänen, as cited in Ihalainen, 2011) is the point of engagement of a certain company to the customer. They further explained that this contact surface includes all the following contacts, with examples from the field of agricultural extension: (a) personnel contacts, e.g. extension contact with farmer; (b) product contacts, e.g. information on technology and inputs; (c) support system contacts, e.g. help to access subsidies, incentives, and (d) ambience contacts, e.g. friendliness of the extension worker and cleanliness of the extension office

Assessing Satisfaction

When examining satisfaction, Rope & Pöllänen (as cited in Ihalainen, 2011) stated that there are two main counterparts: expectations and experiences. Level of expectations creates a basis and comparison base for experiences. As such, expectations are always a good starting point when building action. Four different factors which affect minimum expectations, these are: (a) situational factors, e.g. buying situation and surrounding situation; (b) customer's background factors, e.g. gender, income level, and education; (c) branch factors, e.g. location of office; and (d) company factors, e.g. business idea and marketing. All of these factors influence each other, and ultimately have an impact on how customers view the company (Ihalainen, 2011). In recent times, some agriculture-related service organizations, such as the extension service, have attempted to take a closer view of how their actions, information, and employees ultimately impact their clients, in this case the farmers. As such, similar factors were used in this study to examine the impact on farmers' satisfaction with the extension service.

Extension service providers are charged with the responsibility to ensure farmers are satisfied with the services being delivered. In enhancing farmers' loyalty and confidence, extension feedback is becoming increasingly paramount (Azikiwe et al., 2013). Customers' satisfaction, or as in this study, farmers' satisfaction, remains an essential domain that must be afforded proper attention and action. Based on the number of farmer satisfaction surveys that have been conducted across the globe, it is evident extension service providers have seen this as an important topic that needs attention (Birner et al., 2009; Moore, 1984; World Bank, 2007). Unfortunately in the Caribbean, in particular the OECS, this issue has not been adequately addressed.

One of the most comprehensive studies to be conducted to date by the Food and Agriculture Organization (FAO) managed to capture the satisfaction of farmers in 80 countries. This study assessed satisfaction and impacts on a large-scale emergency intervention on agriculture input distribution projects (FAO, 2008). A report by the Modernizing Extension and Advisory Services (MEAS) explored the significance of gender relations for the design, operation, and monitoring of agricultural extension and advisory services, all in an attempt to improve extension service performance

(MEAS, 2013). Case studies conducted by European, American, African, Asian, and Indian researchers have provided a highly diverse international perspective on extension services and farmers' satisfaction (Claro, Hagelaar, Kemp, & Omta, 2003; Duc, 2008; Hu, Cai, Chen, Cui, & Huang, 2010; Kokate, Kharde, Patil, & Deshmukh, 2009; Misrha & Swanson, 2009; Terry & Israel, 2004). The findings from these case studies demonstrated how factors such as gender, educational level, frequency of extension visits, types of information given, technology usage, relationship with other organizations, and size of land farmed influenced farmers' perceptions of the services rendered to them by the extension organizations. In addition to these factors, other factors such as the commercial orientation of farmers, farm structure, tenure arrangements, access to credit, farming practices, and youth involvement in agriculture are distinct to the Caribbean region and are seen as important factors which may possibly influence farmer-satisfaction.

In this study, an instrument was developed that recognized the cultural context of farmers in the region. It sought to capture the general feelings of farmers who use the extension services. Having a better understanding of these issues will contribute to the optimization of future extension programs and delivery systems.

The objectives of this study were to: (a) assess the level of satisfaction farmers have with the extension services, (b) describe the main sentiments that contribute to their satisfaction levels, (c) identify the set of demographic factors that are related to farmers' satisfaction levels, and (d) make recommendations for an improved service.

Methodology

A total of 467 farmers were randomly selected from lists of farmers practicing in the most populated farming areas in the five largest countries in the OECS. The lists were obtained from extension offices and the surveys were done during the period May-August 2013. The sample included farmers in Antigua (n = 59), Dominica (n = 102), St. Lucia (n = 100), St. Vincent (n = 106), and Grenada (n = 100). Personal interviews were conducted by final year agriculture students living in each of the five countries.

The survey instrument consisted mainly of 26 single-sentiment statements assembled into a Likert-type scale, which sought to assess farmers' satisfaction with extension services. Respondents were asked to indicate their agreement or disagreement to each statement. Responses to each statement were scored as follows: *strongly agree* = 4; *agree* = 3; *disagree* = 2; *strongly disagree* = 1. Cronbach Alpha (α) was used to assess the internal consistency of the scale. The scale appeared to have good internal consistency ($\alpha = .97$). Other information collected related to gender, age, education, farm size, number of farmed parcels of land, number of extension visits, farming status, type of production, preferred method of interacting with extension, access to other information sources, and participation in farmers' groups. Pre-testing was done with five (5) farmers from each country (n = 25) prior to finalization. The instrument was administered by pre-trained individuals (residents) of each country and took approximately 20 minutes to complete. Data analysis was done using STATA 9 and the results were presented as descriptive frequencies and multiple linear regression. An index to assess farmers' satisfaction was derived as follows:

Farmers' Satisfaction Index (FS_i) = $\frac{\sum R_i}{R_{max}} * 100$

R_i is the response to each statement of individual *i* and R_{max} are the maximum obtainable score (max obtainable score of 26 items = 104). The normalized index ranged from 25 to 100. Higher values indicate greater satisfaction with the extension services. The following hypothesized linear relationship was established (see Table 1 for descriptions of each variable) to assess the impact of study variables studied on farmers' satisfaction:

$$FS_i = f\,(Gen_i, Age_i, Edu_i, Size_i, Parc_i, Ext_i, Stat_i, Op_i, Int_i, Acc_i, Part_i)$$

As such, the regression model was fitted as follows:

$$FS_i = \beta_1 + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 Edu_i + \beta_5 Size_i + \beta_6 Parc_i + \beta_7 Ext_i + \beta_8 Stat_i + \beta_9 Op_i + \beta_{10} Int_i + \beta_{11} Acc_i + \beta_{12} Part_i$$

For accuracy, outliers ($Z > 3.0$) were removed and the Variance Inflating Factor (VIF) was calculated for each variable to check for multicollinearity among independent variables.

Table 1

Description of Variables as Specified in the Regression Analysis

Variable	Type of Variable	Description
Gender (Gen_i)	Dummy	1 if male; 0 female
Age (Age_i)	Dummy	1 if 18-50; 0 otherwise
Education level (Edu_i)	Dummy	1 if Secondary/Tertiary; 0 otherwise
Farm size ($Size_i$)	Ordinal	<1; 1-5; 6-10; >10
Parcels of land in use ($Parc_i$)	Ordinal	1, 2, 3-4, >4
Extension visits (Ext_i)	Ordinal	Weekly (5); fortnightly (4); monthly (3); annually (2); never (1)
Farming status ($Stat_i$)	Dummy	1 if fulltime; 0 otherwise
Primary operation (Op_i)	Dummy	1 if crop farmer; 0 otherwise
Interaction preference (Int_i)	Dummy	1 if face to face; 0 otherwise
Access to other information sources (Acc_i)	Dummy	1 if yes; 0 otherwise
Participation in farmers' group ($Part_i$)	Dummy	1 if yes; 0 otherwise
Satisfaction (FS_i)	Scale	Self-computed Index (non-refined method): Range: 25-100

Results

Characteristics of the Sample

A descriptive analysis of the sample showed farmers were from Antigua (14%), Dominica (16%), St. Lucia (24%), St Vincent (25%) and Grenada (21%). The majority of respondents were males (73%). Over half of the sample (54%) was older than 50 years; 39% were 31-50 years old and a small percentage (7%) was 18-30 years old. Most farmers (58%) attained primary level education, 27% completed secondary education, 10% possessed tertiary education, and the minority (3%) attained certificate level education. Most respondents (80%) were full time farmers, while 20% engaged in agricultural activities on a part time basis. Almost all farmers (96%) were

primarily engaged in crop production. A significant portion of the sample (68%) owned 1-5 acres of land, 15% possessed less than 1 acre, 12% owned between 6-10 acres, while 5% owned more than 10 acres. Most farmers (45%) only actively used 1 parcel of their land, 20% used 2 parcels, another 20% used 3-4 parcels, and 15% used more than 4 parcels of land. With regards to extension visits, 25% of respondents reported they were never visited by extension officers, 35% reported monthly visits by extension officers, 26% experienced annual visits, 8% of farmers were visited on a fortnightly basis, and the minority (6%) was visited weekly by extension officers. A large portion of the sample (98%) stated they preferred the face-to-face interaction method with extension staff, while 2% preferred interactions via telephone. While most farmers (63%) stated that they had access to and used other sources of information, some 37% stated the extension service was their only information source. Finally, most farmers (77%) indicated they did not belong to any farmers' group, while the others (23%) indicated group membership.

Table 2

Description of Sample

Variables	Categories	Frequencies (%)
Country	Antigua	14
	Dominica	16
	St. Lucia	24
	St. Vincent	25
	Grenada	21
Gender	Male	73
	Female	27
Age	18-30	7
	31-50	39
	>50	54
Education level	Certificate	3
	Primary	58
	Secondary	27
	Tertiary	10
	None	2
Farming status	Full time	80
	Part time	20
Primary operation	Crop	96
	Livestock	4
Farm size	<1 ac	15
	1-5 ac	68
	6-10 ac	12
	>10 ac	5
Parcels of land in use	1	45
	2	20
	3-4	20
	>4	15

Extension visits	Weekly	6
	Fortnightly	8
	Annually	26
	Monthly	35
	Never	25
Interaction preference	Face to Face	98
	Phone	2
Access to and used other info sources	Yes	63
	Extension only	37
Participation in farmers' groups	Yes	23
	No	77
Satisfaction levels	Low (Score: 25-49)	22
	Moderate (Score: 50-69)	57
	High (Score: 70-100)	21

Satisfaction with Extension Services

Table 3 provides the percent responses to each statement aimed at capturing farmers' satisfaction of extension service. All statements were positively worded. Agreement to such statements would indicate satisfaction at some level and vice versa. With respect to overall level of satisfaction, mean frequencies suggested that 41% of farmers expressed some level of satisfaction (3% of farmers strongly agreed with the statements and 38% agreed with the statements), while 59% expressed some level of dissatisfaction (37% disagreed with the statements and 22% strongly disagreed). The statement which had the highest agreement level was, "I believe the extension service helps me without expecting anything in return" (59% of farmers were in agreement and 7% were in strong agreement). Also high in agreement was, "I like collaborating with the Extension service when possible" (with 56% of farmers agreeing and 5% strongly agreeing). On the other hand, there was a general disagreement with the statement, "I believe Extension treats all farmers fairly and equally." Most farmers (48%) disagreed with this statement and another 34% strongly disagreed. Similarly, farmers disagreed with the statement, "When the Extension officer makes a promise to me, it is always kept" (with 48% and 28% of the farmers disagreeing and strongly disagreeing, respectively). Some 73% of farmers disagreed that the quality of service offered was high. There were mixed levels of agreement with statements such as, "I enjoy dealing with the Extension service" and "I have a good working relationship with extension officers".

The final sample size after outliers were removed resulted in a sample size (n) of 453. As shown, mean FS_i was 60, suggesting that farmers' satisfaction of extension service was somewhat modest, and given the low standard deviation (.61) indicated this level of satisfaction was shared among most individuals of the sample. Further, there was little skewness and kurtosis suggesting that FS_i had a normal distribution.

Table 3

Frequencies of Individual Statements Associated With "Satisfaction"

Statements	SD	D	A	SA
I believe the extension service helps me without expecting anything in return	17	17	59	7
I like collaborating with the Extension service when possible	18	20	56	6
I would willingly recommend other farmers to the Extension service	16	23	55	6
I feel I am valuable to the Extension service	20	30	43	7
The services provided to me is vital to my farming	22	22	53	3
I believe Extension is guided by sound principles	19	29	48	4
When the Extension service wants to do something new or different, I know I will be asked to be part of the process	16	34	47	3
Extension officers value my opinion	19	34	44	3
I enjoy dealing with the Extension service	25	27	46	2
I have a good working relationship with Extension officers	24	33	39	4
The Extension service is my most preferred source of farming information	23	39	36	2
The Extension officer operates in a professional manner	23	32	42	3
Extension is known to be successful at the things it tries to do	20	39	39	2
In my time of need, the Extension service is always ready to assist me	20	43	34	3
The Extension service is concerned about my welfare and that of my family	23	48	24	5
The Extension service is always ready and willing to work with me	20	40	36	4
My expectations are held in high regard by the Extension service	21	46	31	2
Extension officers do their job to the best of their ability	26	38	34	2
Extension officers are easy to reach	30	33	35	2
I firmly believe that the advice from the Extension service is always true	17	50	31	2
I am pleased with the Extension service and will continue to depend on it	26	41	31	2
I am happy with this organization	26	41	31	2
Extension can be relied on to keep its promises	28	51	19	2
Extension offers a high quality service	27	46	26	1
When the Extension officer makes a promise to me, it is always kept	28	48	23	1
I believe Extension treats all farmers fairly and equally	34	48	17	1
Mean Satisfaction	22	37	38	3
Cronbach Alpha	0.97			

Variable	*n*	Mean (*SD*)	Min.	Max.	Skewness	(Excess) Kurtosis
FS_i	453	60 (.61)	25	82	-0.77	-0.12

Determinants of Farmers' Satisfaction

Results of the regression analysis (see Table 4) indicated that all variables taken together significantly affected the satisfaction index computed (F (11, 453) = 21.4, $p < 0.01$), and together these factors contributed 35% of the variation in FS_i (R^2 = 0.35). The Variance Inflating Factors (VIF) used to detect multi-collinearity among independent variables were less than 10, indicating that multi-collinearity was not a major problem in the model.

Individual t-tests indicated that the following variables significantly affected FS_i : gender, age, education level, farm size, parcels in use, extension visits, farming status, and participation in farmers' groups. With respect to gender, males were less

satisfied with extension than females (β = -2.48, t = 2.13, $p < 0.05$). With focus on farmers' age, younger farmers (< 50 yrs) were more satisfied with extension than older farmers (β = 2.63, t = 2.45, $p < 0.05$). Regarding education level, farmers who attained higher levels of education (secondary/tertiary) were less satisfied with extension than farmers with lower levels of education (β = -2.87, t = 2.49, $p < 0.05$). Results also showed farmers with larger land sizes were more satisfied with extension than those with smaller sized holdings (β = 2.34, t = 2.65, $p < 0.05$). Further, farmers with more land parcels in use were more satisfied with extension than others who farmed on fewer parcels (β = 1.45, t = 3.25, $p < 0.01$). With respect to extension visits, farmers who were more frequently visited by extension officers were more satisfied with extension than those visited less often (β = 4.17, t = 12.68, $p < 0.01$). Regarding farming status, full-time farmers were less satisfied with extension than part-time farmers (β = -2.27, t = 1.70, $p < 0.10$). Lastly, individuals that were members of farmers' groups were more satisfied with extension than those not belonging to any farmers' group (β = 2.41, t = 1.91, $p < 0.05$).

Table 4

Regression Model of Several Independent Variables on FS_i

Variables	VIF	Beta	SE	*t*	*p*-value
Gender (1 = male)	1.01	-2.48	1.16	2.13	0.03**
Age (1 = Young)	1.11	2.63	1.07	2.45	0.01**
Education level (1 = high)	1.24	-2.87	1.15	2.49	0.01**
Farm size	1.30	2.34	0.88	2.65	0.01**
Parcels in use	1.16	1.45	0.44	3.25	0.00***
Extension visits	1.08	4.17	0.32	12.68	0.00***
Farming status (1 = full time)	1.16	-2.27	1.34	1.70	0.09*
Primary operation (1 = crop)	1.08	0.03	2.53	0.01	0.99
Interaction preference (1 = face to face)	1.03	-3.85	7.01	0.55	0.58
Access to other sources (1 = Yes)	1.07	0.21	1.07	0.19	0.84
Participation in farmers' group (1 = Yes)	1.09	2.41	1.26	1.91	0.05**
Constant	-	47.73	7.53	6.33	0.00***
F (11, 453)			21.4***		
R^2			0.35		

Note. * = $p < 0.10$; ** = $p < 0.05$; *** = $p < 0.01$.

Discussion, Conclusions, and Recommendations

The findings of this study showed there is modest satisfaction with the extension service in the OECS. While this may be a good situation, it is clearly insufficient to move agriculture forward rapidly in the Eastern Caribbean. Farming is the backbone of most Caribbean countries and as such, it is important to agricultural development that most farmers are fully satisfied with the extension service. Fully satisfied farmers are likely to be more productive and more cooperative with government's plans and additionally, this could positively impact on food security and export.

The responses to the individual item statements in the satisfaction scale are enlightening. Farmers appeared to be satisfied with the general ideals of an extension service such as: *"helping them without asking for anything in return," "would recommend other farmers to extension," "I am valuable to the service,"* and *"the service is vital to my farming."* In these times, when cash-strapped OECS nations contemplate downsizing extension services, these findings validate the need for this essential support.

These generalized feelings however, have to be contrasted with the feelings of farmers to specific areas of the extension service. Farmers were dissatisfied with several key areas and their responses reflected this. Farmers generally were not pleased with several aspects of the service and also not happy with the present organization. They felt that the service is not reliable, extension officers do not keep their promises, the quality of the service offered is not high quality, and extension officers do not treat all farmers fairly. It is in these areas, as well as all the other areas, which attracted moderate levels of dissatisfaction to which governments need to pay much attention.

Even as governments continue to struggle to provide non-extension services to farmers that draw on their limited finances, they can take actions that will improve the image and level of service of extension among farmers. The personalized service that farmers prefer and have been accustomed to over the years cannot be sustained in the present situation. As such, staff needs to be retrained to work with farmers in groups. They will need new technical skills to: (a) promote groups, (b) organize farmers into such groups, and (c) understand group dynamics.

Concurrently, farmers need to be re-educated to have them understand this new approach, and to solicit its acceptance as the approach that will bring them an overall better level of service. The statement with the highest level of disagreement, *"that extension treats all farmers fairly and equally,"* supports these recommendations. A farmer feeling that he/she is not being visited, but instead his/her other farmer-friends are receiving service, engenders sentiments of neglect and inequity. In groups, farmers may have an opportunity to see otherwise and may form alternative opinions of the extension service. These areas are good starting points to build customer satisfaction (Rope & Pöllänen, as cited in Ihalainen, 2011).

The factors used in the regression analysis explained a fair 35% of the variation in farmers' satisfaction. Since this is the first empirical assessment of farmers' satisfaction in the region, several traditional factors were investigated. The factors determined in this study are similar to those determined by Israel and Galindo-Gonzalez (2009) in a study of customer satisfaction in Florida, USA. To identify the other 65% of the variation, a much more elaborate and deeper study is needed. However, this study established the contribution of these traditional, well accepted factors that are known to impact farming in the Caribbean. It is therefore a basis to start more vigorous attempts to uncover the other factors which impact farmers' satisfaction. Notwithstanding, the issues identified are in keeping with the customer satisfaction leadership theory as previously outlined in the literature.

The results also showed the complexity of the issues that interact to determine the levels of satisfaction farmers have with extension. Younger farmers were more satisfied than older farmers. This may be because these younger farmers do not place as much emphasis on extension officers' visits to them as the older farmers

who are very accustomed to this method, and may be disappointed when they do not receive this service as often as they would like. Given the aged farming population in the OECS, extension needs to build on these positive feelings by younger farmers who will be the future of farming.

On the other hand, the farmers with higher levels of education may be disappointed with the quality of technical advice received. In the OECS, Information and Communication Technology (ICT) infrastructure and services are fairly well developed, and more educated farmers are more comfortable using this technology to access and use information retrieved, unlike the less educated farmers. Extension staff is generally ill-equipped and ill-prepared at the work level to supply farmers with relevant, appropriate, modern technological solutions using ICTs because the employer has not provided them with the tools to perform in a modernized technology-driven environment. Therefore, governments should take steps to provide extension staff with the appropriate tools and training to empower them to operate in a modern communication environment. Ghamire and Martin (2011) noted staff development was critically important to help projects stay on the cutting edge of the development process. They further emphasized the need for the development of the soft skills of staff to properly deliver technologies to clients.

The findings that those farmers with larger total land sizes, whether a single parcel or several parcels, were more satisfied than those with smaller sizes of land, may be related to the commodity produced and extension service provided. Besides vegetables and root crops, banana is the other main crop grown, and is usually cultivated on larger size holdings. Therefore, banana farmers receive dedicated extension as this is an export crop and thus, these farmers may be more satisfied compared to the multitude of small farmers in mixed cropping systems that rely on the generalized extension service for support. In addition, extension officers tend to gravitate towards those mixed cropping farmers with larger size holdings for two major reasons: (a) they are easier to access, and (b) they are usually more innovative and entrepreneurial and therefore, are more willing to take extension advice. There is the opportunity for the reorganization of extension, such that while some officers continue to work with the many small farmers, others can be assigned to work specifically with those larger, more educated farmers who farm in a manner that supports national food security objectives.

As expected, farmers who receive more extension visits are more satisfied. This, however, is a wholly unsustainable action by the extension service. Given the insufficient human resources to deal with the many small farmers, many farmers go months without being visited by an extension officer. For the service to be provided to much more farmers, extension needs to redefine its scope, and also target which commodities and which farmers will get priority, as not all farmers who they presently seek to service will ever be able to move beyond the subsistence level without major government financial assistance. To support national food security objectives, the previous recommendation for the reorganization of national extension services, which focuses on groups to replace the individual visit approach, and places more emphasis on larger commodity–oriented farmers and the use of modern ICTs, is most applicable.

Implications

As governments in the OECS contemplate actions to meet national food security objectives, and at the same time grapple with the ever increasing impacts of

climate change on their small island nations, much more focus should be placed on improving their extension services. Failure to do so would result in an unhappy farming community and moreover, a demoralized extension work force. Therefore, extension services in the OECS should be reorganized to include: (a) clearer specifications of program scope, identify targets for priority extension activities and new program approaches, (b) training for staff to enable them to provide farmers with modern technology, (c) the use of group approaches to improve their reach among clients, and (d) equipping extension staff with modern communication technologies. Failure to take action in these areas could put food security goals in the OECS at risk.

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Book Review
Agricultural Innovation Systems: An Investment Sourcebook

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Keywords: Agricultural Innovation System, AIS, Case Study Research, Public Private Partnerships

The World Bank. (2012). *Agricultural innovation systems: An investment sourcebook.* Washington, DC: Author. 658 pages. $49.95 (USD) or free download.

Overview

The World Bank assembled this reference guide to explain the contributing aspects and limitations of the Agricultural Innovation System (AIS). The guide is divided into seven modules to better address topics through detailed overviews, recommended approaches and programs, and successful activities for each. The first module stresses the importance of a collaborative effort in a successful AIS structure, specifically, national coordination and governance, building innovation networks, increasing access to marketing chains, and building innovation capabilities in farmer organizations. Module 2 delves into the role of agricultural education and training as "a creator of capacity and supplier of the human resources that populate key segments of the AIS and enable that system to function more effectively" (Maguire, 2012, p. 107).

The thematic notes discuss altering higher education policy and curriculum, focusing on education and training for technical/vocational positions, and education and training for those that manage AIS projects. Module 3 explains and explores the role of extension services in the AIS structure and success and the importance of diverse programs that extension services should offer and the role they should take as providers of information. It further looks at agriculture as a business and identifies the need for development services for local farmers, the need for extension to aid in linking the areas of the multi-faceted AIS, and the need for extension to act as innovation catalyst in the AIS structure.

In Module 4, the author emphasizes the need for linkages between the researchers, the financers, and the implementers when grant writing and researching in agriculture to create research that is needed and wanted at all levels. Collaboration between public and private sectors and local and regional research entities in conjunction with multiple stakeholder input can result in better designed and more integrated research projects and outcomes. Organizational changes may need to occur for this integrated type of research to occur.

The fifth module addresses the

motivation and sources of funding and partnerships in business development. The nuances of public and private investments are explored as a means of business development. Additionally, the need for constant revision in priorities, investment, and direction is discussed in the context of recommended programs and activities.

Module 6 discusses the methods to facilitate a positive environment for agricultural innovation development. These methods are discussed in the context of policy, governance, intellectual property considerations, biosafety, and technical standards throughout the system. Module 7 focuses on the evaluation component of agricultural innovation systems. This component is expanded to encompass the analysis, prioritizing, and monitoring elements within the context of assimilating both short and long term decision making information. Its goal is to examine "processes to inform decision making and manage innovation" (Odame, 2012, p. 539) at these four levels. The World Bank noted the *Sourcebook* is a living document that needs to be added to, discussed, and amended as the field makes progress.

Evaluation

The *Agricultural Innovation Systems: An Investment Sourcebook* compiled by The World Bank represents a well written and structured book that is a good primer for those readers interested in the elements of Agricultural Innovation Systems (AIS). The author does a good job outlining the fundamental elements of AIS, as well as illustrating these elements through the use of case studies, activities, and graphics. To this end, the overall structure of the book is pragmatically predictable.

In each module, there are four to six thematic notes written by a variety of authors that highlight opportunities for investment that support that particular module. The contributing authors are varied and are purported to be experts in their respective fields. Each case study is arranged in a uniform fashion according to a predetermined rubric, allowing the reader to access specific elements of each case study with relative ease. Also, this format facilitates the ability of the reader to compare and contrast the specific elements of different case studies rapidly.

While the repetitiveness of the module construction raises the level of tedium to the book, its structure lends itself to rapid reference and pragmatic use. In addition to the thematic notes, each module also consists of four to nine innovative activities that highlight the successes and failures when investments have been made in that thematic area. The activities afford the reader some predictive uses and outcomes when postulating their effectiveness in similar situations. The reviewers found these activities to be a positive contribution to the book as they emphasized the key elements of knowledge in the modules to be gleaned by the reader. Innovative activities were also found to be effective in explaining concepts, creating ideas/solutions, and highlighting the importance and opportunity in investing in these types of innovations.

In addition to the themes and activities, the graphics in the book were also found by the readers to be beneficial. The boxes and graphs presented a succinct representation of the key elements in each module. In addition to providing an organized repository for the primary elements in the module, the graphics also were predictably structured throughout which allow the reader to quickly reference the fundamental tenets of each module quickly and efficiently.

Recommendation

While the physical copy of this book

may be considered expensive, it was not found to be excessively so given its detail into the specific topics and subsequent length. Also, the electronic version is available at no charge, making its acquisition reasonable to the average enthusiast. The case studies and activities contained within each module add significantly to the breadth and depth of the book, allowing the reader to evaluate impacts based on real applications. This book also meets a practical need for a sourcebook that includes both pros and cons to specific agricultural development approaches. As such, we recommend this book as a quality reference guide to any person with an interest in agricultural development projects, policy makers, and agents of agricultural innovation.

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