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BOOK REVIEW

CHINESE AGRICULTURE AND AGRO-EXTENSION: A REFERENCE BOOK FOR INTERNATIONAL AGRO-TRAINING IN CHINA, EDITED BY NIE CHUANG. CHINA AGRICULTURAL SCIENCE AND TECHNOLOGY PRESS, BEIJING - CHINA, 2006. ISBN 7-80233-065-3. 411 PP.

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ABSTRACT

Chinese agriculture and agro-extension reference book for international agro-training in China attempted to analyse the presence of reliable agro-extension services. The book has led to massive transformations particularly in the rural areas and contributed to rural agricultural development and increased households' incomes through agricultural practices. The agro-extension services covered are on soil management and fertilizer utilisation, seed production and management particularly the best practices on seed production, quality control, processing and handling technologies as well as marketing, food security and rice production. The authors highlight the achievement made by the country towards improving food security through adequate grain production; issues of agricultural bio-technology and its management and the analysis of agricultural related laws in China. Despite of the achievement in the agro-extension reforms, however, the reforms made were not immune to challenges which at some point limit the progress made though it provide more room for learning. The key challenges included budgetary constraints, lack of good facilities and equipment for agriculture, role conflicts, lack of staff career development opportunities and low profitability rate among smallholder farmers. To curb the stipulated challenges, the Chinese government made initiatives to improve food security by considering food security as the top priority in policy making, adjusting land management systems, market orientation reforms, emphasising diversified agriculture and promotion of self reliance policy. Third world countries which rely on Agricultural countries should copy agro-extension approaches to ensure productivity and income for the households.

Key words: Agriculture, Extension, Agro-extension, Production.

1.0 OVERVIEW AND INSIGHTS

China is among the most successful countries in the world in terms of agriculture productivity and development. The successes have been attributed to the reforms made since 1970s where a series of reforms were made in the policies to improve agriculture through science and technology. As a result, the country has made tremendous achievements and enjoys the success of feeding her 1.3 billion people, which means raising almost 20% of the world's population with on approximately 10% of the world's arable land (Chuang, 2006). Throughout the process of agro-development, reliable agriculture extension services have been instrumental as it was possible to transfer technology into practice for improved productivity but also formed the foundation for linking government officers, researchers and smallholder farmers.

Presence of reliable agro-extension services has led to massive transformations particularly in the rural areas and contributed to rural development and increased households' incomes through agriculture. The achievement reached made the National Agro-Tech Extension Service Centre (NATESC) as an affiliated institution in the Ministry of Agriculture (MOA) to document the best practices that was useful in training and referencing. The initiatives led to the preparation of this book as a reference document for diffusing the best practices not only in

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China but worldwide through arranged international agro-trainings coordinated by NATESC. The book has six parts constituting academic papers and compendiums of experienced agro-extension experts at the NATESC.

Part One provides the general overview and reflections on agriculture and agro-extension aspects in China. The country is regarded as one of the biggest agricultural countries in the world and has been instrumental towards the acclaimed agro-reforms since the late 1970s. A series of reforms in the policies and national programmes relating to agriculture have been the key to success where agriculture and rural economy stepped forward at a great pace and increased smallholder farmers' household incomes. The Chinese government paid more attention to the rural industrial, marketing and infrastructure development which were important towards improving agriculture and mobilisation of farmers. Overtime, the upgrading of agro-research, education and extension services informed the basic policies for rural development which focused on reducing farmers' burden and increasing incentives. In particular, the reforms made in the provision of extension services include the introduction of extension units, decentralisation of extension services to suit market oriented economy, improved payments to extension officers and adoption of multi-methods for improved efficiency. However, the reforms made were not immune to challenges which at some point limit the progress made though it provides more room for learning. A working philosophy for extension in Chinese agriculture was centred on identifying certain underlying beliefs and principles of extension that address three basic questions and form a comprehensive working philosophy for extension. The working philosophy includes empowerment of the client, importance of rural life and faith in the future. Chinese extensionists belief about the nature of reality with several fundamental beliefs about the way in which reality operates deserve which is a systems perspective, rational and nondeterministic, learning is an active process, learning is context bound and extension starts with people. Further, Chinese agriculture follows some important extension principles in dealing with people which includes values and attitudes are learnt from the people we mix with; people value their life experience; their family, friends and the key events in their lives. Their opinions and beliefs are based on this experience. Adult learn by building on past experience. To give meaning to new information, they relate it to what they already know. The Chinese extension relies also on farmer's field school training. The key challenges included budgetary constraints, lack of good facilities and equipment for agriculture, role conflicts and lack of staff career development opportunities.

Part Two of the book focuses on soil management and fertilizer utilisation. Agriculture is the foundation of the Chinese economy while soil is the foundation of agriculture development. Hence, effective management of land as a resource is critical for achieving the expected outcomes in agriculture and national economy at large. As the social economy is growing, the country has been confronted with two tremendous pressures i.e. irreversible population increase versus irreversible land decrease. Nonetheless, the available high quality arable land is 1/3 while mid-low-yield land accounts for about 2/3 due to the influence of natural ecological conditions such as soil type, water, heat, sun and topography (Chuang, 2006). As a result, the government had to come up with the land administration law which defined clearly the market oriented land use systems and target oriented land administrative system. The reforms focused on a series of important policy on soil protection and fertilizer utilisation which is concerned with raising land fertility and soil improvement. The measures included soil enrichment project; land fertility survey and quality evaluation; straw return to field and protective tillage; and ecologically returning the farmland to forestry. The focus was also on the management and usage of fertilizer (both organic and industrial) to improve soil fertility. Smallholder farmers were trained on plant nutrition and balanced fertilisation using macronutrients and micronutrients as well as '*fertigation*' (application of nutrients through irrigation). This tremendously improved the use of fertilizer and irrigation practices among rural smallholder farmers while controlling water and soil pollution.

The third part concentrates on seed production and management by highlighting the best practices in seed production, quality control, processing and handling technologies as well as marketing (locally and international). For the purposes of controlling seed production and preservation, the government introduced regulations for standardisation, breeding and production, utilisation and safeguarding of seeds to harmonise the conducts of producers, dealers and users. Thus, towards the implementation of the regulations, extension officers were mandated to train farmers on the best seed management practices in order to determine the best seeds that would guarantee improved production and productivity over time. The services provided aimed at improving seed storage systems; management system for seed marketing; seed administration; associated legal liabilities; and seed testing and quality control. Seeds are considered to be living biological products and its quality directly affects the increment of agricultural production and farmers' income. Hence, quality control and certification is important and has to be enforced through controlling quality of varieties (yield, resistance and tolerance), internal seed quality (cultivar percentage, purity, germination, moisture and weight), and external seed quality (package, label, unit weight and branding). To improve the practices relating to seed production and management, the government established groups of certified and qualified supervisors, equipped seed

management facilities, formulated explicit criteria for certification (standardisation), and formalised the seed quality management and supervision system.

The fourth part is about food security and rice production in China whereby the authors highlight the achievement made by the country towards improving food security through adequate grain production. Grains (staple food) are the mostly produced food crops in China and generally considered to be food. Over time the production of grain has been given greater attention by the government and always taken as a means of ensuring food security. The production ranges from 450 to 500 million tons, of which 55% goes to staple food consumption, 33% goes to food stuff (animal husbandry) and 12% is for other grain purposes such as industrial and seeds. Despite the achievements made, production has been challenged by low profitability rate among farmers, over production (huge surplus resulting to post-harvest storage problems), huge deficit in marketing, and low protection level for grain production. However, despite the observed challenges, the government has been able to improve food security by considering food security as the top priority in policy making, adjusting land management systems, market orientation reforms, emphasising diversified agriculture, and promotion of self reliance policy.

Part five highlights the issues of agricultural bio-technology and its management. China as one among the giants in agricultural development, it has pioneered a number of agro-technological developments. The country has been the origin of many important species including soybean, paddy rice and genetic modified organisms. The government has put more emphasis on regulations focusing on bio-safety administration while developing bio-technology. With respect to the Chinese agro extension, the focus of extension services has always been on the safe guard of human health; protection of bio-safety of plants and animals; and promotion of agriculture research and bio-technology.

The last part (Part Six) provides the analysis of agricultural related laws in China. The laws have focused on system of agricultural production and operations; agricultural production; circulation and processing of agricultural products; grain safety; agricultural investment, support and protection; agricultural science, technology and education; and protection of rights and interests of farmers among others.

2.0 REVIEW AND DISCUSSIONS

The book has provided a meticulous reflection of the agro-transformation and reforms that China has undertaken overtime and become one of the greatest countries in agricultural production. The road to success has been profiled in terms of policy and legal reforms that were driven by the motive of transforming the rural economy and achieve development through improved production, livelihoods and household incomes. The catalyst of all has been education, science and technology as well as provision of extension services to the rural producers. The book is useful in making people aware on the best practices and techniques utilised in China and can be disseminated to other developing countries that are taking a similar journey to agricultural development and rural development.

Mostly, rural farmers lack of adequate credit, lack of access to product market, lack of adequate extension contacts, among others (Christoplos and Kidd, 2000). Among these constraints, inadequate extension services have been identified as one of the main limiting factors to the growth of the agricultural sector and rural community development at large (Asfaw *et al*, 2012). Therefore, presence of agricultural extension programmes is considered to be one amongst the main conduits of addressing rural poverty and food insecurity (Danso-Abbeam, *et al*, 2018). This is because, it has the means to transfer technology, support rural adult learning, assist farmers in problem-solving and getting farmers actively involved in the agricultural knowledge and information system. Asfaw *et al*. (2012) argue that achieving productivity growth in the agricultural sector can only be successful through the development and dissemination of improved agricultural technologies to these smallholder farmers in the rural areas.

Apart from what has been detailed in the book based in the several chapters, there are some areas requiring improvement based on the observed shortcomings. For example, a general observation is the inclusion of more graphics and demonstrations pertaining to the detailed techniques or approaches in some chapters for easier grasping of the contents by the readers and/or expected trainers. Though some of the practices have been supported with images and figures, more is demanding in other parts of the book. The book should have introductory chapter relating to the overview of Chinese agriculture and agro-extension in order to provide the general knowledge to readers prior to the specific details of China. The basic concepts include objectives of extension, principles of extension, extension approaches and methods, tools for extension workers as well as monitoring and evaluation of extension services as observed by Khalid and Sherzad (2019).

Despite the reflections and focused discussion provided in the book, there should have been a chapter providing discussions on the modern practices in extension services provision apart from the conventional ones. As the information and communication technologies are developing so does the means of providing extension services have been improved or reformed from traditional to modern extension dissemination techniques whereby mass media are used throughout the country. However, high tech extension services provision is inadequately addressed in the book. It has been observed overtime that in spite of a large pool of well educated and well trained agricultural extension manpower; the majority of smallholder farmers in the rural set-up still remain unreached (Sigh *et al*, 2015). Among others, the reason for not being reached is the distance (remoteness) of their location which is a challenge that can be absorbed by the application of modern extension practices using information and communication technologies. The contributing authors could have given reflections on the use of modern media of communication such as mobile phones, internet cafes and television kiosks to reach the majority of farmers in the rural areas through well tailored electronic based extension contents (e-extension contents).

Access to finance is among the most critical challenges among smallholder farmers particularly in rural areas. Thus, the book would have been more valuable if there was a chapter on the same to provide more discussion and experiences from China in terms of how extension services enabled farmers to access and manage finances to support their production activities. Likewise, a chapter on management of pests and harmful insects during post-harvest through extension service would have been more instrumental. Over the years, China has been very successful in post-harvest storage and primary processing of produced crops particularly the grains. Thus, having a chapter on the practices oriented to smallholder farmers through extension services would have added more knowledge to farmers in emerging economies learning from Chinese experiences. In Tanzania, with the moderate development of Information Technology including more established radio and Television stations unlike previous year where only one radio station was present, smallholder farmers can find it useful to be aware and adopt some agro technology aired via radio and TV stations alike Chinese people in order to improve productivity through farming activities.

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