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COMMUNICATION STRATEGIES AS CATALYSTS FOR ENHANCED RICE FARMING IN NIGERIA

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ABSTRACT

Rice is one of the most consumed staple foods in the world. It is cultivated in almost every country at both commercial and subsistence levels mostly at the rural agrarian areas. However, production of rice in Nigeria is relatively low and unable to meet local consumption thereby resulting in high importation of the produce to augment domestic needs. One of the major reasons identified as being responsible for the low production of the local rice is lack of information on modern farming methods. This paper focuses on communication strategies as catalysts to communicate information on modern farming practices to boost local rice production in Nigeria. It is a review work based on secondary data and the theoretical framework is premised on diffusion of innovation theory which describes how innovations are communicated through certain channels over a period of time among members of a social system. The paper reveals that access to adequate information on modern agricultural practices helps in knowledge acquisition, enhances production and guarantees food security. It is recommended that policy initiators and change agents should deploy effective communication strategies that would elicit rice farmers' acceptance, adoption and sustenance of innovations to enhance their production capacities to meet demands.

Keywords: Communication, Strategies, Rice, Farming, Innovation

Introduction

One of the basic necessities of life is food. Humans need food to live healthy, be productive and contribute to the growth of the society they find themselves. The quest for more food to survive has driven humans to engage in agriculture which involves many aspects of animal and crop production, including rice farming. The Nations Encyclopedia (nd) indicates that over 70% of Nigerians are engaged in the agriculture sector, mainly at subsistent level. A substantial percentage of the farmers are involved in rice production.

Rice, which is also called *oryza glaberrima* and *oryza sativa*, the botanical names in Africa and Asia respectively, is a major staple food the world over. So many communities in Nigeria are involved in rice farming and there is hardly any home or occasion where rice is not consumed in one form or the other. According to Russon (2019), Nigerians consume about 7 million tons of rice a year. Local production of this arable product cannot meet the high consumption demand, and as such the Country depends on its importation majorly from Thailand and China.

As part of the measures to discourage over dependence on foreign rice, the Federal Government placed a ban on the importation of the product in order to stimulate local production and consumption of local rice towards ensuring food security and self-

sufficiency. With the restriction on importation and the media campaign and advocacy for the consumption of homegrown rice which has led to reliance on local rice but without corresponding increase in production, the demand for the product on a daily basis thereby surpasses the supply resulting in the smuggling of foreign rice into all parts of the Country at exorbitant prices to meet domestic consumption.

Emefiele (2022) notes that rice production in Nigeria rose from about 5.4 million tonnes in 2015 to 9 million metric tonnes in 2021. According to Nanono (2022) Nigeria is the largest producer of rice in Africa, and ranks thirteenth in the world.

Although the country is claimed to be the largest producer of rice in Africa, local production of the product is rather low and unable to meet its high demands for local consumption. As part of the efforts to boost local production, the Federal Government of Nigeria launched the Federal Capital Territory (FCT) mega rice pyramids on 18th January 2022 under the Rice Farmers Association of Nigeria (RIFAN) – Central Bank of Nigeria (CBN) Anchor Borrowers' Programme (ABP).

In spite of government's effort, at increasing production to meet local consumption, production still remains low due to some militating factors including inaccessibility to the means of production and inadequate or absence of information on modern

farming practices to local farmers. Inadequate information can be attributed to government's inability to employ enough extension workers at the grassroots level to communicate new initiatives and modern farming methods to the local farmers. Communication is known to play crucial role in all facets of development including rice farming which is the focus of this work. As a critical component of development, effective communication helps to equip farmers with the appropriate information, ideas and knowledge, which, if adequately utilized, would enhance farming activities and bring about high yield in farm produce, hence the need for development communication by the change agents.

Development communication seeks to bring about positive change or transformation in the lives of a people. The Food and Agriculture Organization (FAO) views development communication as "a systematic utilization of appropriate communication channels and techniques to increase people's participations in development and to inform, motivate and train rural populations, mainly at grassroots level" (as cited in Coldevin, 1990, p.1). Anaeto and Solo-Anaeto (2010) see development communication as "the planned and systematic use of communication strategies to induce positive social change that will improve the quality of life of a people" (p.201).

Communication strategies provide farmers with the necessary information for positive change. Accessing appropriate information on new techniques of rice cultivation, irrigation methods, farming innovations and production technologies, varieties of rice seedling, nature of soil appropriate for planting and the adoption and application of such information certainly help farmers to achieve a high rice yield. Information on breakthroughs and how farmers solve their peculiar challenges in one setting can stimulate others to adopt such methods to enhance their farm practices.

Farmers that are well informed and knowledgeable in the latest agricultural techniques and innovations certainly witness high yield in their produce while the absence of required information manifest in poor or low yield. Mairiga et al. (2019) explain that communication strategies have recently been the focus of many studies as a result of their inadequate deployment especially in the process of development project including agricultural productions.

This paper discusses the relevance of communication in agricultural activities and identifies the different communication strategies that can be deployed to increase rice production in Nigeria. It also explains the roles played by extension service workers and the contributions of other agricultural development organizations in assisting the local rice farmers to achieve high product yield.

Conceptual Clarification

Rice farming, according to Imolehin & Wada (2000), began in the 1500BC in Nigeria with low yielding

indigenous red grain species – *Oryza glaberrima*, grown largely in the Niger Delta areas. Currently, there are about 18 major rice producing states in Nigeria including Kaduna, Kano, Niger, Benue, Kebbi, Jigawa and Ebonyi (Naija Quest, 2022). Rice can be planted in both upland and lowland. Upland are areas with fertile soil and adequate rainfall while the lowland areas are lands on the edges of flooded inland valleys or swampy areas and irrigation schemes with water available for 4^{1/2} to 5 months, (Kamai et al, 2020). Cultivation of rice involves a lot of rigorous activities which include land preparation, seed preparation, planting, weeding, pest control and harvesting.

As one of the most consumed staple food, the world over, rice can be prepared in diverse ways for consumption. It can be eaten as full meal in the form of boiled rice with stew, jollof rice, fried rice, coconut rice, rice pap (cereal), rice fufu (popularly known as *tuwo shinkafa* in Northern Nigeria) - taken with any soup of choice, or used as snacks in the form of rice cake, cookies etc. D'Adamo (1990), in his blood type analysis, indicates that rice is the friendliest of all grains to all humans irrespective of the blood group. To him, all blood types can consume rice with little or no adverse reactions. A famous French chef, Georges Auguste Escoffier (as cited in Odumade, 2021) also affirmed that rice is the best, most nutritive and the most consumed staple food in the world.

Communication is crucial in almost every human activity including agricultural practices. The success of any kind of development process and human interactions hinges on effective use of communication. Akpan (1987) sees communication as the sharing of meaning between the source and the receiver. Similarly, Hasan (2013) defines communication as "a process of sharing or exchanging ideas, information, knowledge, attitude or feelings among two or more persons through certain signs and symbols" (p.3). It is pertinent to note that communication could be verbal (involving the use of words either by speaking or writing) and non-verbal (involving behaviours other than words, such as body language, eye contact, parallel language etc., and media including pictures, drawing, sign etc.). It is also a two-way process that ensures feedback as the source/sender and the receiver interact.

Strategy, according to Cambridge Advanced Learner's Dictionary (6th edition), is "a plan that is intended to achieve a particular purpose". Oliver (2007) also sees strategy as a dynamic means or process through which an organization aims to fulfill its vision and mission statements. The emphasis in the two definitions of strategy is on 'plan' or 'process' which is a set of actions or arrangements intended for the accomplishment of a particular task or development programme. The plan cannot work without relevant information to guide its activities at

the different stages of the programme, hence the essence of communication strategies.

Communication strategy, according to Akintayo (2022) is the “sharing or exchange of information, ideas, knowledge through deliberate planning that addresses particular problems and challenges” (p.38). Coldevin (2003) expresses that “communication strategy ranges from multi-media campaigns to supports for groups conducted by extension agents, and materials to strengthen interpersonal communication” (p.45). In this work, communication strategies are viewed as communication means or processes which are systematically organized with concerted efforts and utilized to reach the farmers with relevant information, ideas, knowledge and innovations that can help them to better their farm practices or tackle challenges.

Theoretical Framework

This work is anchored on diffusion of innovation theory which is believed to have been popularized in 1962 by Everett M. Rogers, an American sociologist and communication theorist. Rogers defined diffusion as the process in which an innovation is communicated through certain channels over time among the members of a social system (as cited in Dearing and Cox, 2018). The theory describes communication and the speed at which new ideas, practices or products etc. spread among members of a given population. Dearing and Cox (2018) however see diffusion as a social process that evolves as people learn about innovation that is evidence-based. Okiyi (2021) opined that diffusion of innovation is “central to the conditions which increase or decrease the likelihood that a new idea, product or practice will be adopted by members of a given culture” (p.20).

Stages in diffusion of innovation process are awareness, persuasion, decision, implementation and continuation. Anaeto and Solo-Anaeto (2010) capture the stages in the process of innovation diffusion theory to consist of awareness, interest, evaluation, trial and adoption. The theory outlines five (5) categories of adopters which are innovators, earlier adopters, early majority, late majority and laggards. It also explains that four elements that influence innovation diffusion are innovation, communication, communication channels, and social system.

Diffusion of innovation theory is relevant to this work because it offers a ready set of concepts and approaches that can be employed to explain receptiveness in agricultural policies and practices by individuals (including the farmers) and organizations. Rice farmers cannot operate without the flow of information and skills through diverse communication strategies and channels as explained in the stages of diffusion of innovation process, hence the relevance of the theory to this work.

Relevance of Communication in Agricultural Activities and Development

The importance of communication in enhancing rice farming like other agricultural practices cannot be over emphasized as it entails the exchange or sharing of information, ideas and knowledge among farmers on the best farm practices including the right seedlings for high yield. Information enables farmers to make good decisions. Absence or lack of relevant information or ideas and innovation on farming activities could portend poor agricultural input and low crop output which may hamper government’s efforts at enhancing food security, sustainability and economic development. The FAO (2022) submit that smallholder and family farmers need to acquire new information on a regular basis through a wide range of methods and tools including local media and ICTs to enable them face social, economic and environmental challenges.

Communication therefore aids in the following way:

- i. Increases the farmers’ competence to solve their problem. (Van den Ban, 1994).
- ii. Enables the spread of new ideas, knowledge or modern ways of farming.
- iii. Encourages the adaptation of new farming techniques.
- iv. Facilitates dissemination of agricultural technologies, and accelerates technological transfer.
- v. Coordinates and influences the decision of farmers.
- vi. Encourages interaction and exchange of ideas and knowledge among farmers.
- vii. Avails farmers the opportunity to share problems and interact with change agent(s) to obtain solutions.
- viii. It serves as a link between farmers and all stakeholders in the agricultural sector including the government, researchers, extension workers and planners.

As explained by Wikipedia (nd.), the Operation Feed the Nation (OFN) was initiated in Nigeria between 1976 – 1979 during the regime of General Olusegun Obasanjo with the specific aim of increasing food production thereby ensuring availability of food at affordable prices for higher nutrition level vis-à-vis economic growth and national development. The programme was introduced to achieve self-sufficiency in food production and to encourage the new generation to embrace farming. As observed by Bamiaye (1985), the programme failed because of some militating factors including:

- i. resources like seedlings, insecticides, fertilizers and tractors were not provided;
- ii. activities were not effectively performed;
- iii. farmers were skeptical of the new methods ;
- iv. administrative officials did not do the work expected of them; and
- v. the manpower needed to expand farming operation did not materialize.

The Green Revolution was also an agricultural programme that was introduced in April 1980 during the regime of President Shehu Shagari. Its main aim, like the OFN, was to increase food production and materials in order to ensure food security and self-sufficiency in basic staples (Iwuchukwu & Igbokwe, 2012). Unfortunately, this programme also failed. According to former President Goodluck Jonathan, both the OFN and Green Revolution did not achieve the desired impact on food production in the country because they were poorly articulated, as reported by Ehikioya (2014).

From the assessment of both OFN and Green Revolution agricultural programmes, communication input was not really taken into consideration. It could possibly be inferred that the absence of communication strategies to drive the process partly contributed to the failure of the programmes. Any agricultural programme that does not include the participation of the major stakeholders, particularly the farmers and change agents, for acceptance and sustainability, may not succeed.

A top-to-bottom approach of communication in any development programme, including agriculture, cannot thrive without collective inputs from the target group and other stakeholders hence the need to involve all key players from the initiation to the implementation stages. E. Jegede (personal communication, 27th November, 2021) opined that communicating agricultural programmes in a unilateral and vertical manner where there is no mainstreaming and inclusive mechanism of those who play vital roles in the process may not make any significant difference and engender sustainable development in the sector.

Communication Strategies and Agricultural Activities

The use of communication strategies is very vital in the accomplishment of any form of development be it social, political, economic and agricultural programmes. Effective deployment of communication strategies provides farmers with relevant information, ideas, knowledge and innovations on agricultural best practices and management. Igben (1988) opines that the farmer's capability to manage his farm efficiently and continually is "often dependent on the collection of relevant information about production, marketing, weather and the general economic conditions of his environment" (p.88).

Ray et al. (nd.) stress that communication strategy is the cornerstone of the entire communication programme as it is a plan or design for changing human behaviour on a large scale through the transfer of new information or ideas.

The Communication strategies which are employed by change agents - extension workers or other agricultural planners (both in governmental and non-governmental organizations) through which rice farmers can access information or be trained in both

modern and traditional ways of farming include the following:

- i. **Broadcast programmes:** This includes talk show, drama on electronic media - radio, audio cassettes, television, video and film. The electronic broadcast programmes, especially radio, reach a large heterogeneous audience faster and with simple messages but it is transient in nature because the message may not be repeated in some cases. However, where such information is stored in audio or video cassettes or any other electronic storage device, it could easily be replayed or retrieved for future use.
- ii. **Print media publication:** This includes newspaper publication on agrarian sector; pamphlets, fliers, posters and magazines. Information on print media may have limited coverage and access but where such is available it last longer and can be referred to in future.
- iii. **Interpersonal interaction:** This involves person to person (face-to-face) interaction or group relations (group discussion or demonstration, seminars or workshop). This communication strategy provides the opportunity for discussing relevant issues related to the subject matter, and gives room for questions and answers sessions thereby ensuring clarity on the subject and adds credibility to the media content. It is a two-way communication process and ensures immediate feedback.
- iv. **Traditional media:** This includes the use of town crier, folklore/folktale, songs, dance (miming), puppets, live theatre, market places/ village square meetings. Anaeto & Solo-Anaeto (2010) explain that traditional media are "endogenous channels of communication developed and used by the local people to meet their needs for information, education and entertainment" (p.140). According to Inyang et al (2019), these means of communication make use of local languages and culture to disseminate information thereby making it a very effective tool in eliciting acceptance, active participation, protection of facilities (where applicable) and ensures the success of programme implementation and goal attainment. This strategy however has limited reach because it revolves around the community.
- v. **Modern technology:** This includes internet and telephone messages. The advent of modern information and communication technology (ICT) makes it possible for both development agents and farmers to disseminate and access information on

modern farm practices with ease. However, information on internet may not be accessible to all farmers, especially those in the rural areas because of high cost implication and inadequate network coverage.

Inyang et al (2019) opine that optimal success of any development programme is dependent on the adoption of appropriate communication strategies that create an interface between the development agent(s) and the target audience towards positive response and impact. They explain that rice farming in any clime, especially in rural areas, thrives through the adoption of appropriate communication strategies which uses the language that is understood by the target farmers.

Coldevin (1990) emphasizes the employment of campaigns as catalysts to spur action in areas of high development priority. Odumade (2021) reports that a sensitization, training and empowerment programme organized for 800 rice farmers in Lagos by the State Government enabled the farmers to gain experience in modern and improved rice farming techniques; and also exposed them to efficient harvesting method to ensure maximum output, improve yield as well as derive maximum return on investment.

Role of Extension Workers in Enhancing Farming Activities

The importance of extension service in agriculture including rice farming cannot be overemphasized. Adams and Dean (as cited in Mairiga et al, 2019) view extension service to involve proactive and systematic communication of innovation aimed at influencing human behaviour in agricultural design and self-reliance projects and their objectivity. Mariga et al. (2019) also state that “extension service is a medium through which new innovations on agriculture are passed to the farmer through the extension workers...” (p.140).

Extension workers play a very crucial role in all areas of development including agricultural programmes and specifically rice farming which is the focus of this work. The functions of extension workers as change agents among others, as indicated by FAO (1985), include the following:

- i. listening to farmers and engaging in dialogue, with them to assess information needs, identify attitudes that will emerge on the topic of communication, identify and clear up misunderstanding (while communication exchange last) and develop relationships of mutual respect. An agent that listens to farmer’s builds credibility among farmers;
- ii. using words and phrases familiar/common to farmers and their farming activities;
- iii. offering personal advice and support, teaching practical skills (through

- workshops, seminar, conference, meetings) and answering questions;
- iv. ensuring the use of variety of sources (e.g. mass media) that are credible to farmers which will enable them (farmers) to have contact with successful farmers from other areas and agricultural specialists;
- v. providing useful materials to media producers in form of newspaper stories, photographs, recorded interviews with farmers, items of information about extension activities or ideas for new extension films; and
- vi. encouraging farmers to listen to farm broadcasts and also keeping media producers informed of farmers’ concerns and information needs.

In addition to the roles of extension agents listed above, Modo and Omokore (1994) state that extension workers also carry out the following functions:

- i. getting farmers into a frame of mind and attitude conducive to acceptance of technological analysis;
- ii. disseminating to farmers, results of research and carrying farmers’ problems back to relevant research organizations; and
- iii. helping farmers gain sufficient managerial skill to be able to operate in a commercial economy by providing training and guidance for them in decision making.

To carry out these functions effectively, extension agents need to be proficient in effective communication skills. This is because extension service entails the conscious use of communication to make available information to farmers to enable them adopt the best farm practices, identify and tackle their production challenges.

Conclusion and Recommendations

For any significant increase in rice production to take place, the deployment of effective communication strategies, among other factors is quite imperative. Communication strategies have been seen to play major roles in every development project and it is inevitable in enhancing food production. Communication strategies that are well structured help to transmit relevant information that guarantees optimal yield in agricultural produce. The essence of communication strategies is to convey the message of development in the most effective way that will elicit farmers’ acceptance of the new methods of doing things for improved performance, high yield and sustainability.

Rice farmers’ need for adequate information on production techniques and the application of technologies are indispensable in enhancing their production. The absence of effective communication

strategies in conveying such information and other agricultural initiatives by government and non-governmental organizations may not only result in poor outcome but could lead to the total failure of such programmes. As noted earlier, very laudable agricultural programmes like the Operation Feed the Nation (OFN), Green Revolution introduced by the Federal Government, and the School-to-land project launched by the Rivers State Government could not be sustained, not only due to inadequate production facilities but largely due to the relegation of the communication component to the background. It is therefore imperative for programme initiators and the target audience, in this case rice farmers, to recognize the role of change agents (development communicators) who serve as catalysts and enhancers of innovations, towards ensuring acceptability of new ideas to enhance production and sustainability of the practices.

References

- Adeite, A. (nd). *Interesting facts about rice farming in Nigeria*. Retrieved 15th June 2022 from <https://babbangana.com>
- Akintayo, A.O. (2022). *Use of communication strategies by rice farmers in the adoption and cultivation of rice in South-West Nigeria*. Academic Journal of Current Research, 9(2), pp. 32 – 58. Retrieved from <https://www.cirdjournal.com/index.php/ajcr/index>
- Akpan, E. (1987). *Communication and media arts: A new approach to the basics*. Modern Business Press Ltd.
- Anaeto, S. G. & Solo-Anaeto, M (2010). *Development communication: Principles and practice*. Stirling-Horden Publishers Ltd.
- Bamisayo, O. A. (1985). *An evaluation of operation feed the nation policy in Nigeria*. Retrieved on 12th November, 2022 from <https://www.africabib.org>
- Coldevin, G. (1990). *Communication strategy for rural development*. Retrieved on 15th December, 2017 from: <https://www.fao.com>
- Coldevin, G. (2003). *Participatory communication: A key to rural learning systems*. Food and Agriculture Organization. <https://www.fao.org/4/Y4774E/y4774e00.htm/>
- D'Adamo, P. J. & Whitney, C. (1996). *Eat right for your type: The individualized diet solution to staying healthy, living longer and achieving your ideal weight*. Penguin Group
- Dearing, J. W. & Cox, J. C. (2018). Diffusion of innovation theory: Principles and practice. *Health Affairs*, 132 (2). <https://doi.org/10.1377/hlthaff.2017.1104>
- Ehikioya, A. (20th October, 2014). Why operation feed the nation and green revolution failed. *The Nation Newspaper*. Retrieved on 12th November, 2022 from <https://thenationonline.org/>
- Emefiele, G. I. (18th January, 2022). Governor's opening remarks at the unveiling of FCT mega rice pyramids under the RIFAN-CBN Anchor Borrower's Programme.
- Food and Agriculture Organization (1985). *Mass media in extension*. Retrieved 5th December, 2019 from <https://www.fao.org/3/t0060e/T0060E05.htm>.
- Food and Agriculture Organization (2022). *Communication for development*. Retrieved 7th July, 2022 from <https://www.fao.org/communication-for-development/en/>
- Hasan, S. (2013). *Mass communication: Principles and concepts*. CBS Publishers and Distributors PVT Ltd.
- Igben, M. S. (1988). Farmer's capability and profile. In M. S. Igben (Ed.). *The Nigerian farmer and agricultural Institutions: An assessment*. Nigerian Institute of Social and Economic Research (NISER), pp.67 - 92.
- Imolehin, E. D. & Wada, A. C., (2000). Meeting the rice production and consumption demands of Nigeria with improved technologies. Retrieved 16th June, 2022 from <https://www.fao.org/4/x7164t/x7164t04.htm/>
- Inyang, M. P., Alegu, J.C., Iorlaha, L. Y., Adelaja, K. I., & Maku, B. S. (2019). *Fundamentals of development communication and national development*. Mcee Graphics Nig.
- Kamai, N., Omoigui, L.O., Kamara, A. Y., & Ekeleme, F. (2020). Guide to rice production in Northern Nigeria. *International Institute of Tropical Agriculture*. Retrieved 7th July, 2022 from <https://caspace.cgiar.org>
- Iwuchukwu, J. C. & Igbokwe, E. M., (2012). Lesson from agricultural policies and programme in Nigeria. *Journal of Law Policy and Globalization*, Vol. 5, pp.11-21. Retrieved on 12th November, 2022 from https://www.researchgate.net/publication/279679660_Lessons_from_agricultural_policies_and_programme_in_Nigeria/
- Mairiga, J., Momodu, H., Orji, P. O., Halima, M., & Roseline, P. O. (2019). Communication strategies for enhancing women participation in sustainable agriculture development in Nigeria: A critical review. *South Asian Research Journal of*

- Agriculture and Fisheries*, 1(4), pp. 137 - 142. <https://www.sapublication.com/sarjaf>.
- Modo, I. V. O. & Omokere, D. F. (1994). Prospects and constraints of agricultural extension among small scale farmers in Nigeria. In E. M. Abasiokong & I. V. O. Modo (Eds.), *High points in development*, pp.95 -107. Dorand Publishers.
- Nanono, R. D. S. (16th October, 2020). Minister's remarks at the World Food Day.
- Nations Encyclopedia (nd). Nigeria – agriculture. <https://www.nationsencyclopedia.com/economics/Africa/Nigeria-AGRICULTURE.html/>
- Naija Quest (April 2022). List of rice producing states in Nigeria and all you need to know. Retrieved on 16th July 2024 from: <https://naijaquest.com/rice-producing-states-in-nigeria/>
- Odumade, B. (25th February 2021). Lagos and enhanced rice production. *Business Day*. <https://businessday.ng/opin>
- Okiyi, G. O. (2021). Influence of NEWMAPS communication strategies to knowledge, attitudes and behaviours of communities in South East Nigeria on erosion management. In E. S. Dandaura, S. O. Igbaba & T. Santos (Eds.) *BANCHI Journal of Development and Communication Studies, Institute of Strategic Development & Communication*, Vol. 6(1), pp. 16-30.
- Ray, H., Axtell, J. & Porter, D. (nd.). *The agricultural communication process: Communication for technology transfer in agricultural project*. Retrieved 7th July, 2022 from: <https://pdf.usaid.gov>>
- Russon, M. I. (12th April, 2019). Boosting rice production in Nigeria. *BBC News*. Retrieved 19th January, 2022 from <https://www.bbc.com>.
- Van den Ban, A. W. (1994). Communication and sustainable agriculture. In *Proceedings of the International Conference Integrated Resource Management for Sustainable Agriculture, 5-13 September, 1994, Beijing* (pp. 617-626). Agriculture University Press. Retrieved on 16th June, 2022 from: <https://edepot.wur.nl/18493/>