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NOTES TO CONTRIBUTORS

Agricultural Economics and Extension Research Studies (AGEERS) is devoted to the rapidly emerging issues in sustainable Agriculture. AGEERS examines the current issues in sustainable Agriculture and also promotes the study and application of sustainable agriculture for solutions to the complex problems of food insecurity, resources depletion, climate change, loss of farm land and other related disciplines. AGEERS focuses on the multi disciplinary components of agriculture and food system. This journal uses an interdisciplinary and holistic approach to food production as one process in a complex landscape of agricultural production, conservation and human interaction.

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Number each table and give the table an explicit title. Capitalize the first letter of each word or of proper nouns of the table title.

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Dimensions of Integrated Agricultural Processing Mills in Sustaining Rural Livelihoods for Akwa Ibom State Agro-Rural Transformation.

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Abstract:
This study adapted goal free evaluation approach to ascertain the status quo or the extent of efficiency that integrated agricultural processing mills (IAPMs) have achieved to sustain the agricultural and rural transformation it originally envisaged. The study covered responses from both IAPM owners and users on the effective functioning of IAPMs in rural areas, perceived impacts of IAPMs on the livelihood of people and the analysis of the magnitude of impacts IAPMs across the study area. This study adopted multi-stage sampling procedure to select 180 respondents (90 owners and 90 users). The two categories were highly gender bias, each sex dominating each of the categories. The index of effectiveness of IAPMs on agro processing in rural areas was perceived by the respondents (50%) to be high, while socio-environmental and management factors were found to be the most significant determinants of effective functioning of IAPMs. Despite the fact that impacts of IAPMs on the livelihood of the people in the rural locality were perceived by both owners and users to be high, the goal free evaluation identified some factors that could be used to enhance the current state of food sufficiency and migration of younger generation.

Keywords: Integrated Agricultural Progressing, Mill owner, Mill User, Rural Livelihood

Introduction:

In spite of the fact that laudable programmes have been implemented in the past few decades, agricultural production and productivity have continued to remain in abysmally low and sub-optimal level due to myriads of problems plaguing the farmers in particular and the agro-processing sub-sector in general. These problems encompass social, cultural, economic, technological and psychological dimensions. The social dimension centres on lack of adequate knowledge and exposure to varieties of improved processing technologies, even as this is re-enforced by low educational status of majority of the rural farmers. Worst still, information about improved processing technologies might not be easily available and accessible to the ruralites due to paucity of research information and diffusion lag. According to Jugerssur (1991), modern science and technology do not reach the vast rural masses that form the majority of the nation, hence development, if at all, is minimal. Akwa Ibom rural farmers are most likely to have similar experience. Other social variables are capable of influencing farmer's willingness to learn about new things and/or adopt new practices that could raise farm productivity include sex, age, attitude and access to extension information (Olayide, Ogunfowara, Essang, and Idachaba, 1981 and Obibuaku, 1983).

From the economic perspective, majority of the rural people tend to lack investment capital and this is compounded by their high poverty profile and inability to access credit from formal financial institutions. This condition might constitute serious barrier to prospective ruralites tha would have ventured into the establishment of IAPMs in several rural communities in Akwa Ibor State, while those already involved in the processing business might be unable to maintain the mills, talk less of expansion. Also, the womenfolk who constitute the bulk of the patronage IAPMs might find it difficult to buy raw materials from rural markets or merchants, as well as p for the processing fee charged at the mills. In a related overview, Barker (1993) noted that

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immediate experience of crisis for many rural people is caused by lack of financial capacity to adopt innovation that could raise productivity, thereby forcing an economic decline in the rural areas. Another major economic problem is the irregular availability and supply of agro-raw materials due to the seasonality of these products. Hence, the IAPMs find it difficult to operate optimally. Besides, the mill owners might lack the management and organizational ability necessary to operate the mills effectively and efficiently.

CTA (1998) observed in most African countries, that low utilization and development of technologies tend to confine the citizenry into continuous utilization and patronage of traditional processing technologies instead of the improved technologies like IAPMs. The nature has endowed Akwa Ibom State with a galaxy of tree and food crops as raw materials that require processing but what is the level of agricultural processing in the rural communities. This study evaluated the perceived impact and magnitude of IAPMS on the livelihood of people in the rural areas and also ascertained the relative significance of the selected determinants of effective functioning of IAPMS in the rural areas.

Materials and Method:

A multi-stage sampling procedure was adopted in selecting the sample for this study. The first stage involved the sampling of three Local Government areas having uniform typical rural characteristics. The characteristics considered included the following: the preponderance of farming as the primary or basic occupation; lack of or inadequate supply of social, economic, institutional and physical infrastructures such as all season motorable roads, potable drinking water, electricity, housing, banks, insurance firms, educational and health institutions, small and medium scale industries, storage and processing and marketing facilities; high level of illiteracy and underutilized/unutilized natural resources. Based on the afore-mentioned characteristics, the following Local Government Areas were selected using purposive or judgmental sampling, however, at the ratio of one Local

Government Area per Senatorial District. These are Etim Ekpo, Ibiono Ibom and Mkpat Enin Local Government Areas. The second stage involved the simple random selection of 60 respondents from each of the sampled local government areas (that is, 30 mill owners and 30 processors) thus, giving a total of 90 mill owners and 90 processors across the three Local government areas. Altogether, 180 respondents (90 mill owners and 90 processors) represented the sample size, who participated in the study. Statistical tools such as simple percentages, multiple regression technique, composite index analysis and means were used in analyzing the data while the results were tables and described using tables and frequency counts to address the objectives of the study. .

Results and Discussion:

A. Perceived Impact and Magnitude of IAPMs on the Livelihood of people in the Rural Areas

A seventeen item scale (see Table 2) was used to investigate the impact of IAPMs on their owners and users as well. Following the assessment of the perceived impact by owners and users of IAPM technology on their livelihood, the impact assessment scores were subjected to composite index analytic derivations and was further categorized into low and high positive IAPM impact magnitude index based on the criteria that any owner or user has index value of 0.510 or more is highly affected by IAPM, while those that have index value of 0.509 or less are classed as lowly impacted upon by IAPM technology. With regards to the Mill Owners, tables and the results of the analysis revealed that most of the respondents (97.80%) experienced various proportion of high impact of the IAPM technology and their impact level were within the index range of 0.510 to 1.0; in other words, not less than 50 percent positive impact to their socioeconomic wellbeing status was as a result of effective IAPM service available. The same distribution pattern of high magnitude of impact of IAPM technology were observed across the Mill Users. Quite a negligible percentage of both millers and users experienced low impact of IAPM technology on their livelihood within their area even though the impact was positive.

Table 1: Distribution of IAPM owners and users based on level of impact of IAPMs on the livelihood of people in the rural areas

Impact Level Interpretation	IAPM Impact Magnitude Index	IAPM Owners Percentage (f)*	IAPM Users Percentage (f)*
Low	0.00 – 0.509	2.20 (2)	2.20 (2)
High	0.510 – 1.00	97.80 (88)	97.80 (88)
Total		100.00 (90)	100.00 (90)

Source: Field Survey 2003

( )* All figures enclosed in brackets are frequency distribution of respondents.

Further examination of the response pattern on impact of IAPMs on livelihood of the rural dwellers reveals that almost all of the owners and users of IAPMs admitted the positive impact of the technology on their family welfare. About 91.10% of owners and another 95.60% of users agreed that people were satisfied with services rendered by IAPMs in the rural areas, while 95.60% of owners and 97.80% of users agreed that they would like more IAPM centers to be established in other villages. Although items a to q on Table 2 showed the general scenario of impact of IAPMs on the livelihood of the ruralites, however, for a more classical and in-depth discussion, these indicators were further grouped into three broad conceptual categories viz: - Social, economic and environmental impacts.

I. Social Impacts of IAPMs

Drudgery Reduction

Reducing drudgery is crucial in retaining interest in and commitment to agriculture by the youths and adults, and in relieving women and children, particularly from the toil and tediousness of many agricultural operations to spend their time more productively on other complementary income-yielding activities (ITP, 1993). Data on table 2(g) confirms the drudgery reduction capacity of IAPMs in the study area. It therefore, portrays IAPM as one of the essential tool for Agro-rural transformation.

Food Security Provision

Food security is defined as access by all people at all times to enough food for active, healthy life (World Bank 1998, Rentlinger, 1987). The result of Table 2 (e) depicts that IAPM technology and food security are strongly correlated. One major means of securing food is processing, which primarily involves converting raw food materials into varieties of edible form, which is superior in nutritional values, tastiness, safety, and reliability to the raw state. IAPM therefore become important. If Akwa Ibom State is to tackle the challenge of providing enough and wholesome foods for her citizenry, the establishment and utilization of IAPMs must be promoted.

Satisfaction/Improvement in Family Welfare

The rural landscape structure influences the level of rural living conditions, the standards of living and the utilization of productive resources (Olayide *et al.*, 1981). It has been reported that the high standard of living witnessed among the people of Europe and their North American counterparts, and their ability to create wealth through greater production and productivity, have been due largely to their serious and sustained attention to matters of technology (Adeyeye, 2001). The result on Table 2(a), (b), and (m) display a proof of the improved standard of living enjoyed by owners and users of IAPMs in our rural communities. Therefore, in order to raise the income level of farmers, and subsequently their standard of living, concerted efforts must be made to induce the use of modern technology.

II. Economic Impact of IAPM

Employment generation

Poverty is highest in rural areas and the number of rural poor is roughly twice that of the urban poor (World Bank/FOS 1999). Improvement of the employment situation in rural area requires the sustenance of IAPM which is a pre-requisite for the slowing down the rural to urban migration (ILO, 1983). About 98.90% owners and 93.30% users confirmed the employment

generation potential of IAMP in our rural communities and this concurs with the presumption that processing can provide employment for the people. IAPM supports varieties of off-farm employment opportunities for the landless, the youths and adults, as well as sectors servicing agricultural mechanization, such as manufacturers, artisans, fabricators, dealers, and repair of workshops.

Time Saving

'Time is money'; says a popular adage. Under traditional processing, enormous time is expended. However, with mechanization of processing, considerable time is saved on the performance of onerous and laborious manual tasks. ITP (1993) reporting on improved garri processing in Nigeria, noted that the time needed for grating, considered as one of the most laborious steps in traditional production of Garri, was greatly reduced, just as the de-watering steps, which normally took few days was reduced to half an hour using the mechanical press. Undoubtedly, technologies that are mechanically powered can reduce time used for food processing, thereby freeing women's time that could be used for other productive and beneficial economic activities, caring for their families or for recreation. Result confirms IAPM as a time saving technology.

Income Generation

Drive for higher incomes as part of the process of economic development has its rural dimension and agriculture in developing countries is increasingly becoming a source of income as well as sustenance (Roots and Tubers in the Global Food System (RTGFS) 2000). This applies to improved agricultural processing offered by IAPM technology and empirical evidences on Table 2 (d), (e), and (f) point convincingly to the income generating potential of IAPMs in our rural communities. In a related study, ITP (1993) reported that in rural areas of Edo State, garri processing provides the main source of income for women. Similarly, Nweke (1999) reported that

cassava cash income was higher in villages, which had access to mechanized cassava processing technologies than those villages which had not. Finding on Table 2 (d), (e), and (f) are contrary to the widely held belief that mechanization can replace women from traditional income earning activities. In so far as majority of IAMP users (women) are generating more income, the economic and social status of women as well as their status in the family and society at large are bound to improve significantly in varying degrees. Accordingly, IAMP technology can be described as the generator of off-farm income for rural beneficiaries.

Productivity Increase and Availability of more Processed Products

It has been reported that the introduction of a new hydraulic hand press for processing shea-butter to Malian women was enthusiastically adopted and utilized, and within a relatively short time, they were able to produce more Shea-butter than they had done with the old technique ITP (1993). This implies that improved processing technology like IAPM has the potential to raise productivity. Essentially, making available foodstuffs in sufficient quantity and quality, hinges largely on processing. A major advantage of processing in that production rates or productivity is increased, which leads eventually to availability of more processed products. The high number of respondents on Table 2 i and j, that affirmed productivity increases and availability of more processed products made possible by the usage of IAPM technology is quite encouraging.

Profitability of IAPMs

It is expected that the IAMP enterprise should be able to generate sufficient income to pay for the cost of establishment or cost of processing with left over as profit. Low profitability is a serious disincentive to proprietors or investors or service providers as well as service receivers, or patronisers, while high profitability can induce investment and patronage as well. In this study, aIAPM owners are regarded as service providers, while IAPM users are service receivers or patronisers. ITP (1993) reported that Malian women realized that by using the Shea-press, they

could make a profit, which covered the cost of the press in one year. This underscores the profitability status of improved processing technology and is equally replicated in Table 2 (i) as agreed by the respondents (95.60% IAPM owners and 91.20% users).

III. Environmental Impact of IAPM

Governments, researchers, entrepreneurs, companies and individual farmers have made tremendous contribution to the modernization of agricultural production. Unfortunately, just as their efforts have had positive benefit to the economy, the resultant bye product of this source of income make the environment unpleasant. About 63.40% and 82.20% of IAPM owners and users respectively agreed and call for further research and investigation in this direction. It should be stressed that the poor, as well as the rich, depend directly or indirectly on processing of agricultural products, which are carried out predominantly in our rural environment. Therefore, the environment must be protected and made conducive for sustainable agricultural processing. From the foregoing assessment of socio-economic and environmental impact of IAPMs, their numerous potentials need not be over-emphasized that IAPMs would for a long time remain as the chief source of livelihood for majority of the people in Akwa Ibom rural communities for several reasons. Most importantly, the need to produce varieties of food, generate employment and income, and raise the living standard of the rural people among others, should be the major driving force behind the promotion, establishment, and utilization/patronage of IAPMs.

Table 2: Distribution of Owners and Users Based on Perceived Impact of IAPMs on their Livelihood

All values are percentages distribution and A means Agree, UD means Undecided and DA means Disagree.

Item	Using IAPM has made	IAPM OWNERS			IAPM USERS		
		A	UD	DA	A	UD	DA
a	Things better for my family	95.50	0.00	4.50	92.40	2.20	4.60
b	People feel good in my rural area	91.10	0.00	8.90	94.50	0.00	5.50
c	People would like more IAPM to be established in other villages	95.60	0.00	4.40	97.80	0.00	2.20
d	IAPM encourages people to process to make money	96.70	1.10	2.20	97.80	0.00	2.20
e	I depend on IAPM to make money and food	81.10	0.00	18.90	75.80	0.00	24.40
f	IAMP does enable me to make more money	87.80	4.40	7.80	83.40	2.20	14.40
g	IAPM does help to reduce the amount of suffering associated with processing	75.60	1.10	23.30	60.00	0.00	40.00
h	IAPM saves time I would have used to process by myself	95.60	3.30	1.10	91.20	0.00	8.80
i	Using IAPM enhances more processed products to be available for sale	92.20	3.40	3.40	98.90	0.00	1.10
j	IAPM does help people make more profit	95.60	0.00	0.00	91.20	0.00	8.80
k	IAPM offers employment to the rural people	98.90	0.00	1.10	93.30	0.00	6.70
l	IAPM enhances processing of large -quantity of products daily	98.90	0.00	1.00	97.70	0.00	2.30
m	IAPM does help to make out life a bit convenient	86.70	10.00	3.30	88.00	2.20	7.80
n	Polluted air generated by-products of IAPM operation make me feel bad	44.50	12.20	43.30	55.60	14.50	29.90
o	Some of the bye-products can be sold to make more money	63.40	5.60	31.00	82.20	10.00	7.80
p	Some of the waste products can be used as manure in farms	94.50	3.30	2.20	80.00	4.50	15.50
q	Some of the bye-products can be used as sources of fuel	88.90	4.40	6.70	78.80	10.00	11.20

Source: Field survey 2003

B. Effective Functioning of IAPMs in the Rural Areas

Table 3 shows the determinants of effective functioning of IAPMs in our rural areas which were identified as age, sex, education, access to credit, management factor and social-environmental factor. The socio-economic variables of the owners of IAPMs considered in this relationship (that

is, age, sex, level of education, access to credit) were not significant, implying that though they affect the effective functioning of IAPMs in our rural area but the influence were not statistically significant. Both socio-environmental and management factors were statistically significant determinants of effective functioning of IAPMs. This implied that no matter the number of times IAPM centres are evaluated, its effective functioning would inevitably be determined by management and socio-environmental factors. Furthermore, Management factors contributes about 66.2 percent to the sustainable and effective running of IAPM service on the sustainable and effective running of IAPM service delivery. Therefore, in order for any IAPM center to serve or function effectively in our rural communities, it must give priority attention to the two significant factors highlighted above.

Table 3: Determinants of Effective Functioning IAPMs in the Rural Areas

Determinants	Coefficients	Sign.	Probability Value	Remarks
Management factor	0.662	0.000	0.05	Sig.
Socio-environmental Factor	0.329	0.000	0.05	Sig.
Access to credit	0.00221	0.348	0.05	N sig.
Age	0.00176	0.732	0.05	N sig.
Sex	0.00124	0.621	0.05	N sig.
Level of Education	0.000183	0.951	0.05	N sig.

Source: Computation based on Field Survey Data 2003.
Key: Sig = Significant; N sig. = Not significant

Conclusion and Recommendations

The rate of replication of IAPMs demonstrates the flexibility of this technology, it goes to confirm that this technology is not location-specific, but instead shows a wide range of acceptability and maintenance friendly requirement. A high percentage of the respondents agreed to the fact that high replication of this technology has impacted positively on their lives and would wish others to

share in such benefits. It's generally indicating the potential of IAPMs in powering rapid rural and agricultural transformation of our community. The crucial nature of IAPMs in transforming the rural settings should necessitate a strategic educational action(s) towards promoting the factors that can influence service delivery within agricultural processing sector of any rural economy. Thus, tailor made capacity building programme with certification on Management and Socio-environmental Dimensions of Agro-Processing Mill should be designed for the level of illiteracy of mill owners. The capacity building programme should be included in the agro-processing development policy action plan of Akwa Ibom State government, if transforming and sustaining the rural livelihood through IAPMs is desirable.

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