

## AN ASSESSMENT OF RISK MANAGEMENT AND COPING STRATEGIES OF FARM FAMILIES IN SOUTHERN BORNO

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### ABSTRACT

This work assessed the behaviour of farm families in anticipation of a shock and after its occurrence. The study utilized primary data obtained through the use of questionnaire administered on the respondent. A total of one hundred and twenty (120) respondents were sampled and interviewed through a multistage random sampling technique. Data collected were analyzed using descriptive statistics. Result of the analysis revealed that farmers in the area suffered from crop failure, flood, drought, price fluctuation, bush fires and pests infestation. Management strategies identified include farm migration, savings and diversification. Coping strategies identified include remittances, extended working hours and diversification. A large number of the respondents reported no management strategy (60.8%) or coping strategy (77.4%), ignorance, fear to acknowledge the presence of risk, and beliefs were found to be the reasons why majority of the farmers have no risk management or coping strategy. This finding revealed that the vulnerability of the farm families to adverse effects of shocks is high. It was recommended that extension should educate farm families on risk, its management and coping strategies to help place them at a vantage point against shocks.

**Key words:** Farm families, Risk/shock, management strategies, coping strategies.

### INTRODUCTION

Agricultural producers face a wide range of risks, income risk inclusive (Organization of Economic Community Development, 2000; Bwala and Bila, 2007). The inability to predict future outcomes precisely and hence, make good decisions for the future places the farmer in a rather precarious situation. The prevalence of risks and the attendant losses, not only reduce efficiency in farming operations, but also make the farmer doubt unfamiliar ways of doing things that are better than the ones he is used to. Having

knowledge of the risks farmers face is not adequate, but cognizance of management and coping strategies employed to reduce or cushion the impact is necessary; as this will educate economists as well as policy makers on how best to advise and intervene in times of crisis. There are ways households insulate their consumption from production and income fluctuations. These range from self-insurance through savings and informal community risks sharing, to participating in insurance credit mechanisms (Dercon, 2002; Broomley and Chavas, 1989). The insulation

of consumption from production and income fluctuations may arise through risk management or coping strategies.

Risk management involves choosing among alternatives that reduce the risk within the household, transfer risk outside the household or increase the household's ability to bear risk. Risk management is an ex-ante measure taken to tackle risk before its occurrence; While risk coping strategies are ex-post measures adopted to handle risk after the adverse outcome has occurred (World Development Report, 2000/2001). Corbett (1998) and Davies (1996) reported many examples of coping strategies. These include temporary job migration, longer working hours/days, collecting wild foods and forest products such as fire wood for sale. Management strategies include, acknowledgement and identification of the risks, spreading the risk among activities through diversification, reducing or transferring risks to other agents or the management of losses (Hardeker *et al.*, 1997; OECD, 2000).

Management and coping strategies may include the use of income diversification and remittances to mitigate risk (Reardon *et al.*, 1988; Jalan and Ravallion, 2001). While it is a fact that risk is a factor the farmer has to contend with in decision making, he may be oblivious of the risks threatening his investments. Typically, the farmer accepts every occurrence whether good or bad as an act of providence. The farmer cannot afford to continue in the bliss of 'living ignorant' of the risks contending against his livelihood. Policy needs to be informed on the response of farmers to risk situations and measures they take in anticipation and in the event of a disaster (shock) occurring. How do Nigerian farmers deal with risk?

What strategies do they employ to shield themselves from the shocks prevalent in the farm industry? The study therefore, tried to provide answers to these questions.

## METHODOLOGY

The study was carried out in the Southern part of Borno State, Nigeria. The area lies within Latitudes 10° 00' and 11° 30' North and Longitude 11° 30' and 14° 00' East of the equator (Microsoft, 2007). Farming families in the area constitute about 95% of the total population. Occupations of residents in the area include animal rearing, fishing, trading, crop farming, craftsmanship and hunting. Crops grown include sorghum, millet, cowpea, groundnuts, beans and maize (Southern Borno Agricultural Development Project, 1987). The study used primary data obtained from the farm household heads through questionnaire administered on the selected respondents. The survey questions focused on type of disaster/shock experienced by the farmers in the past, and information on management and coping strategies employed. The frequency as well as the types of disaster/misfortunes suffered by the farmers were listed and categorized. Samples for the study were drawn through a multistage sampling technique. Four (4) Local Government Areas namely Biu, Damboa, Shani and Hawul, were randomly selected out of the nine in the area. In the second stage, three (3) villages/settlements were drawn from each of the Local Government Areas through balloting carried out by the researcher; where ten (10) farming families were selected randomly. A total of one hundred and twenty samples (120) were collected. The farm household was the sampling unit while the farm family head was the unit of analysis. The study utilized percentage to summarize and categorize the responses from the farmers.

## RESULTS AND DISCUSSION

### *Disasters experienced*

Data revealed that farmers in the area have suffered losses due to one natural hazard or the other. It was observed that 15, 19.2, 28.3 and 23.3% of the farmers experienced grasshopper attacks, crop failures, flood and drought respectively (Table 1). Furthermore, 11.7 and 7.5% of the respondents experienced crop price fluctuations and bush fire accidents at one time or the other. Also 33.3% of the farmers did not indicate ever suffering a disaster (Table 1). From the result it was evident that flood was most prevalent, followed by drought in the area. The occurrence and severity of either flood or drought in the area was relatively subjective. This was because some households farm at locations that are prone to flooding, such as water ways, stream and river sites. Therefore, farmers who have suffered flood, most probably had their farms situated at depressions or areas prone to collect water. However, there were those who suffered flooding due to a general increase in rain fall; thus, places that are not ordinarily susceptible to flooding received overflows. Accurate timing of planting where rain is erratic and insufficient is one way of avoiding moisture stress; however, regulating moisture is almost impossible, due to farmers' inability to control supply even artificially. Since Farmers in the study area usually plant in the months of May and June, erratic and insufficient rain makes accurate timing of planting difficult within this period. Consequently, early planting could result to water stress for the crops because the rains have not really set in.

Furthermore, late planting could also expose crops to water stress at the terminal stage of growth because of dwindling supply of rain (late in the season). Hence,

droughts suffered by the farmers are due to late planting arising from indecision to plant at the appropriate time. The argument was deduced from the result where only 23% (Table 1) of the farmers suffered the problem of drought. Crop failure was also reported although with a low percentage, the havoc wreaked on the farmers concerned was in no wise negligible. An average of 39% shortages in total yield expected was reported to have been lost through crop failure; going by the estimates of the Federal Bureau of Statistics for the crop yields for Borno State of 1.030, 0.955, 1.070, 0.430 and 1.010 ton per hectare for millet, rice, maize, beans and groundnuts for the year 2004 farming season respectively (Federal Bureau of Statistics, 2007), the lose per hectare was calculated to be 401.7, 372.45, 417.3, 167.7 and 393.9kg for millet, rice, maize, beans, and groundnuts, respectively, for the farmers affected. This could be associated with the spatial land characteristics of the farmlands in the area. The occurrences could also be due to the presence of pests and diseases resident on individual farm lands. The incidence could further be partly attributed to the aftermaths of drought and flood, where the crops might have suffered water stress or had excess water supply.

Few of the farmers reported having had their farms attacked by grasshoppers; from data it can be observed that grasshopper attack was not general, however that doesn't mean that the damage suffered is negligible to the farmers that had the experience. The incidences of the attacks may be explained by the type of crops grown in a particular year and the stage of maturity at the time of attack. If the crops are at a susceptible stage, of course the damage will be great and hence colossal. Crop price fluctuation and bush fire had low occurrences, hence, not very prevalent in the

**Table 1: Distribution of Respondents according to Shocks Experienced**

Disaster	Number of Respondents	Percentage
Grasshopper	18	15
Crop failure	23	19.2
Flood	34	28.3
Drought	28	23.3
Crop price fluctuation	14	11.5
Bushfire	9	7.5
None	40	33.3
Total	166	138.1

Source: Field survey 2005.

Cases of multiple responses were allowed, as such the number of respondents and percentage do not add up to 120 and 100% respectively

ing a larger part of the total income of the farmers, the impact of such disasters on their economic well-being will be colossal. A negative impact on farm income by any of these possible risk factors could translate into adverse economic and emotional stress.

#### **Management strategies**

Management strategies reported include diversification, savings and farm migration (moving from one plot of land to the other). A high percentage of the farmers interviewed reported no management strategies (60.8%). A total of 42.5% of the respondents indicated diversification, savings or farm migration as management strategies employed in anticipation of a shock. Diversification strategies reported include trading, menial jobs, commercial motor-cycling (*okada*), dry season farming, mixed cropping, orchard planting, collection of fire wood and fodder for sale. Planting of early maturing variety of crops was also reported by respondents. Furthermore,

a small percentage of the respondents saved for the rainy day (5%). Mode of savings varied among respondents: saving cash, holding back a certain percentage of harvested produce with the intention to sell at later date were reported as mode of savings.

Paxon (1992) and Fafchamps *et al.* (1998) provided evidences that livestock sale and purchase are used as part of farm household strategies against risk. With majority of the respondents (60.8%) having no management strategy, it is obvious that farmers in that area are ignorant of the uncertainties obtainable in the industry. The implication of the behavior is that, the consequence of a shock will be higher than if the farmers had a management strategy in place.

The major reason why most of the farmers do not have any management strategy is attributed to their mentality of leaving everything to providence.

**Table 2: Distribution of Respondents according to Management Strategies**

Management strategies	Number of respondents	Percentage
Diversification	33	27.5
Savings	6	5
Farm migration	12	10
None	73	60.8
Total	124	103.3

Source: Field survey, 2005.

Cases of multiple responses were allowed, as such the number of respondents and percentage do not add up to 120 and 100%, respectively.

While some of the farmers believed that making provision for risks is an open invitation for disasters/shocks to happen; some of them reported being comfortable to place the thought of the likelihood of shocks occurring at the back of their minds. Some of the respondents had the feeling that disasters would not befall them in the nearest future; hence, they are nonchalant towards consciously adopting any management strategy. Subsequently, when disaster or misfortune strikes, the tendency that they would be the hardest hit is very high, because they do not have reserves that will cushion the impact of a shock.

### ***Coping strategies***

Remittances, extended working hours, communal help and diversification were reported as coping strategies by the respondents. The results suggests that majority (77.4%) of the respondents do not employ any coping strategy (Table 3). The implication of this finding is that when misfortune strikes, farm households in this category will face more hardship than their counterparts who had coping strategies. Further-

more, this means that such category of farmers will be totally helpless, and as such government will spend more in the form of relief materials. Most of the households (11.7%), among those that indicated having had a "coping strategy" depended and received external financial aid in form of remittances; a total of one hundred and fifty three thousand naira (₦153,000) was reported. This amount represents 8.16% of their total average income. According to the reports, the support comes from their relatives, siblings and children living in cities. In extreme situation, the community rallies around the victims and help out with food items, clothing and even shelter.

The communal help usually come through tribal associations, religious affiliations and relatives. Some respondents work longer hours on their fields, on other people's farms and collect firewood and wild fruits from the bush; this they do, to earn more income to cushion the effects of losses. Other activities reported under diversification include wood collection, off-farm work and the gathering of dry and sale of edible leaves. The findings

**Table 3: Distribution of Respondents according to Coping Strategies**

Coping strategies	Number of respondents	Percentage
Remittance	14	11.7
Extended working hours	12	10
Communal help	9	7.5
Diversification	7	5.8
None	78	65
Total	120	100

Source: Field survey, 2005

were consistent with the reports of Davies (1996) and Corbett (1998), where they reported longer working hours/days, collecting wild foods or forest products such as fire wood for sale as coping strategies. Also Kochhar (1995) reported labor supply adjustment rather than asset exhaustion as the practice in India. Furthermore, Moser (1998) reported increased female labor participation and child labor as coping strategies in Zambian communities; these instances were also found among the respondents in the study area, but were categorized under extended working hours. Households that were affected by flood, resort to planting early maturing crops and vegetables as coping strategies. Jacoby and Skoufias (1997) found that in Indian villages, children are taken out of school in response to adverse income shocks to work; Female labor adjustment and withdrawal of children from school were also found to feature in the strategies used by households in Indonesia to limit the impact of recent crisis.

## CONCLUSION

This study assessed risk/shocks farmers in Southern Borno experienced and the strategies they adopted before and after the shocks. Flood had the highest occurrence followed by drought. Management strategies reported include savings, farm migration and diversification in the form of trading, menial jobs, dry season farming, orchard planting, collection of fire wood and fodder for sale, among others. Coping strategies reported were remittance, extended working hours on own farm and on other peoples farm, communal help and diversification. It is overwhelming to note that majority of the farmers reported no management (60.8%) or coping (77.4%) strategies, this finding implied that farmers in the area are ignorant of the risks prevailing in the farm industry. From the foregoing, it was concluded that the vulnerability of the farmers to the negative impacts of shocks/disasters was high. The economic cost of these behaviors are enormous, and by implication the burden of providing relief will eventually fall upon the government and non government relief agencies. Consequently the incidence of poverty

among the farmers will continue to prevail as a result of their beliefs and ignorance. Given the state of mind of the respondents on risk, it was the opinion of this study, that farmers should be educated on risk and its identification, they should be exposed to risk management and coping strategies through extension service.

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