

CHALLENGES AND CONSTRAINTS TO AGRICULTURAL DEVELOPMENT IN ZANGON KATAF LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

¹YUNANA MBA ABUI, ²DOGLAS DOGARA SABO & ³AUGUSTINE TAKA SHAT
Kaduna State University, Kaduna

Abstract

Agriculture is the most important form of human activities in the whole world. In Zangon Kataf Local Government Area, it is the most important occupation, major source of income and source of food. Yet it is still at the primary level. The paper examines the factors militating against the agricultural development and coping strategies for the development of agriculture in the area. Data were collected through observation and focus discussion using standardized questionnaires on sixteen (16) villages which were randomly selected. One hundred eighty (180) copies of questionnaires were produced and administered randomly to the farmers. Simple descriptive statistical analysis using tables and percentages was employed. The study found out that agricultural development in area is been limited by the occurrences of drought, bush burning, pest and diseases, lack of enough capital to expand their agricultural production, lack of feeder roads to transport food produced to the market, high cost of labour, poor storage facilities, low prices on food produced, and poor and ineffective management of government policies and programmes towards improving agriculture. It is therefore, recommended that the government programmes should be phased into immediate short and long terms. The short terms should include: development of agro-allied industries especially in processing, provide rural infrastructure, provide agriculture extension services, provides incentives for inputs in agriculture, development and encourage the use of simple agricultural implements, develop effective mechanisms to facilitate movement of food crops, improve food preservation, reduce pre and post-harvest losses. The long terms programmes include: provision of agricultural fund, harmonization of research institutions, incentives for agricultural loan, pricing, enhanced supply of agricultural inputs, rural infrastructure and agricultural products protection policies.

Keywords: Agriculture, Policy, Constraints, Strategies, Factors.

Introduction

Agriculture is the most basic form of human activities in the whole world. It includes the cultivation of crops as well as rearing of animals for human uses. Today in Nigeria, about 70% of its population are engaged in this activity (Aagbe, 2007). Despite the large number of people engaged in this activity in this country and the whole world in general, the activity is not 100% successful.

Agriculture is the mainstay of the economy. This is because agriculture represents a strategic asset to the overall national economy (Rogers, 2000). In Nigeria,

the importance of agriculture is manifested in the provision of employment opportunities to over 60% of the Nigerian work force including the under-aged who are not yet of working age. The widespread prevalence of poverty has been linked to the level of the development of agriculture in Nigeria as over 40% of Nigerians live below poverty line.

Babalola, 2003, have noted that Nigeria is a nation richly endowed with abundant natural resources that are conducive to agricultural development. Right from the colonial era, there had been significant emphasis by various governments on how to develop agriculture. In the past few years,

government has been making reference to poverty alleviation in budget pronouncements without concrete and special emphasis in agriculture. It is difficult to perceive the type of policy measure that could be put in place to surmount poverty, without making agriculture a central focus.

In Nigeria, the contribution of agriculture to national development has waned considerably. In the 1960s and 70s, Nigeria was a major exporter of agricultural commodities such as cocoa, groundnut, cotton, etc. at that time, agricultural exports accounted for over 70% of both total export earnings and proportion of GDP making the country self-sufficient in food production (Oguniela and Ogungbile 2006). This development is not unconnected with the increase in oil output and prices beginning from the first half of the 1970s, government macro-economic policies which did not favour agriculture, including urban-biased infrastructural development, and inconsistent foreign policies.

The study problem

Despite the large number of the people engaged in agricultural activity in the study area, yet agriculture is still at the primary level. In Zangon Kataf Local Government, most of the farmers are subsistence farmers and only a few can if at all can sufficiently support and maintain their families throughout the year. The area is into the farming of cereal crops like Maize, G/corn, millets and few tuber crops like Yams, Cocoa yams and Cassava. The crops in the area have been showing low output of production. These sometimes show a total failure of some crops in certain years. This result to constant rural depopulation.

Owing to the afore mentioned problems, it is clear that a new approach is needed for the development of agriculture in the area. The programme that aim at having an overview of the government policy in agricultural development and new strategies for the development of agriculture in the study area.

It is noted that similar researches have been done in some part of the country. But, no research of this nature has ever been done in Zango Kataf Local Government Area. There is, therefore the need to undertake an in-depth study on the factors that militates against the development of agriculture in Zangon Kataf Local Government Area.

In light of the above situation, the paper, therefore, focus on the strategies for coping with the constraints against agricultural development in the study area.

Aim and objectives

The main aim of this paper is to examine the various constraints in relation to the development of agricultural and the coping strategies in Zangon Kataf Local Government Area.

The aim would be achieved through the following objectives:

1. To examine the factors militating against the agricultural development in Zangon Kataf Local Government area.
2. To have an overview of the government policy in agricultural development in Zangon Kataf Local Government area and,
3. To proffer coping strategies for the development of agriculture in the study area.

The study area

Zangon Kataf Local Government Area is situated in the southern part of Kaduna state. It is situated between latitude Latitudes 10° 18' and 10° 30'N and Longitudes 7° 15' and 7° 45' (fig.1) It is one of the largest local governments in terms of landmass in the state. Bounded in the east by Kaura Local Government Area, in the south by Jema'a Local Government Area, in the west by Kachia Local Government Area and in the north by Kauru Local Government Area. The 2006 head count revealed a population of 2,508,300. It is made up of four Chiefdoms;

*Challenges and Constraints to Agricultural Development in Zangon Kataf
Local Government Area, Kaduna State, Nigeria*

Atyap, Ikulu, Angan and Bajju. The people of the study area are predominantly agriculturalists.

The study area is situated on the central highland of northern Nigeria and the region consists of a rolling terrain extended to the Jos Plateau. The climate of the area is part of the tropical wet and dry climate of Nigeria. It is characterized by wet and dry seasons. The wet season begins in April and ends in October, though; there is fluctuation in the beginning and the ending of wet season from year to year. In some years, it begins early May (Ajayi, 2007). The wet season which is characterized by high humidity throughout last for six to seven months with its maximum rainfall in the month of August (Ajayi, 2007). The main annual rainfall ranges from 1204 to 1567mm. the study area is dominated by the dry dusty cool hamattan wind, migrating from the Sahara desert November to March. The average temperature is between 24^oC to 38^oC (Ajayi, 2007).

The area is located in the slightly thicker wooded vegetation of the north guinea

savannah zone, the activities such as overgrazing, bush burning, over cropping, tree felling for fire wood have generally modified the vegetation to wooded shrub like-vegetation.

The soils fall within the tropical ferruginous soils, the topsoil is coarse sandy soils (Adetola, 1990), though the southern part of the study area is slightly acidic. The soils has lost its fertility that no crop can grow successfully without the use of artificial fertilizer.

The area is drained by three rivers that flows throughout the year; the Zonzon river taken its source from Jos plateau and empty its water in river Kaduna. The river Kaduna itself which flow westward of the study area taken its source from Jos Plateau and the Gurara river taken its source from Kagoro hill to join the river Niger. These rivers only reduce in volume during the dry seasons. There are also some seasonal rivers distributed all over the study area, these rivers dry up in the dry season and fill in volume during the rainy season.



Methodology

Zangon Kataf Local Government area is made of four chiefdoms, namely: Atyap, Bajju, Kamattan and Ikulu. A multistage sampling technique was adopted where two districts were purposively selected from each district (Zonzon, Ung/Gaya, Zonkwa, Ung/Rimi, Kamatan, Kangun Ashafa, and Kamuru district for Atyap, Bajju, Angan and Ikulu chiefdom respectively). Two villages were selected at random from each district making a total of 16 villages. A sample of 180 farmers was taken proportionally to the population of each district and villages sampled.

The data required for the study was collected primarily by the use of questionnaire administration. The variables that were investigated are those that were used to determines the coping strategies for constraints to agricultural development of Zangon Kataf Local Government Area.

The questionnaire sought information on the respondents personal data, factors militating against agricultural development, the overview of the government policy and strategies employed to improve agriculture in the area. A total of 180 questionnaires were administered to the respondents in each chiefdom in the study area randomly. Simple descriptive statistics analysis using tables and percentages was employed to analyzed the data.

Results and discussion

1. Age Distribution of Respondents

The mean age of the respondents was 44.7 years with the majority of farmers (34.10%) in the age group of 25 to 45 years. The respondents in the age bracket of 15to 25years constituted 19.34%, that of 25 to 45 years constituted 20.34%, the group of 45 to 65years and years made up of 20.33%. Respondents in the age of 25 to 45 years were energetic and very active for farming. These

respondents fall within the age range of 15 to 64 years defined by FAO (2001) as economically productive. The age of a farmer determines the effects of the type of farm operation he or she could undertake. Young farmer could embark on more demanding farm operation such as land tilling and free felling than older farmers, while the aged engage in less energy demanding tasks as planting, land clearing, thinning and harvesting.

Table1: Age of Respondents

Farmers Age (years)	No. of Respondents	Percentage (%)
15 - 25years	48	22.66
25 - 45years	82	45.56
45 - 65years	50	27.78
TOTAL		100

1. Educational Background of Respondents

Education enables individuals to gain knowledge and skills and thus increases their power of understanding (Goning et al 1998). The educational background of a farmer is an important determinant of his adoption behavior and managerial ability. It helps him to understand government policies and agricultural programmes and the problems of agriculture.

In table below, it indicates that 38.89% of the respondents had secondary education, 23.89% had primary education. About 19.44% of the respondent did not attend any formal educational institution while about 17.78% of the respondent had post secondary education. In all about 93% had one form of formal education or the other while only 7% of the respondents did not school. It is obvious that the educated respondents had really gone into farming and would have studied the effects of the effluents discharged by the refinery into their farmlands and would be able to contribute much in this study.

*Challenges and Constraints to Agricultural Development in Zangon Kataf
Local Government Area, Kaduna State, Nigeria*

Table 2: Education level of Respondents

Level of Education	No/. Respondents	Percentage (%)
No formal education	35	19.44
Primary education	43	23.89
Secondary education	70	38.89
Tertiary education	32	17.78
TOTAL		100

3. Farming Experience of Respondents

The farming experience of the farmers to a large extent influences how the farmers understand the factors affecting farming in the area over time. Table 45 presents the results of the number of years of farming experience of the respondents. The results show that 50.5% of the respondents have been farming their land for over 30 years and above. This is followed by 22.3% who have 20 to 30 years of farming experience of their land. The next is 16.1% of the respondents who have been farming their lands for 10 to 20 years. From the results presented 30 years and above constitutes the majority of the farming experience in the area. With this fact, the farmers could be categorized as experienced in the farming process as they would be able to explain the situation of the Romi area before and after the establishing of the refinery.

Table 3: Farming Experience of Respondents

Farming experience	No. of respondents	Percentage (%)
1 – 10 years	20	11.1
10 – 20 years	29	16.1
20 – 30 years	40	22.3
30 years and above	91	50.5
TOTAL		100

4. Climatic Condition of Zangon Kataf Local Government Area.

The table (4) clearly shows that out of the 180 respondents, 89% complained that the rainfall fluctuates from year to year and 10.6% have it that the rainfall do not fluctuate

Table 4: Rainfall Regime of the Zangon Kataf Local Government Area

Rainfall Regime	No. of Respondents	Percentage (%)
Fixed	19	10.6
Fluctuates	161	89.4
TOTAL	180	100

5. Occurrence of Drought in Zangon Kataf Local Government Area

It is observed in the table below that 66% of the respondents experience drought in their own locality for 3 – 6 weeks every year. 21.7% experience of drought for 1 – 3 weeks and 11% of the respondents experienced it for over 6 weeks.

Table 5: Drought occurrence

Drought occurrence	No. of Respondents	Percentage (%)
1 – 3 weeks	39	21.7
3 – 6 weeks	120	66
6 weeks and above	21	11.6
TOTAL	180	100

6. Nature of the Soil of Zangon Kataf Local Government Area

The table (6) reveal that 77.8% of the respondents interviewed complained that their soils are not fertile. 13.9% observed that their soils are averagely fertile and 8.3% of the respondents have it that their soils are fertile.

Table 6: Fertility of the Soils of the Respondents

Soil Fertility	No. or Respondents	Percentage (%)
Not fertile	140	77.8
Averagely fertile	25	13.9
Fertile	15	8.3
TOTAL	180	100

7. Effects of Field and Stored Pests, and Wild birds

The table below indicated that 93.9% of

the respondents suffers from field and stored pest and birds on their crops, while 6.1% of the respondents do not have such experience on their crops

Table 7: Effects of Field and Stored, and Wild birds on the Respondents Farms

Field and Stored, and birds	No. of Respondents	Percentage (%)
Yes	169	93.9
No	11	6.1
TOTAL	180	100

8. Sources of Capital of the Respondents of Zangon Kataf Local Government Area.

The results in the table below shows that 83.3% of the respondents used their money to buy all the Agricultural inputs for production. 11.1% of the respondents get their loan from Agricultural Banks and 5.6% of the respondents get their loan from Community Banks.

Table 6: Sources of Capitals of the Respondents

Sources of capital	No. Respondents	Percentage (%)
Loan from Agric Bank	20	11.1
Loan from Community Bank	10	5.6
Personal income	150	83.3
TOTAL	180	100

9. The Mode of Transportation of Farm Produce to Markets

As observed from table (7), 59% of the respondents transport their farm produce to the markets by head. 40% uses motor cycles to transport their farm produce to the markets and 1% uses pickups to transports their farm produce.

Table 7: Mode of Transportation of Respondents to Markets

Mode of transportation	No. of Respondents	Percentage (%)
Motor Cycles	72	40
Animals	0	0
Heads	99	59
Pickups	9	1
TOTAL	180	100

10. The Type of Labour Used by the Respondents

It is clearly noted that the table below shows that 60.1% of the respondents uses personal labour on their farms. 27.8% uses communal and 11.1% of the respondents uses hired labour.

Table 8: Type of labour used by the Respondent.

Type of labour	No. of Respondents	Percentage (%)
Communal Labour	50	27.8
Hired labour	20	11.1
Personal labour	110	60.1
TOTAL	180	100

11. The Method of Storage Facilities by the Respondents

The table below reveal that 42.2% of the respondents stored their farm produce in barns. 22.2 of the respondents stored their farm produce sacks.16.7% uses huts to stored their farm produce and 2.2% stored in the ground.

Table 9: Method of storage by the Respondents

Storage facilities	No. of Respondents	Percentage (%)
Barning	76	42.2
Hut	30	16.7
Sacks and apply Chemicals	40	22.2
Ground storage	4	2.2
Large pots	30	16.7
TOTAL	180	100

Discussion

The analysis of the data collected reveals that the rainfall regimes in Zangon Kataf Local government area vary from year to year as complained by the respondents. In normal years the rain comes as early as April, while in abnormal years it may even come as late as in May. Hence with such an unpredictable situation we find that yields tend to fluctuate with low yield in the bad years.

From the interview conducted, majority of the farmers complained of the occurrence of drought from time to time that affects the agricultural production in the area.

As complained by most of respondents that the fertility of the soils of the study area are poor. The soils have become exhausted and the rate of productivity in the area have decreases seriously unless the use of traditional or chemical fertilizers which the farmer complained that the government do not make it available to them and this have made the farmers in the area to have little yield in their annual farm production.

Field and stored pest have been discovered to be great constraint to agricultural crops in the area. Most of the respondents complained that the common pests that affects the crop grown in the field include the weevils, laver of butterflies and moths. They feed on the leaves, stem, flowers and the fruits of the plants. Some bore into the stems and woody tissue, while some suck out the nutrients contained in the water. By this they destroyed the plants to such an extent that the yield of the crops affected are substantially reduced. Weaver birds, sparrow and quells as complained by the respondents are known to cause severe destruction to agricultural crops in the area. The birds do not only eat the seeds of these crops, but also takes the leaves for nest building. Ward, (2007), stated that the economy of a country can be affected by destruction caused birds. Hence the extent of destruction in some part of this area has

become a constraint to agricultural development as these birds from year to year cause severe destruction to some crops.

The farmers, during the interview complained of lack of capital to expand the agricultural production. In the local government little or no loan is provided to the farmers by the government for agricultural expansion. In most cases even where such little provisions are made necessary, it does not reach all the rural farmers at right time. The farmers complained that some times in years of poor harvest, they are force to borrow money, and successive bad year may increase their debts to levels from which they can never free themselves. According to FAO and IFAD, (2005), that for any agricultural development, capital is very important. Capital inform of money to purchase inputs like fertilizer, insecticides, pesticides, land, machineries and labour. Since the farmers in this area are generally poor, some could not even produce enough food to feed their families, the possibility of getting extra profits to buy agricultural inputs for expansion and improvements in agricultural productions and development become less successful.

As reported by most of the respondents, that their rural roads are seasonal that its only function during the dry seasons and in some part there are no even the feeder roads. Most farmers transport their farm produce to the markets on their heads. in some cases, farmers trek or cycled about 7km and above with their goods to the markets. With the lack of such sufficient facilities of transport network in some part of this area, it has become a considerable constraint to agricultural development in the area. The situation agreed with

Erhoyema, (2003), that transportation system is one of the determinant of agricultural productions, where the system is not adequate, low return of production is expected that will not reach

market at desire time.

It was also observed in the study area that majority of the farmers uses family labour in the agricultural system. This is too small to produce much even for the families what more of to have extra for market. Therefore, less labour in the farm results to less produce and consequently low level of agricultural development in the area.

In the study area, most of the farmers use traditional method of storage such as Barning, hut and sacking. These are inadequate storage facilities. In years of bumper harvest large amount of crops use to get damaged under these storage conditions. Most of the storage products are damaged by weevils especially guinea corn, maize and cowpea.

Majority of the respondents complained that the little of the products set aside for selling by farmers are sold at a give away price in the early time of the harvest. As observed in table 10, there is no fixed price of certain commodities. The prices may either go up or down. In the case where the price comes down, the farmer will be reluctant to sell his products at the price. He may prefer to store it. Since he did not have the adequate storage facilities, the products may get damaged. This make the farmers not to produce more for his family and for market, since the prices does not encourage him. With this price fluctuation, agricultural productivity remains always low and this really affects the development of agriculture in the area.

As complained by the respondents, the study area suffers from lack of social amenities especially in the rural areas such as electricity and pipe borne water. The farmers suffers from getting enough drinking water during the long dry season.

The consequences of these agricultural constraints in the study area has resulted to low income per farmer, shortage of food for the people from time to time, and rural depopulation.

The effort of the government

towards improving agriculture in the study area has been very poor over the past decades. The government agricultural policies over the years have been unsuccessful.

Beginning from the era of Commodity Board in the 1960s, the country has witnessed a myriad of policies and programmes ostensibly introduced to address perceived problems in the agricultural sector. Among these programmes is the National Accelerated Food Production Programme in 1972, a campaign to grow more food. The next is the Nigerian Agricultural Bank in 1973, with an initial paid up capital of N20 million. This is to make credit available for the development of agricultural development. In 1976, the Operation Feed the Nation (OFN) programme was launched with the objectives of increasing food production, attaining self-sufficiency in food supply, encouraging all sections of the Nigerian to grow food, encouraging balanced nutrition and by extension a healthy nation. The Land Use Decree in 1978. The focus of the decree was to reform the land tenure system. This constitute a formidable obstacle to the development of agriculture in Nigeria.

In 1986 when the Structural Adjustment Programme was introduced, the focus had been on returning Nigeria to self-sufficiency and enhancing the contribution of agriculture to foreign exchange earnings.

Part of the programmes over the years is the establishment of relevant institutions. Thus there were agricultural research institutes like the National Cereal Research Institute, the National Agricultural Extension and Research Liaison Service and other.

In 1980s, the Federal Government also established Universities of Agriculture, School of Agriculture, faculties of Agriculture in conventional Universities and the Polytechnics. there were also the National Agricultural Land Development Authority, the River Basin Development Authority and

Agricultural Development Programmes. There were also the International Institute for Tropical Agriculture.

These programmes and schemes of successive governments have varying level of commitment to agricultural development. This accounted for the uncoordinated and stunted growth in this sector of the Nigerian economy.

One major problem that has become the bane of our policy is the lack of continuity associated with government programmes. The effect of this on agricultural development has been far-reaching. Successive governments came in to introduce new programmes, schemes and institutions, which in most cases do not represent continuity and complimentary of the existing ones. Policies are therefore abandoned midway, in most cases, before their effects become manifested. The second is the uncoordinated manner in which agricultural programmes and schemes have been handled. Policies are pronounced and institutions set up that are in most cases either the negation of existing facility, or a duplication of it. A cursory look at the institutions mentioned above shows duplication and overlapping of functions and activities in the operations of most of them. It is therefore clear that there are issues of inconsistent policies and lack of will in policy implementation that would need to be addressed.

There are also problems at the micro (individual) level that borders on management of farm, sources of finance, supervision, etc. in Nigeria, farmers are the most impoverished and backward amongst all types of businesses and professions. This is not the case in developed countries of the world, where farmers are among the richest and most successful entrepreneurs.

Another reason is the level of the extension services has not succeeded in meaningfully

changing the orientation of an average farmer, especially, where there is conflict with culture and tradition. Furthermore, for medium scale farmers they have to contend with serious issues of management, financing, preservation and weather. These are part of the problems that should lend themselves for urgent resolution in the early years of this administration.

Recommended policy for the agricultural development in the study area

The short and long programmes designed to address the constraints to agricultural development should include the following:

- a. To enhance the quality of life of the rural poor.
- b. Develop agro allied industries especially in processing
- c. Provide rural infrastructure
- d. Provide agriculture extension services
- e. Provide employment for array of school leavers and graduates
- f. Provide incentives for inputs in agriculture
- g. Development and encourage the use of single agricultural implements.
- h. Develop effective mechanisms to facilitate movement of food crops.
- i. Improve food preservation/storage.
- j. Reduce pre and post harvest losses.
- k. Develop and encourage the use of simple agricultural implements.

The immediate programs that could be implemented are as follows:

1. Provision of Agricultural Fund. This is to facilitate medium scale agricultural production. The credit is to be granted to a farmer who is already or willing to embark on medium scale farming that will provide employment for not less than 25 people.
2. Harmonization of Research

- Institutions. It is widely accepted that research are the vehicles on which agricultural development move forward. The focus of the institutions should be to enhance yield in agricultural production through continuous research that would in new seedlings and others.
3. Incentives for Agricultural Loan. A package of incentives should therefore be worked out for the financial institutions and the farmers such as moratorium, advisory services, tax exemption price incentives and other forms of protection.
 4. Pricing. This to help farmers have a fair prior idea of the prices to expect from their productive activities
 5. Enhanced supply of Agricultural Inputs. Government should associate with noble policies with respect to the distribution of inpaired seedlings, fertilizers, pesticides, chemicals etc.
 6. Rural Infrastructure. This would improve the level of retention of skills in the rural areas, and stem the preponderant rural urban drift, reduce cost of production and encourage use of semi- mechanized system of production.
 7. Agricultural Products Protection Policies. Government should go a step further by giving some sort of protection to local agricultural products, against foreign competition.
- remain in the primary level. Therefore, the need to develop agriculture in this area should not be taken lightly both by the farmers and the government.

Conclusion

The constraints of agricultural development in the study area has lead to many effects in the area and the country at large. Until the results obtained in this paper is taken into consideration and recommendation been implemented, agricultural department will

References

- Adetola, K. (1990). Notes and Model Answers on geography for secondary school certificate and G.C.E” revised and enlarge edition.
- Ajayi, S. (2007). Comprehensive Geography for senior Secondary Schools A.Johnson Publisher.
- Alagbe, D.O. (2007). Economic analysis of small scale Gari production in Odeda local government area of Ogun state. Unpublished B. Agric project, Department of Agricultural Economics and Farm Management, University of Agriculture, Abeokuta.
- Babalola, O.Y. (2003). Economics of commercial storage of grains: A case study of selected markets in Ogun state. Unpublished M. Agric (Agricultural Economics) thesis, University of Agriculture, Abeokuta.
- Erhoyoma, O. (2003). Socioeconomic constraints in cassava based production system in Odeda local government of Ogun state. Unpublished B. Agric project, Department of Agricultural Economics and Farm Management, University of Agriculture, Abeokuta.
- FAO (2001). Water quality standard for irrigation waters” A hand book for quality analysis.
- FAO and IFAD.(2005). A review of cassava in Africa, with country case studies on Nigeria, Ghana, the United Republic of Tanzania, Uganda, and Benin .
Www.fao.org/docrep/009/a0154e/A0154E01.htm.
- Ogunlela V.B., and A.O. Ogungbile. (2006). Alleviating rural poverty in Nigeria: A challenge for the national agricultural research system. Wwww.tropentag.de/2006/abstracts/full/614.pdf.
- Rogers, M. (2000). Enhancing the transfer and commercialization of agricultural technologies in Nigeria. PRA Survey Report on the South West Zone of Nigeria, prepared for OAU/SAFGRAD-STRC.
- Ward, A.R. (2007). .Agricultural growth and productivity: An economy wide perspective . Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, DC