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TOWARDS INCREASING PRODUCTION OF AGRICULTURAL RAW MATERIALS IN NIGERIA

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ABSTRACT

Nigeria possesses a great potential for the production of arable crops for meeting the raw materials required for the existing and emerging industries. There is need to encourage large and small-scale food processors to invest in cereals particularly millet and sorghum product line development. Crop production intensification process can be accelerated if farmers make higher profits on the investments they make. Proper marketing strategies will lead to increased farmers' incomes and will facilitate increased production of processed products. The institutional changes for farmers to produce a high value, quality controlled crops that can be reliably delivered to a food processor or a feed mixer will require substantial effort on the part of the farmers. The link of the agricultural scientist has been traditionally stronger with the farmer and the agricultural inputs and almost non-existent with industry. Agriculture itself had been insulated from the industry through layers of traders and brokers. This situation is changing with the industry finding it more advantageous to interact more directly with the farmers. This is bound to inject some of the consumer need oriented culture of the industry into the farming sector that will ultimately benefit the consumer, the farmer and the food manufacturer. And in all the agricultural scientist with his increasingly array of tools will play a significant role.

INTRODUCTION

Agriculture continues to be the mainstay of the Nigerian economy. It provides the bulk of employment, income and food for the population. It is the source of raw materials for the country's agro-based

industries. It is also an important foreign exchange earner. The oil boom of the 70's caused crisis in the agricultural sector by taking attention away from it and focusing it on the acquisition of quick and easy money.

The subsequent decline of the economy and the painful structural adjustment program (SAP) underscores how politically unwise it was to be carried away at the expense of this fundamental building block of the society. It is estimated that small-scale farmers account for 60 – 70 % of Nigeria's population and as at 1997 they were responsible for about 90% of food and raw materials placed in the local market (Onucheyo, 1998). Experts opined that Nigeria possesses a great potential for the production of arable crops for meeting the raw materials required for the existing and emerging industries (Shaib et al., 1997; Ouendeba, 2003; Ado, 2005).

Another vital sector of the economy is the manufacturing industry. It is this sector that transforms the raw materials generated by the agricultural sector into valuable products, which generate wealth. In addition this sector is the second largest employer of labour after government. It could be reasoned that when this sector is not prospering, economic depression sets in. The two sectors of agriculture and manufacturing are closely related - agriculture supplies raw materials and releases labour to industries, while the industries transforms the raw materials into valuable products for the generation of wealth and sustained economic growth. This paper therefore, assesses the existing government policies on agriculture and advices on strategies for increased production of agricultural raw materials.

The Agricultural Policy of Nigeria

Nigeria's agricultural policy aims at the attainment of self sustaining growth in all the sub-sectors of agriculture and the structural transformation necessary for the overall socio-economic developments of the country as well as improvement in

the quality of life of Nigerians (FMAWRRD, 1989). The broad policy objectives are also clearly outlined as follows: attainment of self-sufficiency in basic food commodities with particular reference to those which consume considerable shares of Nigeria's foreign exchange and for which the country has comparative advantage; increase in production of agricultural raw materials to meet the growth of an expanding industrial sector; increase in production and processing of exportable commodities with a view to increasing their foreign exchange earnings; modernization of agricultural production, processing, storage and distribution through the infusion of improved technologies and management so that agriculture can be more responsive to the demands of other sectors of the Nigerian economy; creation of more agricultural and rural employment opportunities to increase income of farmers and rural dwellers and to productively absorb an increasing labour force in the nation; protection and improvement of the agricultural land resources and preservation of the environment for sustainable agricultural production.

Constraints to Achievement of Policy Objectives

Laudable as the agricultural policy may be, it has suffered from implementation failures as a result of one or a combination of the following factors: poor translation and articulation of policy prescription into implementation programmes; poor targeting of programmes and projects; poor budgeting; inadequate attention to monitoring, evaluation and impact assessment parameters in project designs; poor managerial capability; inadequate

funding; contract syndrome in determining projects to be executed leading to procurement of non-priority goods and provision of non-utilizable facilities; abandonment of projects mid-stream for political reasons; and the downturn of the national economy affecting availability of financial resources for funding promotion activities of the government (IITA-Ibadan, 1999).

The New Policy Thrust

After a close review of strategies and instruments previously adopted in the implementation of agricultural policy objectives, the current administration has evolved new strategies for laying a solid foundation for sustained increase in agricultural productivity and for enhancing the output necessary for economic growth. The thrust of the new policy are: creating a conducive macro-economic environment that will stimulate greater positive sector investment in agriculture so that the private sector can assume its appropriate role as the lead and main actor in agriculture; rationalizing the roles of the tiers of governments in their promotional and supportive activities to stimulate growth; reorganizing the institutional framework for government intervention in the sector to facilitate smooth and integrated development of agricultural potentials; articulating and implementing integrated rural development as a priority national programme to raise the quality of life of the rural people; increasing agricultural production through increased budgetary allocation and promotion of the necessary developmental, supportive and service-oriented activities to enhance production and productivity and marketing opportunities; increasing fiscal incentives

to agriculture, among other sectors and reviewing import waiver anomalies with appropriate tariffs on agricultural imports; and promoting increased use of agricultural machinery and inputs through favourable tariff policy (FMAWRRD, 1989).

In actualizing the new policy direction, it has become imperative for the tiers of government to play more definitive roles for a successful implementation and achievement of the objectives of the entire policy. With this policy initiative, the private sector is expected to take advantage of the improved enabling environment provided by the public sector for profitable investment. In particular the private sector will be expected to play leading role with respect to: investment in all aspect of agricultural production; agricultural produce storage, processing and marketing; agricultural input supply and distribution; production of commercial seed, seedlings, breeder stock and fingerlings under government certification and quality control; agricultural mechanization; provision of enterprise-specific rural infrastructure; and support research in all aspects of agriculture.

Another salient feature of the new policy thrust is that biotechnology has been identified as one of the key areas to obviate the technical and structural problems facing agriculture in the country (IITA-Ibadan, 1999). This is commendable because developments in biotechnology have enormous potential for global benefits. In this relatively young field of science, powerful new genetic knowledge allows scientist to pack large amounts of technology into a single seed.

Farmers in industrialized nations are beginning to grow genetically engineered plants – tomatoes and other fruits and vegetables with extended shelf life; herbicide tolerant varieties of soybeans, cotton, maize and potato; and crops such as cotton and maize that have insect resistance conferred by genes from the bacteria *Bacillus thuringiensis*. These biotechnological advances will probably reach our farmers in future and when they eventually come there will certainly be an increase in the production of agricultural raw materials.

Current Status of Production of Agricultural Raw Materials in Nigeria

Table 1 shows the production figures of major crops in Nigeria over the last three decades. Despite the problems encountered by the sector, the post SAP

era was one of positive progress in production. An increasing trend was observed in all the major crops between the period 1970-79 to 1990-99, except for wheat where the an increase was witnessed between 1970-79 and 1980-89, followed by a slight decline during 1990-99. Looking at the production figures for last three years (2000-2002), an increase in production was observed with all the major crops except for maize. The growth rate of the agricultural sector in the year 2000 was 4.7% and this is a slight improvement on the 4.5% recorded in 1999 and 4.25% in 1998. Similarly, the percentage contribution of agriculture over the last few years (1995 – 2000) to the gross domestic product (GDP) is on the increase (Fig. 1).

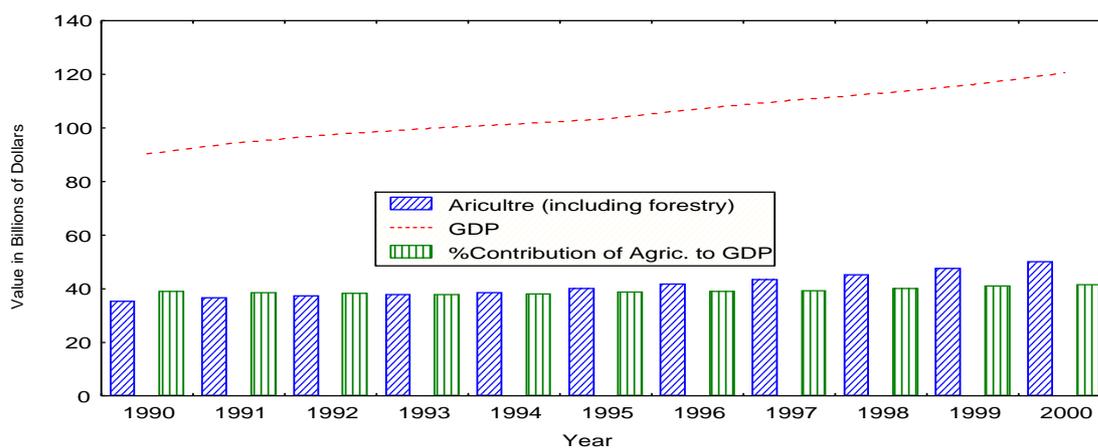


Figure 1: Nigeria - Agricultural production as a percentage of GDP, 1990 - 2000

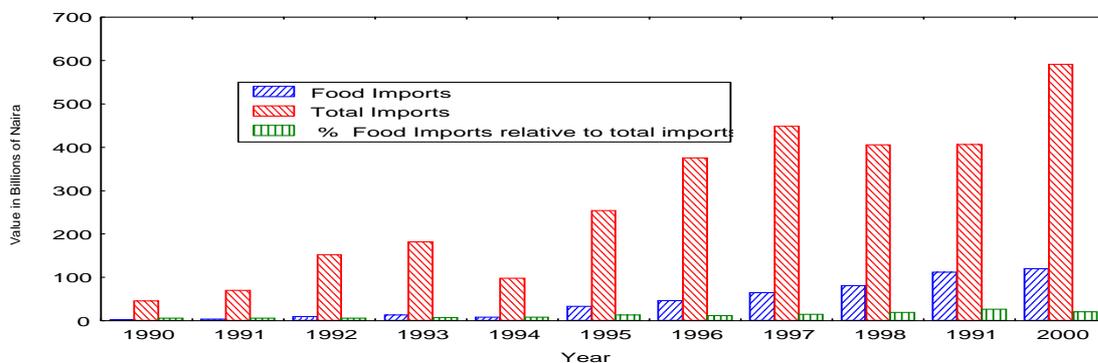


Figure 2: Nigeria - Food Imports as a proportion of total imports, 1990 - 2000

Source: Anon. 2002.

Table 1: Mean annual production of major crops (1000 t) in Nigeria for the period 1970- 2002, averaged over a ten year period.

Crop	1970-79	1980-89	1990-99	2000-2002	Yield (t/ha) 2000-2002
Cassava	96348	1271147	295628	327100	10.24
Cocoa Beans	191	175	287	338	0.35
Coffee	3	3	3	4	0.50
Cowpea	684	681	1814	2237	0.44
Groundnuts	985	688	1842	2828	1.05
Maize	889	2459	5907	7403	1.15
Millet	3037	3415	5217	6036	1.02
Rice	459	1742	3034	3138	1.41
Palm Kernel	285	327	485	592	-
Seed cotton	151	98	297	339	0.63
Sorghum	3237	4490	6412	7662	1.09
Soybean	48	167	223	434	0.73
Wheat	17	60	57	76	1.67
Yam	6898	5902	21578	26756	9.46

Source: SG 2000/SAA Database (2002)

A look at food production indices for the country as shown in figures 1 and 2, depicts a worrying situation of a widening gap between quantities produced and the projected demand. This trend is projected to continue, given the present low yields that is obtained from farmers plot. Experts shared opinion that in order to contain massive hunger and poverty, the level of production and productivity must

improve by 2-3 fold in the next three decades. Previous research indicate that it is quiet feasible to attain the 3-fold increase given the necessary policy support. Yield increases of up to 3-6 tonnes per hectare (t/ha) for maize; 1-4 t/ha for sorghum; 1-3 t/ha for millet, 2.5 –5 t/ha for wheat and 1 – 7 t/ha for rice have been recorded on farmers field (SG 2000 Reports, 2002; Shaib *et al.* 1997)

Table 2. Projected targets for some arable crops in 2005-2010 ('000 tonnes)

Year	Maize	Millet	Sorghum	Rice	Wheat	Yams	Cassava	Plantain	Cowpea	Groundnut	Soybean
2005	10285	4334	5509	924	504	36906	31541	2367	1931	1821	255
2006	10614	4472	5686	953	521	38087	32551	2454	2024	1844	267
2007	11189	4625	5779	996	539	39457	33409	2544	2122	1866	280
2008	11796	4784	5874	1041	558	40877	34291	3637	2225	1889	293
2009	12436	4948	5971	1088	578	42348	35196	2734	2332	1912	307
2010	13388	5128	5977	1152	601	44040	35927	2734	2332	1912	307
Growth rate %											
2006-2010	7.16	4.02	2.31	5.75	4.41	4.42	3.50	3.67	4.83	1.23	4.83
Self-sufficiency % by 2010	-	-	-	-	-	-	-	82	54	48	30

Source: Shaib et al. (1997)

The projected production targets of some arable crops are given in Table 2. It is very clear that we are yet to attain the target production for Maize, Wheat and Yams. The production target for Millet, Sorghum, Rice, Cassava, Plantain, Cowpea, Groundnut and Soybean had since been attained. For Cassava, Rice and Groundnut, the increased production are dramatic owing to the Presidential Initiatives for these crops. A lot of emphasis is needed in wheat production since up to 2003 only 13% of the target had been attained. For all the crops in which the targets have been surpassed, industrial transformation into value added products is imperative. They can be fully utilized as raw materials for existing industries as well as for other newly emerging ones.

The wide gap that exists between farmers' actual yield and the optimum yield on experimental plots, indicate very low technical efficiency caused by structural problems in the agricultural production system.

These structural problems include a combination of the following: ill-functioning supply system for seed, fertilizer and other inputs; farmers poor knowledge of recommended crop management practices; discriminatory price policies; farmers' lack of sufficient capital to employ the recommended inputs and crop management practices (Ado, 2005).

Strategies for Increasing in Agricultural Raw Material Production

Error! No bookmark name given. Agricultural growth can be achieved in several ways, however, the common factor in all of them is generating an agricultural surplus. One of the most important measures of generating this surplus revolves around the strategy of agricultural development led industrialization (ADLI). Within the Nigerian policy framework ADLI should focus on the productivity improvement of small holder agriculture and industrialization based on utilization of domestic raw material with labour intensive technology.

1. Intensification of agriculture

At present most farmers in the country use low input/low-output technology with extremely small applications of fertilizer. This means there is a lot of scope for raising output by improving technology in relatively simple ways. This could come about by widely disseminating improved farming practices already in use, and through greater effort to identify technology gaps that should be worked on as quickly as possible (Usman, 2002). Examples include:- drought resistant crop varieties, effective farm implements and better soil and water conservation measures. In addition, greater participation of the private sector in input supply and marketing is likely to give farmers greater incentives to adopt improved technologies and inputs.

Greater agricultural intensification in Nigeria will require broadening of the total research scope. In the near future, there will be a wider commercial crop mix for researchers to address and a growing number of crops destined for export

market. Additional research on post-harvest technology from storage to agro-processing will be needed to provide emerging agro-industries with solutions to new problems. More research on marketing and distribution issues will also be required to help develop functional market systems and infrastructure (Breth, 1997).

2. Agricultural Diversification

The natural resource base of the country provides many opportunities beyond the beverage crops (Cocoa, & coffee and tea), cotton, tobacco and sugar. Oil seeds, vegetable and pulses can all be grown well in the country. A great opportunity exists in the country for the development of essential oils, spice and plant extractives, which at the moment are little explored by agro-based industries. Essential oils and their solvent extracted counter parts (concentrates) are used directly in fragrance and flavour applications and to some extent in medicine. Additionally, a number of essential oils are exploited by the chemical industry as a source of specific compounds for subsequent transformation to a range of synthetic products, such as aroma chemicals, flavors, vitamins and pesticides (Green, 1989). In this function, the essential oils may compete with turpentine and petroleum derivatives as starting materials for chemical synthesis. The development of production could therefore be beneficial for import substitution purposes and also, it would provide a firm base for eventual export oriented development. Crops useful for this purpose include: Eucalyptus, Japanese mint plant (*Mentha arvensis*), vertiver grass, lemon grass, ginger, Tea tree (*Melaleuca spp*), and the tropical pines to mention but a few (Guenther, 1972).

3. Investing in Research and Extension

In Nigeria as in most developing countries, the organizations that make up national agricultural research and development systems are primarily within the public sector. Although public institutions have some success in developing new crop varieties and improved crop production packages, government organizations responsible for delivering improved technology to farmers generally have been functioning well. As a consequence, the food crop research pipelines are of productivity-enhancing technological components that generally fail to get beyond the boundaries of experiment station (Tanimu *et al.*, 2008).

In contrast, the private sector in industrialized countries plays a major role in the development and delivery of improved technologies to farmers. These private businesses have benefited greatly from publicly funded agricultural research and development programmes (Thomas, 1989). Overtime, a well-integrated and highly effective public-private agricultural and development has evolved, one that is capable of generating and transferring to farmers a continuing stream of productivity enhancing technologies. It is hoped that this could be achieved in Nigeria in not too distant future. For now what appears feasible is that cost-sharing partnerships could be put in place between private companies and public researcher and extension organization, which will accelerate the diffusion of improved technology, this will encourage private extension for cash crops such as tobacco, cotton, and sugarcane where farmers contractually deliver that output to the company that provides the technical assistance so that the cost of extension is recovered through the input supplied and the output prices paid to the farmers.

4. Exploring for better linkage in the production chain

The link between agriculture and industry is a well-established relationship. The production chain starts with the farmer, followed by a trader who trades in the farm produce, a manufacturer/marketer who converts it into an article of food, a retailer who sells it in retail shops and finally a consumer who buys and consumes the food. A very important new link that has been introduced into the chain in this century and more intensely over last 50 years is the role of the scientist. Scientists such as breeders, plant biologists, nutritionists and chemists have made a positive input contribution into farming and food manufacture. They along with marketers have also assessed more clearly and linked the needs of the consumer to the produce from agriculture. With this evolution of the linkage one can almost see agriculture and food as a continuum in a business sense (Ado *et al.*, 2010).

The primary objective of a manufacturer is to ensure that his products are preferred by the consumer so that he can build a profitable business. To ensure this, manufacturers strive to create innovative specialized products which they can market as branded products in order to build consumer loyalty to their brands. Therefore the branded product is the corner stone for any successful food business. In order to create a successful brand it is necessary to find out and define the needs of the consumer. The food manufacturer has to interpret the needs of the consumer not only to his own product innovators but also to the farmers directly. In establishing this links with agriculturists, the agro-industry has the following types of expectations: quality;

competitive cost; non-seasonality; reliability; health connotation; ease of processing; and product differentiation that will facilitate competitive brand marketing (Thomas, 1989).

Conclusion

Nigeria is blessed with a wide range of agro-ecological and soil conditions suitable for the production of a wide variety of food and cash crops, livestock, wildlife, fisheries and forest products. While it is true that in some areas certain factors may be limiting to agricultural production, these are quite easily supplemented by the abundance of

References

ADO S.G. 2005. Problems and constraints in the production of arable crops for meeting raw materials requirement for the existing and emerging industries. Paper presented at the Third Consultative Meeting on the establishment of Industrial Crop Production and Advisory Centres in the six geo-political zones, held at the National Root Crops Research Institute (NRCRI) Umudike, Abia State August 16 – 17, 2005. 11p

Ado, S. G., I. S. Usman and U. S. Abdullahi. 2010. Recent development in maize research at Institute for Agricultural Research, Samaru, Nigeria. *J. Life Sciences*, 4(7):53-57

Anonymous, 2002. Federal Office of Statistics. Annual Reports: Agriculture. 15p

Breth, S. A. 1997. Agricultural Intensification in sub-Saharan Africa. Proceedings of the workshop on Agricultural intensification in sub-Saharan Africa: Securing the production Base, held at the Economic Commission for Africa, Addis Ababa, Ethiopia, August 23-27, 1997. 127p.

some other opportunities in other parts of the country. This shows that every part of Nigeria is important agriculturally. In the short to medium term, high growth of agriculture will galvanize industrialization and export led growth in the country. The strategy for attaining increased production of agricultural raw materials calls for greater attention of the agro-allied industries to pay attention to intensification and diversification of agriculture through greater participation in research and extension as well as in exploring better production linkages.

Federal Ministry of Agricultural water Resources and Rural Development (FMAWRRD), 1989. Agricultural Policy for Nigeria, Lagos. 65p.

Green, C. L. 1989. Opportunities and Requirements for the Development of New essential oil, spice and plant extractives industries. In: Wickens et. al. (eds) *New crops for Food and Industry*. International symposium on New crops for Food and Industry, Chapman and Hall, London 77-83.

Guenther, E. 1972. *The Essential Oils: History, Origin in Plants, Production, Analysis*. Robert E. Krieger Publishing Coy, New York. 427p

IITA-Ibadan, 1999. Development of Sustainable Agriculture in sub-Saharan Africa. A seminar attended by His Excellency General Abdulsalami A. Abubakar Head of State, Federal Republic of Nigeria and His Excellency General Olusegun Obasanjo (Rtd) President, Federal Republic of Nigeria. IITA-Ibadan, Nigeria. 28 April 1999. 24p.

- Onucheyo, E. 1998. Political decisions in the Nigerian Agricultural Industry. Tamaza publ. Coy. Zaria Nigeria. 186p
- Ouendeba, B. 2003. Market improvements and new food crop technologies in the Sahel. INTSORMIL, pp.15.
- SG 2000 Nigeria, 2002. Mode of operation, achievement constraints and Sustainability approach. A report submitted to the Honourable Minister of Agriculture and Rural Development Abuja, May 2002. 36p
- SG 2000/SAA, 2002. Database on Annual Production of major crops in sub-Saharan Africa
- Shaib, B., A. Aliyu and J.S. Bakshi. 1997. Nigeria: National Agricultural Research Strategy Plan 1996 – 2010. Department of Agricultural Sciences, FMANR, Abuja pp. 335.
- Tanimu B., S. G. Ado and I. S. Usman. 2008. Agriculture in Northern Nigeria: A stepping stone to wealth creation. Invited paper presented at stakeholders Northern Nigeria Economic and Investment Summit held at Sheraton Hotel Abuja, October 6-7, 2008.
- Thomas, T. 1989. Food Industry and Agriculture. In: Wickens, et. al. (eds) New crops for Food and Industry. International symposium on New crops for Food and industry. Chapman and Hall, London. 13-22
- Usman I. S. 2002. The Food Security Development Agenda. In: Chinade, M. I. (ed) *Science, Technology and the Northern States Of Nigeria*. ISBN: 9780570616, 26-38.