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**IRISH POTATO FARMING IN NSO
1936-2014: A HISTORICAL STUDY**

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Award of a Post
Graduate Teachers' Diploma (DIPES II) in History

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DEDICATION

To my parents

Tansho Tume Kibinkiri Andrew

and

Julia Kiven.

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I would like to thank all whose help, advice and criticism have in one way or the other to enable me to complete this work. My immeasurable appreciation goes to my supervisor Professor Ndobegang Michael for his guidance and constructive criticisms which have been valuable towards the completion of this work. I also wish to acknowledge the academic support of all lecturers of the History department, who have intellectually molded me in this institution for three years especially Doctor Jabiru for reading the work.

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ABSTRACT

Irish potato scientifically known as *solanum tuberosum* was first discovered in Peru Bolivia, five centuries ago in South America. It was later, taken to European countries. From there, the crop was brought to Africa during the colonial era by missionaries, explorers and colonial administrators. It was introduced in Nso before 1914 by missionaries and explorers and gain steam in the 1930s. The study demonstrate African initiative in an attempt to switch off from traditional cash crop to alternative methods of earning incomes. Through crops which were considered to be exclusively subsistence crops as cash crops through which farmers earn their revenue. Irish potato farming in Nso is thus a medium which enable readers to have a better comprehension of this initiative. The question is thus, to know whether Irish potato has actually taken the center stage as a major revenue crop in Nso. To realize the work, the researcher carried out interviews and made use of documented materials. The data collected from the field revealed that Irish potato farming has actually taken center stage as a major source of revenue in this locality. It has gradually moved from extensive to intensive cultivation. Despite the difficulties faced by farmers, its impact cannot be over emphasized. However, much needs to be done in this sector especially to ensure that transformation of the crop becomes a reality in Nso. This will go a long way to halt post-harvest loses and augment the revenue of Irish potato farmers in this area.

RESUME

La pomme de terre connue scientifiquement appelée *Solanum Tubersum* a été découverte en Amérique du Sud, il y a cinq (05) siècle précisément au Peru et en Bolivie. Introduite plus tard dans les pays Européens, cette culture arrive en Afrique à l'époque coloniale par le biais des missionnaires, explorateurs et administrateurs. Elle a été introduite dans le Nso avant 1914 par les explorateurs, les missionnaires et se répand parfaitement dans la région à partir de 1930. La présent étude vise a montré l'initiative Africain dans leur tentative de sortir de méthode traditionnelle a d'autre méthodes de gagner l'argent à partir du récoltes qui a été reconsidéré d'être exclusivement de récoltes subsistance comme de récoltes commerciale. L'agriculture de pomme de terre en Nso est donc considérée comme un moyen d'aider des lecteurs à mieux comprendre cette initiative. La question est donc pour connaitre si pomme de terre a pris la tête comme source majeur de récoltes la revenue en Nso. Pour réaliser ce travail, nous avons exploité des sources à la fois primaires et secondaires avec une insistance sur les sources orales. Les données recueillies sur le terrain et relatives à la pomme de terre révèlent que cette culture d'abord extensive est devenue intensive. En dépit des difficultés rencontrées par les agriculteurs, l'impact de cette culture ne peut être surestime. Un accent doit cependant être mes sur la transformation de la pomme de terre dans la localité du Nso. A cela, il faut également militer pour l'augmentation de la production. C'est à ce titre que les agriculteurs trouveront effectivement leur compte dans ce secteur d'activité. Les données collectées au terrain révéle que la production de pomme de terre a pris la tête comme l'un de grandes sources de revenue dans cette localité de Nso. Il a progressivement quitte de système de production extensif au intensif.

ABBREVIATIONS

ACOHOC	:	Afoni's Children of Hope Foundation.
CIP	:	International Potato Center.
CEAC	:	Community Education and Action Center.
G.D.P	:	Gross Domestic Product.
IRAD	:	National Institute for research in Agricultural Development.
MIDENO	:	North West Development Authority (<i>Mission de Development de Nord Ouest</i>).
MINDER	:	Ministry of Agriculture and Rural Development.
NAC LTD	:	Nso Area Cooperative Limited.
NAETP	:	National Agricultural and Training Extension Program.
PRFPT	:	<i>Programme d'appui à la reliance de tellière pomme de terre.</i>
PNTRD	:	National Development Program for roots and Tubers.
SHUMAS	:	Strategic Humanitarian Services.

GLOSSARY OF NSO WORDS

<i>Atarngven</i>	:	Lineage landlords
<i>Nkook</i>	:	Basket.
<i>Nsuh</i>	:	Annual dues given to lineage landlords.
<i>Sirr kiwo</i>	:	Group work.
<i>Tarngven</i>	:	Lineage landlord.
<i>Tuh kun</i>	:	pounded beans and potato.

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GENERAL INTRODUCTION

Background to Study

Over the years, many people have depended on agriculture for their livelihood. Food has been indispensable for the survival of mankind. Irish potato has been a great booster to man's diet due to its nutritional content. Over the years, many people have depended on agriculture for their diet and a means of livelihood. Food crops cultivated in Nso included yams, corn, beans, bitter leaves, huckleberry, and cocoyam.

During the colonial period cash crops like coffee were introduced in Nso but due to the fall in the prices of coffee in the international market. This fall in prices of coffee hit hard on farmers of the crop and sent many of them out of this sector. The fall in the prices of coffee was due to its low quality in the international markets, old age, reduction in the fertility of the soil and the economic crisis Cameroon faced at the time. This made many natives of Nso to look for other crops which could serve as sources of revenue¹. The cultivation of Irish potato among other crops like beans and corn took the center stage as more locals became engage in its cultivation not necessarily for consumption but also for revenue. The fact that Irish potato could be cultivated three times a year, its quick turn over coupled with its high yields made many farmers to engage more and more in potato production. Irish potatoes is one of the most important food crops in the world, it is ranked fourth after rice, wheat, and corn by the CIP (*Centre International de Pomme de Terre*).²

¹Lotsmart Fonjong N, "Changing Fortunes of Government Policies and its impact on Agricultural innovation in Cameroon", *Nordic Journal of African Studies* Vol 13, 2004, p.22.

²Nicolaus Cromme et al. Strengthening potato's Value .Technical and Policy Options for Developing Countries. Food and Agricultural Organization and the common Fund for Commodities, Italy, 2010, p.5.

Irish potato was first discovered in the wild throughout America and was first domesticated in Peru and Bolivia five centuries ago in South America. The crop was taken out of South America to Spain by Spanish explorers in 1570 later to England in 1585 and further to Ireland by Spanish explorers in 1663. The crop became popular in Ireland thus, the name Irish potato.³ It was later taken to Humid Tropical Asian lowlands like China and Africa in the 19th century by colonial masters and European explorers. Irish potato was introduced in Africa in the 19th century by European missionaries, explorers and administrators during the colonial era.⁴ Rwanda was among the first countries in Africa that Irish potatoes was introduced in, and later spread to Tanzania by migrants labour from Uganda and Kenya. The International Potato Center (CIP), later extended potatoes from South America to central Africa. Explorers and missionary groups from Holland, Ireland, America and Germany introduced Irish potatoes in Cameroon during the colonial period. The Western Grass fields provided a suitable place for the introduction of Irish potatoes because of its humid climate.⁵

It was the case with Nso one of the biggest fiefdoms in the North West region of Cameroon. It is situated along the Bamenda-Nkambe stretch of the ring road linking about 109km from the regional capital Bamenda. Nso was a district under Bamenda Division and later change to Bui division in 1966.⁶ It was named Bui after one of the main rivers in the area known as river Bui. Nso is made up of six sub Divisions. The main activity of the people of Nso is agriculture, practiced by some locals as a hobby and as a main source of revenue for others.

Different views have been brought forward by kola nut sellers and missionaries concerning the introduction of Irish potato in Nso. The Germans

³ Ambrose A et al, "Growth and Yields Response of Irish potato to Climate in Jos –South, Plateau State, Nigeria", *Global Journal of Human and Social Sciences* Vol 13 2013.p.155.

⁴ N M. Mahungu and V. M. Manyong, Proceedings of the Ninth Triennial Symposium jointly organized by the ISTRC-AB and Kenya Agricultural Research (KARL). International Society for Tropical Root Crops, Africa Branch, Mombasa, Kenya, 1-5 November 2004. P.23.

⁵ Ibid 3.

⁶ File No DSD 4156/s.1, Ba 1969/1, Divisional Economic and Political Report Bui, p.46.

introduced Irish potato seeds in Nso in 1914 and these seeds eventually disappeared under local cultivation. It has been difficult to trace the names of these seeds due to the lack of recorded information in the area concerning the link between this period and the crop. Later on, between the 1920s and the 1930s, missionary group especially those of the Catholic Church introduced Irish potato species like Spunta, Kijam, and Dong in Nso.⁷ The Irish potato seeds introduced by Catholic missionaries were mostly experimented in gardens of the various Catholic churches especially in Shisong. The seeds were later given to Christians to cultivate in order to enrich the diet of the Christian population. In the early 1950s, a German Anthropologist Okelly Elisabeth commonly known as “madam” and the same appellation was used on all the seeds she introduced in Nso. Some farmers and agronomists traced the introduction of Irish potato to kolanut sellers of Nso.⁸

They are believed to have seen it cultivated in Dschang and Bamesing. Others attributed the introduction to explorers from Holland, Ireland, America and German anthropologist. Later on, in the early 1980s, the Nso Area Cooperative Limited (NAC LTD) introduced Irish potato species in Nso, these species included Baraka, Ark and Cardinal.⁹ IRAD researchers and extension workers later on, in the 1998 introduced improved species of Irish Potatoes like CIPIRA and TUBIRA. Further still, in the early 2000, *Programme d’Appui a la Reliance de Teliere Pomme de Terre (PRFPT)* introduced Mondial and Manon, Bambui Wonders, Babungo, Rubinta, IRAD OS and Jacob. These species are produced through cross braiding with the local species in Dschang and Bambui. In 2013, the former Minister of Agriculture introduced tons of the Mondial specie in Bui Division.¹⁰

⁷ Anthony Ntutin, “The Economy of Nso,” DIPES II Dissertation in History, E.N.S. Yaounde, 1986, p.26.

⁸ Ibid p.28.

⁹ Ibid p.7.26.

¹⁰ Interview with Mr Fuchi Thomas Song, 49 years, Divisional Delegate of Agriculture, Kumbo, 10th March, 2015.

The cultivation of Irish potatoes has evolved enormously over the years. That is from extensive mixed cultivation in the 1930s to intensive monocultivation and a slight concentration in mixed cropping due to shortage of land in 2014. The marketing of Irish potatoes also evolved drastically. Few markets existed in Nso in the 1930s. These markets were mainly the *Wai-kimbo*, *kovifem*, *Nseh*, *Noni*, *Mbiame*, *Oku* and *Wai-Nkar*. Roads were inadequate and mostly footpaths, donkeys were thus the main means of transportation.¹¹ Prices were low ranging from 100fcfa to 300fcfa per 20kg thus, of potato, between 1930s and 1980; from 1990s to 2014 prices increased from 300fcfa per 20kg of potatoes' to 3000fcfa per 20kg tons of Irish potatoes. Cooperative societies were created in 2014 to facilitate the marketing of Irish potatoes and the acquisition of insecticides, fungicides and seeds by farmers. This led to the construction of warehouses for the storage and sell of Irish potato in Nso one of them was constructed in Njavnyuy market by the Kumbo Urban Council.¹²

Justification of the study

Academic Reasons.

The choice of Irish potato is because the crop has gradually change from extensive to intensive farming. Intensive farming constitute part of the second generation agriculture program, encouraged and enhance by the ministry of Agriculture in Cameroon. Irish potato farming is thus a medium to show how far the population of Nso has embraced this concept of changing Cameroons agriculture from the old extensive methods to intensive methods. Intensive methods require the use of fertilizers, machines and insecticides resulting in high yields.

Also the fact that Irish potato can be cultivated three times a year coupled with its quick turn over has favoured the choice of this crop. Few sizable tubers of Irish

¹¹ Phyllis M. Kaberry, *Women of the Grass Fields, A study of the Economic Position of Women in Bamenda*. London, Gregg Press Limited, 1968, p.58.

¹² Interview with Mr Fuchi Thomas Song, 49years, Divisional Delegate of Agriculture Bui, 10th March 2016.

potato, can easily filled 20kg container thus, farmers do not need larger quantities to earn a minimum of 3000francs CFA. Unlike other crops like beans and corn which farmers need large quantities of it to fill the same container for lower prices.

Personally, my education is thanks partly to the cultivation of Irish potatoes. My mother cultivated and sold Irish potatoes to provide for my school needs and fees. She started with mixed cropping with beans and corn, later switch to intensive mono cropping. This was due to the fall in the harvest of corn and beans whens cultivated with Irish potato coupled with the advantages from intensive mono cropping of Irish potato.

Also, I assisted my parents in the cultivation and marketing of Irish potatoes. This enabled me to experience the difficulties which farmers faced in the acquisition of seeds, land, cultivation, conservation, and the marketing and how such problems were overcome. I also saw the enormous profits farmers got from intensive cultivation, farmers raised much revenue from this system of farming.

Scope and Delimitation of the Study

The study runs from 1936 to 2014. The starting point of 1936 marks the introduction and the rapid spread of Irish potato known as Dong in Nso by a Catholic priest Reverent figl. He created a vocational school in Shisong in which this specie among others like Kijam and Spunta were cultivated. The school was to empower natives of Nso in gardening and hand work. Reverent Figl was one of the Mill Hill Missionaries from London to Nso.¹³ Irish potatoes was among the crops cultivated and distributed to Christians to improve the diet of the Christian community in Nso. The terminal date of 2014 marks the creation of potato cooperatives in the six Sub-Divisions of Bui Division. The aim of the cooperative was to facilitate the marketing of Irish for farmers in this area. The creation of

¹³ Joseph Lafon, *History of the Catholic Church in Kumbo Diocese*, Yaounde, CEPER, 1989, p.186.

cooperatives was as a result of the great harvest obtain from the improved seeds donated to farmers of Nso in 2013, by Minister Esimi Menye, Minister of Agriculture at the time. The Minister of Agriculture donated thirty tons of *mondial* Irish potato seeds an improved specie to potato producers in the fondom. The donation of the seeds in Nso was aimed at increasing potato and seed supply in the North West in particular and Cameroon at large. As a result of the great yields of more than 150 tons produced, potato Cooperatives were created in 2014 in the six Sub-Divisions of Bui Division.

Definition of Concepts.

Intensive Farming This is a system of farming that involves the heavy application of capital and labour on a relatively small sized farm in order to obtain high yields or outputs.¹⁴ The seeds used are specially selected and outputs per unit area is high. Irish potato farmers have adapted this system to gain high yields and earn much revenue which comes with intensive farming. With intensive farming Irish potato matures between 90 to 120days thus, a welcome initiative by the farmer.

Extensive Farming is the cultivation of large sized farms with the use of machines and a small labour force. Yields per unit area are usually low compared to intensive farming but yields per head are high. It is practice in areas with vast available land.¹⁵ From 1936 to the early 2000s farmers were exclusively engage in this method but the yields per unit area were very low.

Mono Cropping refers to the planting of one crop on a piece of land. The planting of many crops is avoided, mono cropping in this study involves the planting of Irish potato on a particular farm or plot. Mono-cropping was easily accepted by

¹⁴ Abraham Dobgima, *Advanced Regional Geography, A thematic Analysis of Concepts and Cases for Cameroon Schools* Bamenda, The leaders Print Publishers, 2008, p.10.

¹⁵ Ibid, p.10.

farmers because, it became easier to handle a farm with only one crop than a plot with different crops. This facilitated, spraying, weeding, moulding and the harvesting process.

Mixed Cropping refers to the cultivation of two or more crops on the same piece of land. From 1936 to the early 1990s Irish potato was exclusively cultivated with other crops like beans, corn but as from 1998 to 2014 this method of cultivating Irish potato has reduced tremendously.

Marketing is defined as the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods, services, organizations and events to create exchange that will satisfy individual and organizational objectives. Marketing may also be defined as the process of creating form, time and space utility.¹⁶

Agricultural marketing refers to the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production to the ultimate consumer. Dixie defines agricultural marketing as series of services involved in moving a product from the point of production to the point of consumption.¹⁷ However, marketing agricultural products is a major problem for smallholder farmers in most of sub-Saharan Africa especially in places like Nso. Inadequate marketing information, especially on prices is a major obstacle to the performance of any market system and to the production system of the sector.

Statement of the Problem

Over the years, many people in Nso engaged in the cultivation of revenue earning crops for the improvement of their livelihood. With the fall in the prices of

¹⁶ R. L.Kohls. and Uhls, J. N. *Marketing of Agricultural Products*. New York, Macmillan Publishing Company, 1990, P.173.

¹⁷ Ibid, 173.

Arabica coffee in the world market and the low income gotten from the sale of kolanuts, many farmers in Nso abandoned these hitherto lucrative cash crops. There was interestingly a transition from the cultivation of Arabica coffee to the cultivation of Irish potatoes. This change from the cultivation of Arabica coffee to the cultivation of Irish potatoes eventually made Irish potato the main revenue earning crop in Nso. Irish potato thus moved from a food crop that is locally consume to a revenue crop sold both locally and abroad. The central question is to know whether Irish potato has actually taken the center stage as one of the main revenue earner to farmers of Nso. The study demonstrates the African initiative in an attempt to switch off from traditional cash crops to alternative methods of earning income through crops which were consider to be complete subsistence crops as revenue crops. Irish potato farming in Nso will thus enable readers to have a better comprehension of this initiative in Nso. Issues that will interest us in this study include; the introduction and spread of Irish potato in Nso, the production and marketing of Irish potato, the problems farmers faced in the cultivation and marketing of the crop in the area and the social and economic impact of Irish potato farming to both farmers and commercial agents in this community. It should also be noted that Irish potato is not only used to earn money but also about a smaller percentage of it is consume by the local population.

Objectives of the Study

The general objective of this study is about Irish potato farming in Nso. It presents the introduction and spread of the crop in the area and suggest reasons why farmers got interested in the activity. It also discusses the cultivation and marketing of Irish potato. It also analyses problems faced in the cultivation and marketing of the crop and how such problems were overcome. One very important aspect is the impact Irish potato economy has brought to the people of Nso. A crop sold in big towns like Douala, Yaoundé, Buea and also exported to Gabon, Nigeria and Chad by farmers of Nso.

Significance of the study

This study is a contribution to the agricultural history of Nso in particular and Cameroon in general. It also revalorizes' agriculture in the area in the sense that agriculture in Nso has gradually change from extensive to intensive methods. It will further contribute to our reflection on the definition of a cash crops. In times past, cash crops were considered from a purely colonial perspective and were seen to be essentially coffee, cocoa and cotton. From the study of Irish potato, it is clear that crops that fetch incomes are not necessarily export crops. Food crops fetch incomes, sometimes to higher levels than the traditional export crops.

It help us to understand the social and economic impact on farmers of Nso. The study will also contribute to social history. Irish potato economy also introduces the importance of women as actors and important stakeholders, in an economy where men were essentially the most talked about. This is because both men and women were involve in the production of Irish potato thus, gender barriers are broken down in this aspect of Nso.

The study will help policy makers to identify the problems faced by the farmers in the Irish potato sector in the Nso Fondom, One of the major producers of Irish potatoes in Cameroon. By identifying the problems, policy makers would draft new and better policies to improve on the sector both quantitatively and qualitatively. The study will act as a base to future researchers, researching on Irish potato production and marketing in other areas.

Literature Review

To realize the study the researcher reviewed available documents related to the work which help to make the work more scientific. These documents included published and unpublished works. As stated by Tamfu in his thesis “the effects of plant extract on root-diseases of Irish Potatoes,” has a negative impact on the

yields produced.¹⁸ He pin points the type of diseases which affect the roots of Irish potato and the impacts of these diseases on the yield of the crop. He equally analyzes the solutions that could improve the yields of Irish potatoes. This work is important to our study even though he did not concentrate on the history and process of production of Irish potatoes.

Festus A. Numfor Peter in his work, analyses the quantity of tubers and root crops lost as a result of post-harvest loses since those crops are usually perishable crops and cannot be stored for a long period of time and proposed solutions to this problem. This work is important to this study because Irish potatoes is also a root crop and very perishable. His work is different from this one in that he did not use Irish potatoes as an example but Irish potato is still a perishable crop.

Researching on the effects of different doses of Gibber relic acid on Irish potato, Uze brought out its negative effect on the growth and yields of Irish potato tubers.¹⁹He stress the negative effect of the insecticide to Irish potato yields. He concentrated on the biological and chemical composition of the insecticide. His work is important to this study because some farmers in Nso make use of this insecticide in the cultivation process. Despite this, his work is different from our study because he dwells only on the chemical composition and utilization on Irish potato tubers.

As proposed by Bongfen Roland Nteh in his memoire, the nature of the soil have effects on the cultivation of food crops in *kumbo* central Sub-Division.²⁰To him, the nature of the soil determine the crops that can be cultivated in a particular area. He also brought out the types of soils found in the various parts of Kumbo. This work is important to my study because kumbo central constitutes part of Nso.

¹⁸ Nwarong Tamfu Richard, "The Effect of Plant Extracts on Root diseases of Irish Potato *solanum tuberosum*", Post Graduate Thesis in Agronomy, Abubakar Tafawa Balewa University, 1999.

¹⁹Evaristus Uze Isoh, "Effects of Different Doses of Gebberrellic Acid on Dormancy Breaking of Seed Tubers of Potato *Solanum tuberosum* " FASA, University of Dschang, 1999.

²⁰ Roland Bongfen Nteh, "Agro Pastoral Intensification and Diversification in Kumbo Central Sub-Division", DIPES II Dissertation in Geography, ENS, Yaounde, 2000.

His work is different from this study because he concentrated on food crops in general and the diversification of intensification in the area.

Nnorge Marius Ewane in his work, studied the production of food crops like cassava, coco yams, maize, and plantains vegetables in Ngusi.²¹ He also examines the techniques use by farmers to improve the fertility of the soil amongst which was 20, 10, 10 fertilizer. This work is relevant to this study because farmers in Nso make use of this fertilizer to improve the fertility of the soil for high yields in the area.

In another related study, Demo Paul in his article identify and analyses bacterial wilt like *Pseudomonas Solanacceanum* and Late Blight *Phytophthora infestans* which affect the growth of potato and the ability to produce high yields in the North West Region.²² According to him, these bacterial have a negative effect on both the seeds and eatable tubers harvested from affected plants. He concluded by giving solutions that can stop the whole farm from being affected. His work is very relevant to the study because these bacterial wilt affect potato cultivation in Nso.

Njualem examine twelve Irish potato species in the North West region.²³ These seeds were introduced in Bambui in 1993 and later on spread to other areas of the North West through IRAD's extension workers. Among the twelve species he examined were *Tubira* and *Cipira* in Nso. He studied the tons of yields that can be gotten from these improved seeds. He also studied the level of resistance of these seeds to bacterial wilt like early and late blight. He concentrated mostly on Bambui and did not look at the areas where these species went to. This study

²¹ Ewane Nnorge Marius, "Changes in Food Crop production and eating habits; A consequence of sustained population growth in Ngusi Tombel Sub Division" 1976-2010, DIPES II Dissertation in Geography, ENS Yaounde.

²² Paul Demo, "Identification and Control of late Blight *phytophthora infestans* and Baterial Wilt", *Potato Journal* Vol 172 1995, p. 513

²³ D.K Njualem, *Evaluation of Irish Potatoes Varieties in the North West Highlands*, Bamenda, 2000.

therefore seeks to demonstrate how these seeds react to the same bacterial wilt in Nso a different area.

Tankou in his book evaluated the effects of green manure and intercropping on potato production in the Western High Lands of Cameroon.²⁴ According to him organic manure and chicken droppings coupled with chemical fertilizers are very important in the productivity of Irish potato. His work is important to the study because organic manure and chemical fertilizers are indispensable in the production of Irish potato in Nso. This study is different from his because he did a general study of the Western High Lands.

Ambrose in his article investigated the growth and yield Response of Irish Potato *Solanum Tuberosum* to climate variables in Jos-South, local government area of Plateau State, Nigeria.²⁵ He also traced the origin of Irish potato in the world and how it spread. These variables included temperature and rainfall. His work is important to this study because of recent, the changes in climatic conditions such as fluctuations in rainfall and temperature have affected the productivity of Irish potato in Nso. Nonetheless, his work is different from this study because he concentrated in Nigeria.

Writing on Research and innovations in Cameroon, Mbah David dwells on the various crops in Cameroon, their yields and innovative strategies to improve on the yields.²⁶ His work was centered on the various institutions set up by the Cameroon government to improved agricultural yields through the study of different crops. He laid emphasis on the creation of IRAD as an institution to study improved seeds and improved methods of cultivating them. Irish potato farming

²⁴ Christopher Tankou, "The Effects of Green Manure and Intercropping on Potato Production in the Western Highlands of Cameroon", *The International Journal of Scientific and Technological Research*, Vol 3, 2014.

²⁵ Ambrose A et al, "Growth and Yields Response of Irish potato to Climate in Jos –South, Plateau State, Nigeria", *Global Journal of Human and Social Sciences* Vol 13 2013.

²⁶ David Mbah, *Research, Innovation in Cameroon, Economic Commission for Africa, Food Security and Sustainable Development Division, Selected Science and Technology Research and Applications in Cameroon*. Yaounde Cameroon, 1998.

has gone through many innovations in Nso. These innovations are in terms of improved seeds introduced and the improved methods of cultivation introduced in the area by IRAD workers. This work is important to this study because Irish potato is among the crops in Nso that has undergone much innovation in its productivity to bring about large scale production.

The prevalence of six viruses in potato seed tubers produced in informal seed system in the North West Region of Cameroon were examined by P.A Njukeng and others.²⁷ They examined the prevalence of six viruses on sprouted potato seed tubers of different diameters collected from four seed stores in the North West Region as a whole. This work is relevant to this study because Nso is found in the North West Region. But their work is different from this study because they generalized their study.

Carol Edjimbi in her memoire laid focus on the production, transformation and the commercialization of cassava in Zoetele.²⁸ She examined the various processes and actors involved in the production, transformation and the commercialization of cassava in Zoetele. She also stressed the problems faced by farmers and impacts of cassava. Her work is to an extent important to this work because some of the problems and impacts she examined are similar to those Irish potato producers experienced in Nso.

Fondufe presented the production and the commercialization of maize in Kumbo Central in her memoire.²⁹ In her work, she narrated the problems, farmers of maize encounter in the production and the commercialization of the crop. Some of the problems she made mention in her work are also faced by Irish potato farmers. Her work is helpful to this study in the sense that farmers of Irish potato faced similar problems and Kumbo Central also suffers the same problems.

²⁷ Njukeng et al, "The prevalence of six viruses in potato seeds Tubers in the North West Region of Cameroon", *Journal of Experimental Biological*, Vol 09, No, 44-49, 2013.

²⁸ Yvette Carol Edjimbi, « La Culture, La production la transformation et la Commercialisation du manioc Zoetele » 1980-2000, Mémoire DIPES II, E.N.S Université de Yaoundé I, 2011.

²⁹ Lydia Fondufe nee Sakaah, "The Production and Marketing of Maize in Kumbo Central Bui Division", DIPES II Dissertation in Geography, E.N.S. University of Yaounde I.1996.

Methodology and Sources

The data and other valuable information for this study was gotten from a number of sources which include; primary and secondary sources. Primary sources were gotten from oral interviews with farmers and other stakeholders involved in potato farming as well as agricultural workers and researchers in Nso. Archival materials were sourced from the National Archives Buea, Divisional Archives Bui, the Ministry of Scientific Research and Innovation and the IRAD Archives at Nkolbison. With regards to secondary sources, published works like articles, journals and textbooks were utilized. Unpublished works like thesis, memoirs, and long essays were also exploited. Memoires, thesis and some text books were consulted from the libraries of the Higher Teachers Training College, Department of History library Yaounde I, Faculty of Arts Letters and Social Sciences library Yaounde I, Ministry of Scientific Research, Bui Council Library and CEAC library in Kishong. Some of the journals articles and text books were also gotten from the internet.

For the approach used in presenting the data, the researcher made use of the chronology in dates, illustrations and the thematic approach. Chronology was needed to maintain consistency and a logical presentation of data from 1936 to 2014. Thematic approach was also used. This is shown in themes, topics and sub-topics that run throughout the study. Themes are used to make the study comprehensible. Illustrations like graphs, photos statistics, maps and charts were also used to make the work explicit and more comprehensive.

Problems encountered

To realize this work, the researcher encountered many challenges from the conception of the topic to the challenges on the field and those in the process of writing the work. The researcher had the difficulty of framing a good research topic but with the assistance of the supervisor she was able to come up with a

topic which reflected the work done. On the field the researcher encountered the problem of little statistics and in some cases there was the absence of available statistics on sales and yields produced. Another problem was the availability of recorded information in Divisional and Sub Divisional archives. Also, to tour round the Division was a challenging experience for the researcher. To solve these problems the researcher had to get in contact with the divisional, sub regional delegations of agriculture, agricultural posts centers and the farmers involved in Irish Potato cultivation.

Organization of the study

The work is divided into four chapters including the general introduction and a general conclusion. The general introduction gives the conceptual framework used in the course of the study. It also outlines the back ground to the study, justification of the topic, definition of concepts, the statement of the problem, literature review, presentation of the scope and delimitation. It also present the aims objectives, significance of the study, methodology and the different sources used, organization of the work and the problems encountered in the realization of the work.

Chapter one is an introductory chapter which traced the introduction and spread of Irish potatoes in Bui Division. It looks at when, how and the people who introduced the crop. As concerns its expansion in Nso, emphasis is laid on why, how, difficulties encountered and adjustments made to ensure the rapid spread of Irish potato. The influence of geography in terms of climate, relief, topography on the productivity of the crop and a brief historical setting of Nso are also examine in this chapter.

Chapter two describes the cultivation and marketing of Irish potato from purely a food crop to a revenue crop. It demonstrates how Irish potato farming has grown from 1936 to 2014. The various methods of cultivation and marketing

over the years are examine and the conservation methods from the farms to the markets are not left out.

Chapter three evaluates the challenges faced by the farmers in the production and marketing of Irish potato. Chapter four examines the social and economic impact of Irish potato to the farmers in particular and the Nso community as a whole. The study ends with a general conclusion which is a summary of the ideas and arguments discussed in the different chapters.

CHAPTER ONE

THE INTRODUCTION AND SPREAD OF IRISH POTATO IN NSO, 1936-2014

INTRODUCTION

This chapter deals with the introduction and spread of Irish potato in Nso. Specifically, it presents the geographical features which have influenced the cultivation of Irish potato in this part of Cameroon. These geographical features include; relief, soils climate, temperature, rainfall, sunlight and altitude. It also seeks to present a brief history of Nso. The administrative set up of Nso in terms of population influenced the cultivation of Irish Potatoes. It also looks at the acquisition of land used in the cultivation of the crop. The calendar of Irish potato cultivation is describe in this chapter. The chapter ends with a chapter conclusion.

The influence of the Administrative Set up of Nso Land on Irish potato.

Nso was a district under the Bamenda Division up till 1966 when the area was change to Bui Division.³⁰ The name was change to Bui after one of the main rivers in the area known as river Bui. The division is made up of six Sub-Divisions. The PNDP council development plans of 2010 came out with the following population figures of the six Sub -Divisions of Bui Division. Kumbo Central 12719 inhabitants, Jakiri 59784 inhabitants, Mbven 53211in habitants, Noni 64030 inhabitants, Oku 151894 inhabitants and Nkum with 140149 inhabitants. This gives a total population of Bui Division to stand at 596987 people in 2014. 70 percent of this total population depended on agriculture for their livelihood. Notwithstanding, almost everyone have been engage in agriculture either as a source of livelihood or as a hobby. Nso has an estimated surface area of 2252km

³⁰ NAB, File No3436 Vol II Bridges Re-assessment Report, Bansa District, Cameroons Province 1923 and 1931.

giving a population density of 265 persons per square kilometers. The farming population and the number of farm family's stand at 417890 and 69649 respectively.³¹ This is estimated as per the field staff within the frame work of the National Agricultural Extension and Research Program [PNVRA] who consider the farming population to be 70 percent of the total population and farm family to be made up of 6 persons.³² This is a great booster to the cultivation of Irish potato in Nso.

Farmers have discovered the gain from the mono cultivation of Irish potato in large scale against the minimal gain gotten from the mixed cropping with other crops like beans and corn. The low yields from mixed cropping is due to the competition the three crops have with the intake of nutrients and manure from the soil. From the early 2000s to 2013 potato farmer groups were created. Later on in 2014, potato cooperative groups were created in the four Sub-Divisions of Bui Division. This creation followed the ministerial visit in 2013 to boast both the quality and quantity of Irish Potato production in Nso.

The Geographical influence of Nso on Irish potato farming.

Nso is found in the North West Region of Cameroon. Located along the Bamenda-Nkambe axis of the ring road some 109km from the regional capital Bamenda. It is bounded by Ngoketunjia Division to the South, to the North East by Donga Mantung, to the west by Boyo Division and to the South East by Noun Division of the West Region.

Influence of Climate on Irish potato farming in Nso

Nso is located in between latitude 5°00" and 5°15" north of the equator and longitude 10°45" and 11°00" east of the Greenwich Meridian. Nso is found in the

³¹Thomas Fuchi, Divisional Annual Report of Activities from January to December 2014 Bui.

³² Ibid.

Cameroon type of the Equatorial Climate.³³This climate is experienced in the Western Highlands. The Equatorial climate is characterized by the existence of two seasons; one wet season of about eight months during which rains are abundant and one dry season. This climate is quite hot and humid. The dry season generally starts from mid -November to mid- March (4 months). While the rainy season runs from mid- March to mid-November (8months). The wettest period is usually from June up to early September.³⁴The presence of these seasons has favoured the cultivation of Irish potatoes three times a year.

In recent years, some parts of the Division usually witness a dry spell period that comes up mostly from mid - April to mid –May or a little bit beyond. The spell was so intense in certain years that crops planted have had to be replanted due to the dryness. Temperatures in Nso range between 16 and 18 and an optimum temperature of 18 to 25 annually. This temperature favors the cultivation of Irish potatoes and some cereals in the area. The altitude of Nso is about 2100m.³⁵ This altitude reduces the presence of water on the surface land used for potato cultivation. This made it easy to till the soil and the availability of loose soil to support the potatoes on the ground. In addition to altitude, Nso has an annual rainfall of between 200m to 300m which favors the cultivation of Irish potatoes in the area.³⁶ The availability of abundant sunlight in Nso also facilitate photosynthesis and the growth of Irish potatoes in Nso.

The influence of soils on Irish potato cultivation in Nso

The availability of fertile soils have facilitated the cultivation of Irish potatoes in Nso. The Western Highlands area of which Nso of in Cameroon consist of azonal soil. The azonal soils are made up of alluvial and volcanic soils. The

³³ Aaron S. Neba, *Modern Geography of the Republic of Cameroon* Bamenda, Neba Publishers, CAMDEN, N. J. 08101, Second Edition, 1987, p.24 and 26.

³⁴ Ibid, p.26

³⁵Bime Berinyuy Henry, “Production and Marketing of Food Stuffs in Bui Division, Cameroon; An effect in Rural Transformation”, Doctorate Thesis in Geography, University of Yaounde I, 1984, p.21.

³⁶Ibid, p.

formation of these soils is not link to climate they are very fertile due to the deposition of sediments.³⁷The different types of soils in Nso includes; alluvial soil, volcanic soil, at Mboh Nso and around mount Oku, Tadah, granitic soil, basaltic soil sandy-loam soils at Mbah and loam soil at Kovifem, Nkuuv and Dyrii. These soils are very rich for potatoes cultivation due to the fact that they are well aerated and facilitates the penetration of nodules.³⁸ Some of the areas in Nso with fertile soils which have favored the cultivation of Irish potatoes include Kitiwum, Ndzen, Tadah, Kishong Nkor, Oku, Vekovi, Banten, Kikaikom, Kikaikelaki, Kuvluh, Nseh, Jakiri and Nkar.

The influence of topography on Irish potato farming in Nso

The topography of Nso is undulating, made up of hills, plains, plateaux and valleys. The average relief is around 200m above sea level while Mont Kilum in Oku has a height of about 3005 above sea level. Low lying areas of Nso has an estimate of about 800m above sea level and found in Mbonso Lip, Wasi, Ber, Ibal-Oku, Nkor, Lassin, Banti and Ngeptang.³⁹ Lowlands like plains, valleys have favoured the cultivation of Irish potato. Farmers found it easy cultivating in these area with the use of hoes or machines. Irrigation has been very easy in these areas. Also, in these areas, the cost of irrigation is reduced and easy due to the fact that the relief is flat when compared with hilly and highlands. The cultivation of Irish potato in hilly areas is to an extent difficult due to the steep nature of the slopes. This consequently facilitated erosion of the soil. Erosion refers to the washing away of the top soils by either wind or rain. To ameliorate this situation, farmers constructed contour bars and ridges along slope lines to avoid the washing away of the ridges by either the wind or the rain, especially in August and July when rainfall is usually at its peak.

³⁷ Dobgima Abraham, *Advanced Regional Geography, A thematic Analysis of Concepts and Cases for Cameroon Schools*, Bamenda, The leaders Print Publishers, 2008, p.6.

³⁸Roland Bongfen, "Agro pastoral Intensification in Kumbo Central Sub Division", DIPES II Dissertation in Geography E.N.S, University of Yaounde I, p.22.

³⁹ Ibid, p.23.

A Brief History of Nso

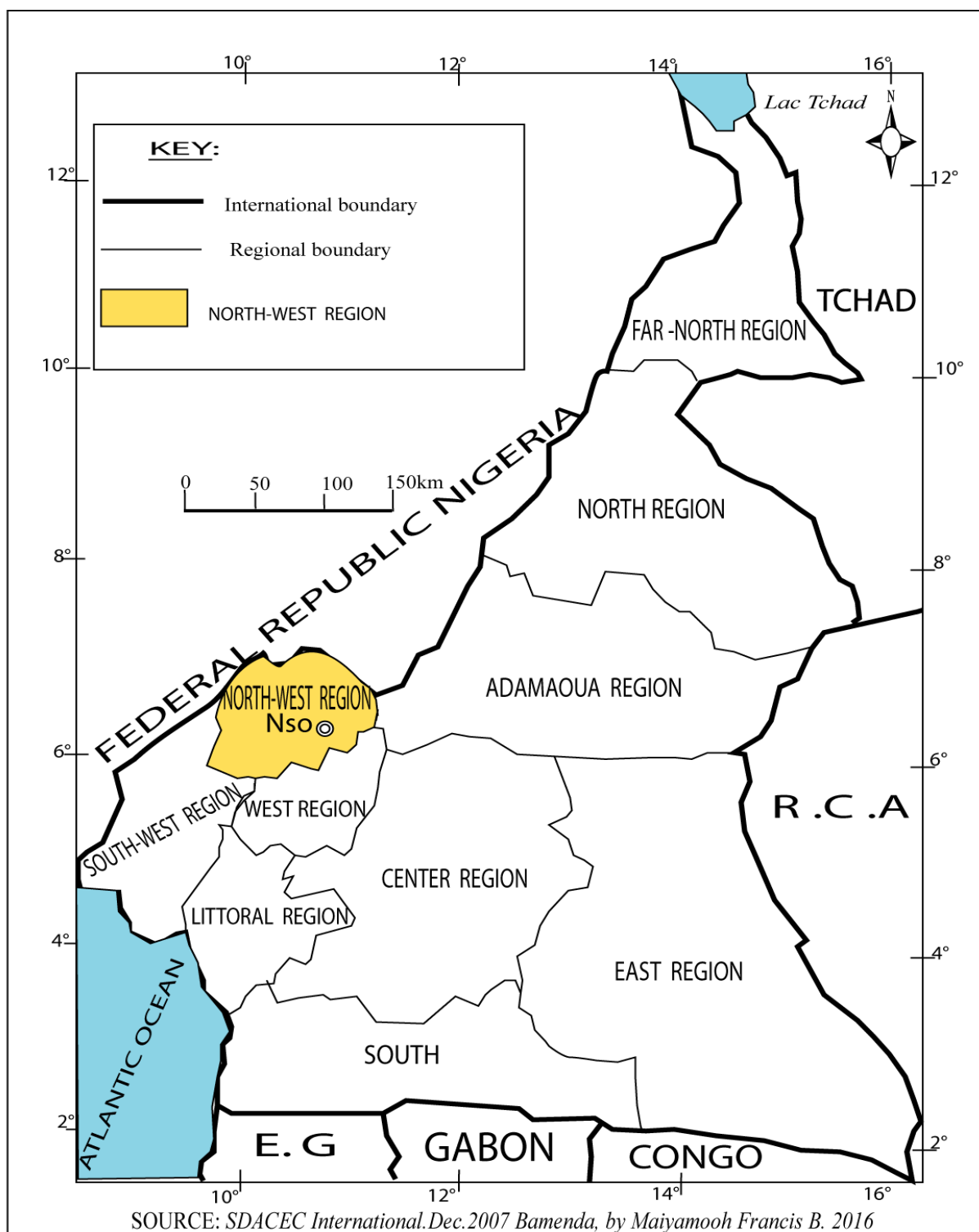
The Nso, Nsoh, Nsoq, Nsaw, Bansah, or Bansa as is call and written is a tribe of the Tikar origin. It is one of the biggest centralized fondoms in the North West Region. The Paramount Fon of Nso have control and authority over the smaller fondoms of Nkar, Nseh, Mbiame, Oku, Noni and Tasai. This group originated from a place referred to as either Bankim, Tabati, Banyo, Kimi, Ndobor or Rifem.⁴⁰ Probably about the 17th century, Tikar groups stationed at Rifem near the headquarters of Bankim and migrated following the Mbam Valley. The history of origin of the Nso people is link to throne succession by three children of the late *Fon* called KIMI and his wife. This Fon had three children, the first Ngonso, Fongshu or Nso the second Nchare and third Mfoombam or Mbam. Before his death, Kimi prepared Nchare as his successor but when he died, Nchare was by pass in favor of his half- brother Mbandu. When he realized that he was deceive, he decided to leave with his half-brother Mfoombam followed by their sister. The two brothers crossed the Mbam Bridge and Ngonso and her family continued up the River and arrived at Mboh Nso. She later moved to Ndzen Nso and up to Kovifem. At Kovifem they encountered raids from the Fulani which pushed them to Tavisia near Kikaikelahki and later to Kumbo (1820s to 1986).⁴¹ On the first of October 1961 the Nso Area Council was created later on in 1963 Nso was given a Sub Divisional status. In 1966 Nso was given a full Divisional status and a Divisional Officer was formerly opened on 15 December 1966. Nso was transform to a Division named Bui.⁴² This Division is made up of 6 Sub Divisions with a total population of about 596987 inhabitants which account for the much needed labour force for the cultivation of Irish Potatoes in the area.

⁴⁰ V.G. Fanso, *Cameroon History for Secondary Schools and Colleges; From Pre-colonial*, Volume One London, Macmillan Publishers Limited, 1989, p.25.

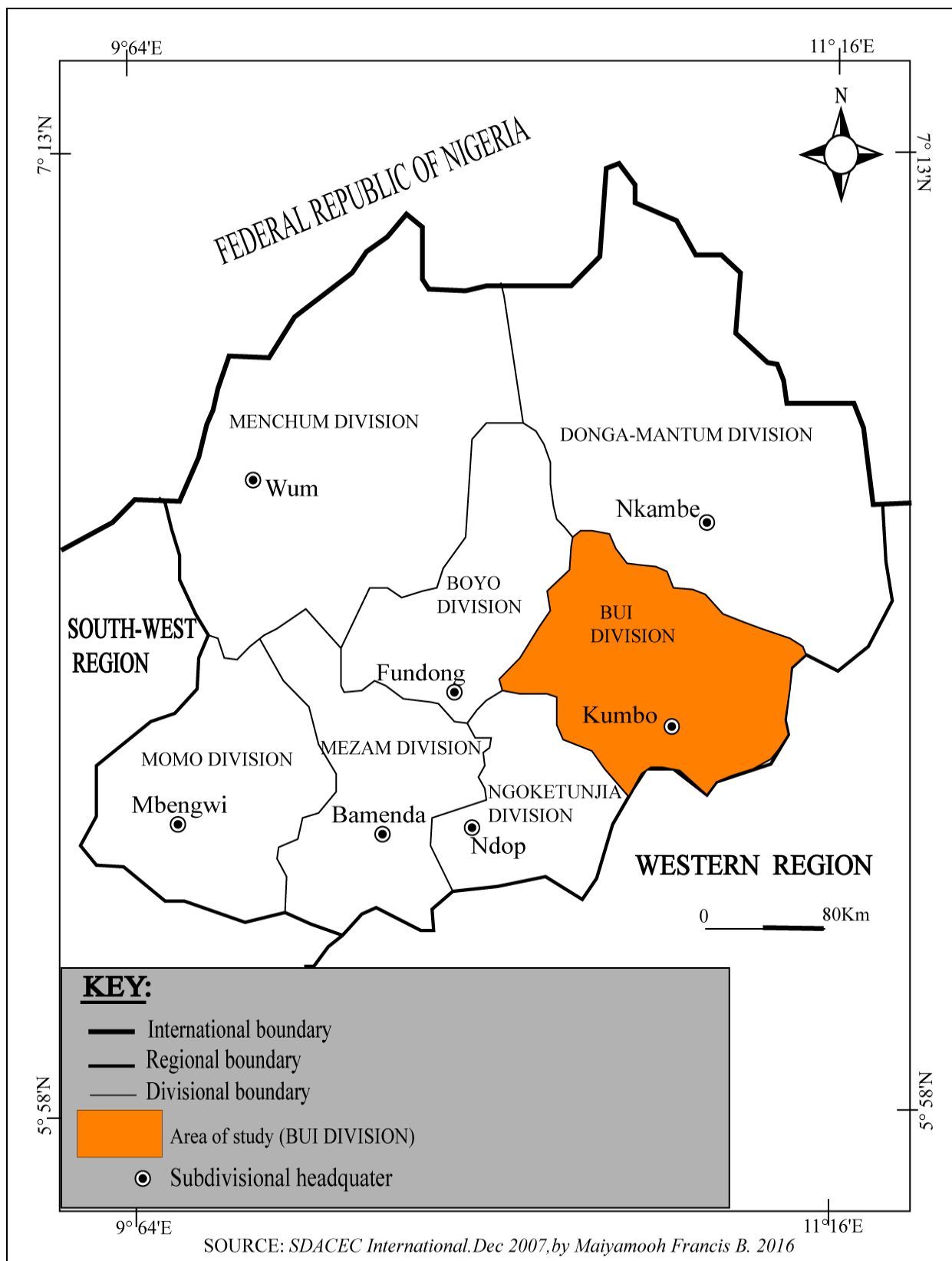
⁴¹ E.M. Chilver and P.M Kaberry, *From Tribute to Taxation in a Tikari Chieftdom, Africa* Vol.xxx No.1 January 1960 2 as quoted by Ntutin Anthony Wirnkar in "the Economy of Nso", DIPES II Dissertation in History, ENS, University of Yaounde I, 1986, p.28.

⁴² NAB, File NoDSD4156/s.1,Ba 1969/1,Divisional Economic and Political Report Bui, p.26

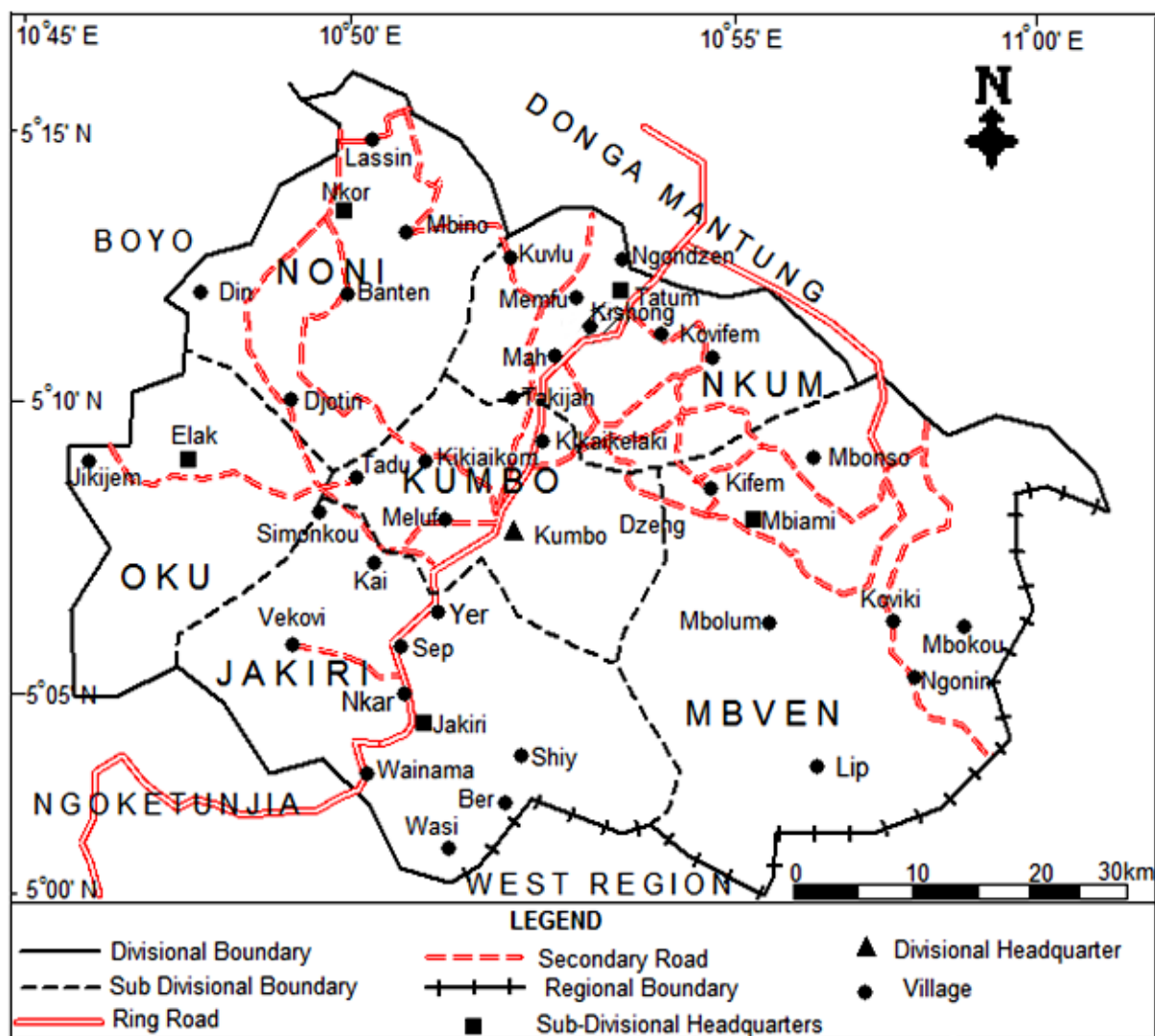
Map 1: The map of Cameroon indicating Nso in the North West Region



Map 2: The map of the North West indicating Nso



Map 3: Location Bui Division



Source: Adapted from the administrative map of Cameroon.

The Introduction of Irish Potatoes in Nso.

Irish potatoes originated from South America precisely in Bolivia where it is believed to have been grown in the wild and later domesticated and spread to the European and Indian Continents. Irish potato reached Sub Saharan Africa following the colonization of this region by the Europeans and was introduced in Cameroon by a German Priest Antom Schmid.⁴³ Before 1914 the Germans are said to have introduced Irish potato in Nso, their seeds were experimented in Bam-

⁴³Walter T.S, Schmiediche. P E, Hijmans R J, *World Trends and patterns in the potato crop; Economic and Geographical Survey*. Potato Research Centre, Lima, p.24.

Bui near Tubin. The seeds were brought by German plantation workers but due to the absence of recorded information it has been difficult to trace the names of the seeds and the people who introduced the seeds. In former European colonies of Africa, potato was initially consumed only occasionally, but increased in production and became a staple crop. The seeds introduced by the Germans eventually disappeared under local cultivation. Later on in the 1920s and the 1930s, European missionaries especially those of the Catholic Church brought Irish potato seeds to Nso. These missionaries experimented the seeds in the gardens of the various Churches especially in Shisong and Nkar. In an effort to increase food sufficiency and a healthy Christian community, the missionaries gave seeds to their Christians to cultivate in their various farms. Thus, Irish potatoes spread in the whole community.⁴⁴ These missionaries included Brother *Krispinus*, he was placed in charge of gardens and farms, the Mill Hill Missionaries from London, Father Julius Peeters, Father *Filgl*, and Sister Camilla.⁴⁵ Irish potatoes species introduced by these missionaries were *Spunta*, some locally named as *Kijam* (21 eyes) and *Dong*. Due to its small sizes some of the seeds were often referred to be good for dogs thus, the name *Dong*.⁴⁶

In the early 1950s, Elizabeth Okelly a German educator and Anthropologist introduced seeds of Irish potatoes, sweet potatoes and trees in Nso. These seeds were later named after her as MADAM.⁴⁷ The yields from these seeds were big in sizes thus, the much reason why the name Madam continued. In the early 1980s The Nso Area Cooperative Limited often referred to as (NAC LTD) in charge of Irish potatoes production, introduced Irish potatoes species like Baraka, Ark, Cardinal. Furthermore, in late the 1980s, IRAD researchers and extension workers

⁴⁴ Anthony Ntutin, "The Economy of Nso" DIPES II Dissertation in History, E.N.S. University of Yaounde, 1986, p.26.

⁴⁵ Joseph Lafon. *History of the Catholic Church in Kumbo Diocese 1912-1988*, Yaounde, CEPER, 1989, p.34 and 75.

⁴⁶ Interview with Fai Brigit, 70 years, Farmer, Kiyam, 9th March 2015.

⁴⁷ Anthony Ntutin, "The Economy of Nso" DIPES II Dissertation, Department of History and Geography, E.N.S. University of Yaounde, 1986, p.27.

came to Nso, to experiment improved varieties of Irish potatoes. These IRAD extension workers introduced improved seeds and improved techniques of cultivating Irish potatoes on a larger scale. They experimented these seeds in the Agriculture School in Kishong. The choice of this area was due to the availability of vast land in the area. The yields from these improved seeds were remarkable and mostly appreciated by consumers both in and out of Nso. As a result of this many farmers developed interest for these species, later as the years went by farmers adopted the improved techniques and improved species. *Tubira*, *Cipira* were among the first seeds.⁴⁸ The seeds later spread to the whole area. These seeds attracted farmers from Santa and Fontem. They came to buy seeds from the IRAD store situated in Kishong. Later on from 2000 to 2011, PRFPT introduced potato species like *Mondial*, *Mannon*, *Adosa*, *Babungo bambui wonders* and re-introduced *Spunta*. Among these species introduced by PRFPT *Mondial* proved suitable. Consequently, many farmers adopted to the detriment of other species. IRAD workers further introduced Bambui Wonders. Among all of these species, *Cipira*, *Tubira* and *Mondial* have remained out standing both in yields and quality. This accounted for the introduction of 30tons of *Mondial* to Bui Division by former Minister of Agriculture Esimi Menye in 2013.⁴⁹ This was also part of his program to maintain food sufficiency in Cameroon and to realize his second generation agriculture plan. Mrs. Yang Linda also brought tons of Irish potato seeds, insecticides, pesticides and fertilizers to Oku to boost the productivity of Oku farmers.⁵⁰ The table below shows the various Irish Potato species, the dates in which they were introduced and the people who introduced these species.

⁴⁸ Vanessa Kibinkiri ,” Irish Potato Production in Kishong” Long Essay, University of Buea, 2013, p.19.

⁴⁹ Interview with Mr Fuchi Thomas Song, 49 years, Divisional Delegate of Agriculture Bui, 10 March 2015.

⁵⁰ Ibid, p.42.

Photo 1: Mondial specie

Source: Field work research 2015.

Table 1: Dates of Irish potato introduction in Nso, species, introducers and the various places of experimentation

Date of Introduction	The species of Irish potato	Persons who introduced the species	Place of experimentation.
1914			
1920-1930s	Kijam (21 eyes), Dong, Spunta.	Catholic Missionaries from Holland, Germany, London, Ireland, like; Rev. Julius Peeters, Father Figles. Sister Camilla.	Gardens of the Catholic churches hoisting Catholic Missionaries especially in Shisong.
1950s	Madam	Elizabeth Okelly.	Shukai Kitiwum, Vekovi.
1980s	Baraka, Ark, Cardinal	Nso Area Cooperatives(NAC LTD)	Vekovi,Tadu, Tubin, Mbiim, Bantem
1998	Cipira, Tubira	IRAD Workers, Conolus Awemo, Wanky Walters.	Kishong
2000 and 2010	Mondial, Mannon	PFRPT	Tadu, Kishong, Tubin.
2013	Mondial	Minister Essime Menye	Distributed to all farmers in Bui Division.

Source; Field Work Data Collection, 2015.

Table 1 above demonstrate the years in which Irish potato was introduced in Nso, the species introduced and the people who brought the seeds into Nso. Places of experimentation are also included in the table.

The Spread of Irish potato in Nso from 1936 to 2014

Irish potato spread in Nso through the various missionaries like Father Julius peeters, Father Figles and Sister Camilla. During the evangelization trips to villages like Ndzevru, Tatum, Nkar, Oku, Noni, Ngondzen, Father Figle and Rev Julius Peeters introduced Irish potato seeds to the Christians who accepted to be baptized and registered in the Catholic faith.⁵¹ The baptized Christians only shared the seeds among themselves and their closest brothers and sisters it was difficult for the seeds to be shared with pagans. Consequently this was a means to gain many Christians from the community. This move led to the conversion of pagans and traditionalist to Christianity to benefit from these seeds brought by the priests. Eventually the crop spread throughout these localities. The Franciscan sisters like Sister Camilla, Sister Odilia, Cleopha and Dr Hilder Platzter created the Shisong Health center and later on, in 1967 they extended the health services to villages like Tatum, Djottin and Njinikom.⁵² Also during their tours in these places, the Franciscan sisters especially Sister Camilla introduced species like Dong, Kijam in these villages. They gave these seeds to patience and Christians who came to visit the health dispensaries.⁵³ In 1954. Okelly commonly known as “madam” introduced a specie known as “madam” an appellation that was given to her and all seeds of crops she introduced in the area. She created women cooperatives and women groups which facilitated the spread of her seeds to many farmers. These groups were created in almost all villages in Nso. Many at times she went to these

⁵¹ Interview with Tumi Elias, 65years, Catechist, Tatum, 20 December 2015.

⁵² Anthony Ntutin, “The Economy of Nso” DIPES II Dissertation in History, E.N.S. Yaounde, 1986, p.27.

⁵³ Ibid. p.27.

villages to ensure that the methods of cultivating these crops were well implemented example of these villages are Noni, Nkor, Tubin and Mbveh.

Madam Okelly experimented these seeds in Kituwum and Shukai, the experimentation was done mostly with the women and few men who assisted in the construction of fences around the experimentation side. She created women's groups and a cooperative in Kumbo precisely in Mbveh whereby women gathered to exchange their goods. Through these groups many others got to know about the existence of Irish potato and the methods of cultivation and storage of the crop. Later on in 1971, associations like NACU were created to produce and increase the production of Irish potato.⁵⁴ In 1984, prices of coffee drop to 500 frs per kilogram, later in 1992 the prices of coffee fell to 200frs per kilogram. This drastic fall in coffee prices hit so hard on farmers and sent many of them out of the business. Consequently many of them joined the potato business and the cultivation of Irish potato started gaining steam in Nso.⁵⁵

The spread of improved species like Tubira and Cipira was done through seminars and training sessions held by IRAD extension workers in Agriculture schools like CEAC Kishong, CEAC Nkor and at the Divisional Delegation of Agriculture Kumbo. The first IRAD extension worker sent to Nso was Conilus Awemo he together with the Director of the school at the time Kifem Ciprain experimented Tubira and Cipira.⁵⁶ Many farmers interested in the improved methods and seeds came to the center Kishong and sought for expert advice. These farmers became very prominent and large scale producers because of their long experience in the sector of Irish potato. In 2010, Mrs Linda Yang donated tons of Irish potato to thousands of farmers in Oku which led to the spread of the crop in the area. In

⁵⁴ Ibid, p.26.

⁵⁵ M. Samuel PENN, "Potato Production and Marketing and its Impact on the Environment in Santa. Sub-Division", DIPES II Dissertation in Geography E.N.S, University of Yaounde, 1998, p.45.

⁵⁶ Interview with Kifem Ciprain, 60years, Retired Agronomist, Kumbo, 10 December 2015.

2013, the then, minister of Agriculture donated 30tons of Irish potato seeds to about 3000 farmers in the area, this went a long way to expand the seeds and the improved methods to many farmers in Nso.

The description of Irish potato

Irish potato falls under the class of tubers. According to the world Encyclopedia volume 18,50th edition, a tuber is the thick enlarged part of a stem that grows underground. Also, according to the American Encyclopedia, a tuber is an underground plant stem or a bearing shoot whose buds are the eyes of the tuber. They are valued for their highly nutritious starch content. Irish potato has broad leaves and bear, it produced through the roots as seen in the pictures below.

Cipira had a white color, Tubira had a yellowish colour, “Madam” has two colors the white and the red colors. Kijam, Dong, Spunta and Baraka all had a white colour.

Photo 2: Irish potato’s plant



Photo 3: Irish potato tubers



Source: field work research 2015.

The photos 1, above show the Irish potato plant and photo 2 shows Irish potato tubers on the farm freshly harvested.

The process of cross-breeding Irish potato seeds

Cross-breeding involved the bringing together of two or more different Irish potato seeds to give new species. IRAD researchers in Bambui and Dschang imported a raw material known as Invitro Planata to facilitate the process of cross breeding. This process was carried out in laboratories in Dschang and Bambui. The stems of the different seeds were cut and placed in test tubes.⁵⁷ A surgical blade was used to cut the stems of the plant and placed in other test tubes for rapid multiplication of the seeds. This was followed by the rooting process, a chemical known as gin powder was either added in the test tubes or put in the sterilized trays of sand to facilitate the rooting process.

Sand and rice stalks were measured, sterilized and cooked in a ratio of 2:1 at a temperature of 100 degrees for two days. The aim of this was to kill bacterial that might have affected the growth of potato seeds. After two days, the sand and rice stalks were mixed to facilitate absorption by the plants. About 100 holes were created on the tray of the sterilized sand and the rooted stems removed from the test tubes and placed in the holes. After one week, this produced fruits. From this stage, the seeds were taken directly to the field or screen house in order to get more cuttings. The last stage was the transportation of these seeds to the farm. The first four yields from these seeds were considered as seeds.⁵⁸ Consequently farmers were not advised to eat these yields. This was due to the fact that the yields were soft and watery at the center of the tubers. From the fourth harvest the tubers became dry and crispy and very palatable in the mouth, consequently good for consumption. Example of Irish potato seeds produced from cross breeding included: Tubira, Ark, Cardinal. Mondial and Bambui wonders.

⁵⁷ Interview with Wanky Walters, 40years, IRAD Researcher, Kishong, 20th December 2015.

⁵⁸ Ibid.

Photo 4: Cipira Specie



Source: Kibinkiri Vanessa, 2015.

Photo 4 above contain Cipira tubers inside a basket.

The calendar of Irish potato production in Nso

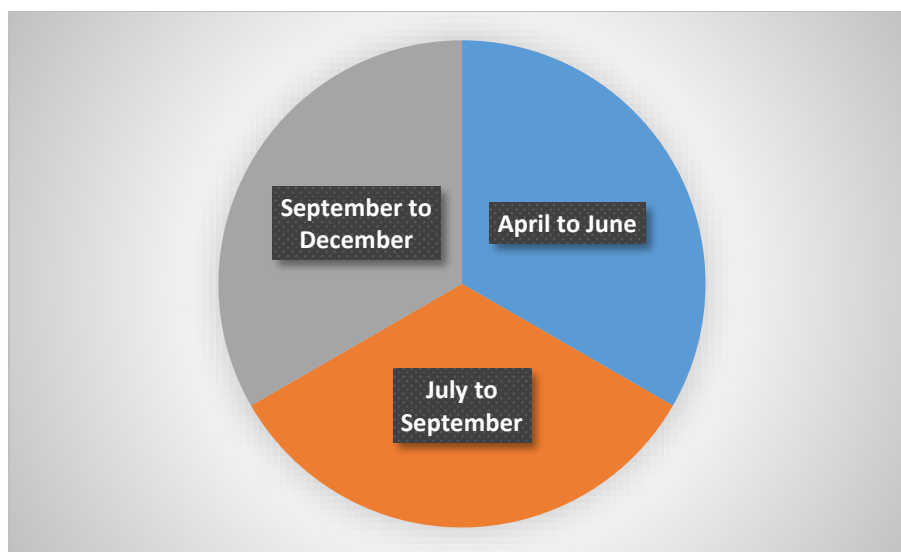
Irish potatoes has three main planting seasons in Nso. These seasons were from March to May, June to September, October (September) to December.

Planting seasons for Irish potatoes in Nso

The planting of Irish potato for the rainy seasons started from March to June. The second set began from June to August and September. The third set of planting from September to December and the cycle continues. It should be noted that the crop was also cultivated in December in marshy areas because of the availability of water in those areas and harvesting was done by the end of February.⁵⁹The chart below shows the calendar of Irish potato farming in Nso.

⁵⁹Interview with Lukong Oliver, 59 years, Sub Divisional Delegate of Basic Education, Kishong, 20th December 2015.

Chart 1: On Irish potato planting calendar in Nso



Source: Field work research.

The chart above shows the various months in which Irish potato was cultivated in Nso. The first planting for intensive mono cropping, in the rainy seasons falls between March and April and later harvested in June this is represented by the blue colour on the chart. The second planting was done in July and harvested in September. This was followed by the third planting in September mostly done in marshy areas or along river courses and harvested in December.

The local calendar of Nso has 8 day among these 8 days, six were reserved as work days and two were kept as rest days. These days were *Ngoylum*, *Waylun*, *Ntanrin*, *Kaavi*, *Reevey*, *Kiloovey*, *Nseeri*, *Geegee*. Farmers were allowed to work freely on their farms for six days that is on *Waylun*, *Ntanrin*, *Kaavi*, *Reevey*, *Nseeri* and *Geegee*. *Ngolum* and *Kiloovey* were reserved as rest days in Nso. On these two days rites were perform and sacrifices offered to gods for cleansing and greater yields.⁶⁰ Also on these days, no one was supposed to go to the farm. Consequently, the Irish potato farmers had six days to work in their farms the other two days were usually mean for rest. Also in these two days farmers were allowed to spray insecticides on their crops if necessary.

⁶⁰ Interview with Tansho David, 146years, Trader, Kishong, 9 March 2015.

Land Acquisition

Organization of land under the Nso tradition tenure system was placed under the Fon as the overall landlord, followed by village sub-chiefs, lineage heads known as landlords and villagers at the bottom. Land in Nso tradition has been divided into land tracks known as *Ngven*. Each track was placed under the control of a landlord known as *Tarngven* (link to lineage groups).⁶¹ All occupants recognize and pay allegiance to these landlords known as *Atarngven*. They occasionally perform rites on the land and arbitrates in case of disputes. Over the years, the method of land acquisition and cultivation of crops have change. Land in Nso has been divided into family land, begged land, bought and free occupation.

Further on, from 1930s to 1980s, land used in the cultivation of crops was not sold to women. It was given free but the lineage head still had claim over it with annual gratitude given to these landlords after the crops were harvested (Nguh). This was due to the fact that vast hectares of large empty land existed. Women were the main cultivators of land but, they were not allowed to own land due to stringent traditions and the fact that the country's law did not favour them to do so.⁶² From the 1990s to 2014, the increased in population made land very scares and difficult to obtain. It was difficult for land to be given out free due to the love for money developed by many lineage and village heads. Many at times land has been given out on rent for a number of years and sometimes sold to both men and women. The sale of land gained its steam in Nso from the early 2000s to 2014. This resulted in many conflicts in families and villages. It was a normal phenomenon in Nso to see many village heads in prison because of the illegal sale of land. This has been noticeable in Kumbo central where the scarcity of land became very alarming.

⁶¹ Bime Berinyuy, "Production and Marketing of food stuffs in Bui Division, An Effort in Rural Transformation", PHD Thesis in Geography, University of Yaounde I, 1984, p.77.

⁶²Ibid, p.77.

Conclusion

The favorable weather conditions like temperature, sun shine, moderate rainfall, topography, humidity, altitude coupled with fertile soils favored the introduction of Irish potato in Nso. These climatic weather and natural conditions in Nso have favoured the introduction and the production of the various species of Irish potato over the years in this region of Cameroon. The spread of Irish potato in Nso land an uphill tasks but missionaries together with explorers and researchers were able to overcome this task. Also, the administrative set up of Nso accounted for the high yields gotten from this part of Cameroon this is due to the diversity of the landscape. The chapter below will examine the cultivation and marketing of Irish potato in this area.

CHAPTER TWO

THE CULTIVATION AND MARKETING OF IRISH POTATO IN NSO 1936-2014

Introduction

This chapter seeks to presents the cultivation and marketing of Irish potatoes in Nso from 1930s to 2014. The various methods of cultivation and marketing are examine in this chapter. These methods included the extensive and intensive. It also examine the various innovations involved in the cultivation and conservation of Irish potato which serve as a means of revenue to the farmers. Actors involved in the cultivation, marketing and conservation of Irish potato are also presented. It also examine the changes in terms of method of cultivation, land preparation, field maintenance, tools, participants, seeds and facilities of conservation.

Actors involved in Irish potato production

Farming in Nso has always been dominated by women and few men who were engaged in it assisted mostly to clear the soil. Irish potato cultivation in 1936 was mostly a female activity. Women organized themselves in groups and worked in each other's farm without payment demanded from each other. Corn beer and food was provided to encourage the women in the cultivation process. They cultivated the crop mainly for subsistence purposed. These women ranged from the young, adults and the old.⁶³ The years 1984-2014 saw enormous evolution in the cultivation of Irish potatoes. The first set of improved seeds and improved methods of cultivation were introduced in 1998. This saw the involvement of

⁶³ Mariam, GoHeen, *Gender and Power in the Cameroon Grass fields, Men owned the fields Women own the crops*, London, University of Wisconsin Press, 1972, p.86.

more men especially youth in the cultivation of Irish potatoes. A large percentage of men abandoned businesses for the cultivation of Irish potatoes. Outstanding persons in potatoes production in Nso from 1990 to 2014 are men. Examples included; Wanky Walters in Kishong village, Kisi Fabian in Kishong village. Wirsiy Patrick Tadah, Tatah Julia kiven in kishong village.⁶⁴ Almost all the women who resided in Nso were involve in the cultivation of Irish potato. About 70% of them have been involved in large scale cultivation of Irish potatoes. A greater number of men involved in Irish potatoes cultivation focus mostly on intensive large scale production. Some large scale producers employed or hired workers to work for them when need be in each stage of cultivation.

Irish potato group farms also existed in Nso from the early 2006 to 2014. There has been an increase in the number of groups involved in the production of Irish potato in this area. Example included Young farmers Ngondzen, Bonglim Nseh, Bongsum, Martas in Nseh. Tumbui in Takijah Nsofor, and Bohgwhem in Nseh. Nkum potatoes producer cooperative had 236 members in 2014. These groups were created in 2006. Villages involved in large scale potato cultivations in Nso included; Kishong, village, Kuvluh, Tadah, Ngondzen, Nseh, Kovifem, Tadah, Ndzen Banten, Kaih, Meluf, Vekovi, Simon Nkor, Lang, Kitiwum, Tarkijah, Nkeng Rifem.⁶⁵ In 2006, within the framework of the National root and tubers project, farmers were organized into common initiative groups that were involved in the production and marketing of Irish potatoes. These groups were formed in the following villages: Tadu, Simon Nkor, Banten, Kitiwum, Kikaikelaki, Kishong and kuvluh.⁶⁶

⁶⁴ Interview with Kifem Ciprain 62 years, Retired Agronomist, Kumbo, 17th March 2015.

⁶⁵ Interview with Mr Fuchi Thomas Song, 49 years, Divisional Delegate of Agriculture Bui, 11 March 2015.

Evolution in the cultivation of Irish potatoes in Nso

The evolution of potatoes cultivation involved the different seeds used, tools, manure, chemicals fertilizers pesticide, sizes of the farms cultivated and land preparation and field maintenance. The cultivation of Irish potatoes in Nso has evolved over the years. Evolution refers to a change from one stage to another.⁶⁷ Potatoes production evolved from extensive mixed cropping to intensive mono cultivation thus, making it a revenue crop. This was due to the high yields gotten from intensive large scale mono-cropping.

Extensive cultivation involved the use of local seeds, no usage of fertilizer, fungicides, pesticides and the use of crude tools like hoes, cutlasses and the much dependent on organic manure.⁶⁸ Extensive cultivation was also characterize by mixed cropping and labour used was mostly family labor. In the 1930s the tools used in the cultivation of Irish potato included hoes, cutlasses. Cutlasses were used by men to clear grass on farms. The grass cleared was gathered with the use of hands. Hoes were mostly used by women. Women gathered the grass and ploughed the soil with the use of the hoe. Many at times, slash and burn was used by women.

Slash and burn was a process whereby grass was gathered and soil added to it and burn [Ankara].⁶⁹ Women believed that this method produced high yields. This accounted for the popular use of the method in Nso. In some cases, the whole farm was burn and a hoe used to plough the farm and form ridges. This crude method of cultivation gradually made the top soil very light and could easily be carried away by wind or rain. Consequently a fall in the fertility of the soil due to the fact that erosion carried away the nitrates and nutrients needed for plant

⁶⁷ Crystal David, Cambridge Encyclopedia, *The Cambridge, Paperback Encyclopedia, The new Updated Edition*, Cambridge University Press, 1994, p.132.

⁶⁸ Roland Njabe, *Human and Economic Geography for Cameroon G.C.E. Ordinary Level*, Limbe, SUNWAY PUBLISHERS, 2000, p.6.

⁶⁹ Phyllis M. Kabbery, *Women of the Grass fields*, London; Gregg Press Limited 1968, p.58.

growth. Also in the process of burning the farm micro-organism and termites which enrich the soil were killed. In addition to crude tools farmers depended mostly on natural organic manure and refuse from kitchens for soil fertility. Organic manure and the application of refuse from chicken coupled with animal dung on the soil provided high yields.⁷⁰ Farmers gathered grass cleared from the farm together in one place and allowed the grass to decompose this was later used to apply on the crop. Thus, from 1936 to 1990, farmers depended solely on organic manure. Over the years, there has been a drastic reduction in the fertility of the soil, because of this farmers started the search for substitutes to improve on the fertility of the soil.

Farmers also practiced mixed cropping of Irish potato with other crops like beans and corn to utilize the land available to them. Irish potato was usually planted in the middle of the ridge due to the fact that it needed enough soil to produce high yields. Beans and corn were planted by the sides of the ridge. With extensive production, Irish potato was cultivated once a year usually in February to ease the sprouting of the seeds in the soil before the rains fell in March. At times, the second planting was carried out. This was mostly carried out in marshy areas which provided enough water during the dry season for the cultivation of the crop. Irish potato was cultivated mostly in November and December when the tides or the level of the rivers had gone down to facilitate tilling of marshy areas.⁷¹

Furthermore, after Irish potato seeds were planted, farm maintenance followed. The maintenance of the farm in intensive farming involved weeding and molding. Three weeks after the shooting of the sprouted seeds from the soil, unwanted grass was weeded. The same process was repeated after two to three weeks. Molding in this case involve the art of increasing the layer around the

⁷⁰Lotsmart Fonjong N. "Changing Fortunes of Government Policies and its Impact on Agricultural Innovation in Cameroon", *Nordic Journal of African Studies* Vol 13, 13-29, 2004, p.15.

⁷¹Interview with Tansho David, 146 years, Businessman, Kishong, 26th March 2015.

tubers and roots. This was done to provide an enabling conditions for high yields.⁷²

The type of labour used in extensive cultivation was mainly family labour and help from friends. Communal labour was encourage and used by farmers. Women equally organized themselves in groups to assist each other. They worked in one another's farm without charge. They cooked food, prepared corn beer to encourage themselves in the cultivation process.⁷³

Harvesting was the last stage in the cultivation process. The extensive method of cultivation demanded the use of small sharp sticks to dig the potato from the middle of the ridges. Irish potato was harvested when the leaves were yellowish and started drying up. Sticks were used because Irish potato was cultivated at the middle with corn and beans on the same ridge this made digging with the hand very difficult. Mixed cropping was done because the crop was cultivated mainly for subsistence purpose.⁷⁴

Conservation of Irish potato with the usage of the extensive method of farming

Conservation started on the farms after the crop was harvested. Holes were dug on the farm, fern leaves placed inside and potato poured in. This was followed by the addition of fern leaves on the potato and the addition of soil completed the storage. Fern leaves were used to reduce the penetration of water into the soil. Local species like *Spunta*, *Kijam* and *Dong* could stay for three months before taken to the house.⁷⁵ When the *madam* pecies were introduced in 1950, the yields could also be conserved in the soil for three weeks. The conservation of Irish potato in the soil was done to facilitate the gradual transportation to the house.

⁷² Interview with late Madam Sahka, 70 years, Retired Catholic Nurse Shisong, Tubin 9th March 2015.

⁷³ Phyllis M. Kabbery, *Women of the Grass fields*, London; Gregg Press Limited, 1968, p.55.

⁷⁴ Interview with Fai Brigit, 70 years, Farmer, Kiyam, 9th March 2015.

⁷⁵ Bime Berinyuy, "Production and Marketing of food stuffs in Bui Division, An Effort in Rural Transformation", PHD Thesis in Geography, University of Yaounde I, 1984, p.78.

Thus, high cost of transportation was avoided since the farms were located far from farmers' houses. Another method was the construction of huts in the farm and wood ash poured into it before potato was poured in. Irish potato was also poured into a hole before potato was spread on the floor of the hut locally known as *woo nchum*.⁷⁶ Between 1930 and 1990, Irish potato was mostly cultivated in Shukov, Shukai, Kitiwum, Vekovi, Tadu, Oku, Dzen, Banten, Kai, Wvem and Mbiim. Irish potato was mainly cultivated for house consumption and sold only in difficult times or in case of excesses. In villages like Kai, Meluf, Melim, Tadu, Buh, Mbiim and Wvem, Irish potato was seen to have over taken coffee as a cash crop earner. Average revenue from it could be estimated at 50,000f.⁷⁷

Table 2: Statistics for Irish potato cultivation in Kumbo central sub-division
1979-1988

Irish potato.	Dates.	1979	1980	1981	1982	1983	1984	1988
	Surface area in hectares.	10,700	10,750	10,865	11,000	12,000	12,500	13,000
	Yields in tons.	7.9	7.8	7.5	6.5	5.6	5.8	5.5

Source: Divisional Delegation of Agriculture Bui MINAGRI-Kumbo 1999. Adapted from Bongfen.

Table 2 above represent statistics of Irish potato produced in Nso from 1979 to 1988. From the table shows an increase in the yields of Irish potato in the area from 1979 to 1988. This was attributed to a drastic fall in the prices of coffee in the world market which consequently push many farmers out of the coffee sector and they embraced Irish potato farming for their revenue.

⁷⁶ Ibid 58.

⁷⁷ Anthony Ntutin, "The Economy of Nso" DIPES II Dissertation in History, E.N.S. University of Yaounde, 1986, p.27.

Intensive mono cropping from 1998 to 2014

Intensive mono-cropping started in 1998 in Nso.⁷⁸ Mono-cropping is the cultivation of one crop on a plot or a piece of land. Intensive cultivation involved the use of machines, insecticides, fungicides improved seeds, fertilizers and hired labour.⁷⁹ The involvement of Nso farmers in mono-intensive cultivation gradually led to the change of the status of Irish potato from a purely subsistence crop to a revenue crop sold both locally and abroad. This type of cultivation has been termed ware potato production which involved large scale production of Irish potato.

Acquisition of improved seeds

In 1998 improved Irish potato seeds were introduced in Nso by Agricultural extension workers from IRAD Bambui, these seeds were *Tubira* and *Cipira*. Their maturity period ranged from 90 to 120 days. They had a fair resistance to leaf and tuber blight when compared with the local species.⁸⁰ The community Development School (CEAC) Kishong provided a suitable and favorable area for its experimentation. This was due to the availability of vast and fertile land in the area. The first yields were so enormous coupled with the high quality of the seeds, this subsequently saw the wide spread of the species to different villages of the Nso.⁸¹

A hectare of Irish potato produced about 8 to 12 bags of Irish potato. A small ridge could produce a bag of healthy and quality potato. This motivated many farmers to engage in large scale mono intensive cultivation of the crop. The seeds were bought from the seed store in CEAC Kishong through the subvention of the government, 1kilogram was sold at 500f but the normal price was 1000f. Farmers could also buy the seeds from the main markets in Nso like Kumbo, Takijah. The

⁷⁸ Interview with Wanki Walters, 40 Years, Resident IRAD Researcher Kishong, 4th March 2015.

⁷⁹ Abraham Dobgima, *Advanced Regional Geography, A thematic Analysis of Concepts and Cases for Cameroon Schools*, Bamenda, The leaders Print Publishers, 2008, p.38.

⁸⁰ Njuaalem D.K, *Evaluation of Irish Potatoes Varieties in the North West Highlands* Bamenda, 2000, p.7.

⁸¹ Interview with Wanki Walters, 40 years, Resident IRAD Researcher Kishong, 4th March 2015.

successful experimentation of Irish potato in Kishong in 1998 led to the creation of a seed multiplication center in CEAC in this area.⁸² The aim of the center was to cultivate potato seeds and supply to the main center in Bambui, and also to sell to Irish potato farmers in Bui, North West Region and to other regions of the country. Bambui wonders was later on developed and introduced in the early 2000s.⁸³ A hectare of Bambui wonder produced between 40 to 45 tons of Irish potato.

Photo 5: CEAC Kishong seed center



Source: Photo by Kibinkiri Vanessa, Kishong, 2015.

Picture 4: Indicate the center for the experimentation, multiplication and sell of improved seeds by IRAD workers in Kishong.

Later on, in 2006 and 2011 *Programme d'appui a la reliance de teliere pomme de terre (PRFPT)* introduced improved species like *Mondial*, *Spunta*, *Mannon* to Nso land. Among these seeds, *Mondial* proved suitable. Consequently many farmers adopted this specie to the others, a hectare of *mondial* produced at least 20 tons of Irish potato.⁸⁴ These improved species mature between 80 to 120 days.

⁸² Ibid, p.63.

⁸³ Interview with Yuk Renata, 55 years, IRAD researcher, Kishong, 7th March 2015.

⁸⁴ Interview with Shey Kwei Gregory, 60 years, Chief of Agriculture Bui, Kumbo, 10th March 2015.

Photo 6: Irish potato seed with diffused light in Kishong



Source: Photo by Kibinkiri Vanessa, Kishong, 2014.

Photo 6, above shows a diffused seed stored in Kishong, in the store cupboards made of bamboo on which Irish potato seeds were stored before sell.

The preparation of the field for intensive mono cultivation

As concerns intensive farming, the use of non-selective herbicides were used to kill the grass thus, the use of the cutlass to clear the field gradually reduced. These herbicides included round up and glyphosate. Stumping and raking was done manually. Grasses raked were later decomposed at the side of the farm and used as organic manure.⁸⁵ After this process, the plough or the hoe was used to form ridges.

Ploughing followed clearing with the use of hoes or tractors. Tractors were mostly used in level land (plains) because of the flat nature of the land. Tractors have been use in the CEAC farms and SHUMAS farms in Kishong village. SHUMAS made use of tractors in many areas like Kitiwum, Vekovi, tractors and ploughs were mostly used in the Mbo Nso Plains.⁸⁶ The tractor was used to till

⁸⁵ Interview with Peter Ndzelen, 40 years, Large Scale Irish potato producer, Ngondzen, 27th December 2015.

⁸⁶ Interview with Wirnkar Denis, 47, SHUMAS Coordinator Kishong, 20th December 2015.

the soil by cutting the earth and the formation of ridges. The soil was tilled to a depth of 30 to 35cm and hoes later used to form ridges with a size of 70 to 90cm.⁸⁷ On steep slopes and high place, ridges were constructed at contour lines to avoid soil erosion due to runoff. After ploughing, a process known as harrowing which is the breaking of lumps to have fine soil was done with the use of a tractor.

Photo 7: A fenced plough field for Irish potato cultivation



Source; Photo by Kibinkiri Vanessa, 2015

On the photo above indicate a plough farm ready for the cultivation for the planting of Irish potato.

The application of manure and fertilizers followed the ploughing process before the crop was planted. Manure applied on the soil included fowl dung, cow dung and the decomposed grass.⁸⁸ The choice of these dungs was because of the available nutrients they provided and they decompose well and could stay long in the soil. Fertilizers used included NPK (11; 11; 24) and urea. After the application of the fertilizers and the manure the sprouted seeds were placed on them and

⁸⁷ Interview with Odette, 31 years old, Director CEAC Kishong, Kishong, 20th December 2015.

⁸⁸Christopher Tankou, "The Effects of Green Manure and Intercropping on Potato Production in the Western Highlands of Cameroon", *The International Journal of Scientific and Technological Research* Vol 3, 2014, p.214.

covered with the soil.⁸⁹ Seeds were again placed along rows, 30 to 35cm from each other. Three or two weeks after the crop was planted, field maintenance followed. The photo below illustrate the planting of Irish potato in Tadu.

Photo 8: planting of Irish potato



Source: Photo by Kibinkiri Vanessa, Nseh, 2015.

With the introduction of improved methods of cultivation, farmers were trained on these improved methods. Intensive methods of cultivation demanded or required the land to be molded and weeded after the first 2 to 3 weeks after planting. Molding was done to prevent direct exposure of the potato tuber to sunlight.⁹⁰ Pesticides, fungicides and insecticides were applied on the crop to prevent or reduced the attack from pests, fungi and insects respectively. These pesticides included cygone, cypcal, callicadin, decis to fight insects, fungicides included; beau champ, ridomiel plus and callomil. All these pesticides and fungicides killed or reduced early and late blight, soft root and bacterial wilt.⁹¹ The use of insecticides, pesticides and fungicides were frequently in the rainy

⁸⁹ Interview with Sunjo Emmanuel, 45 years, Large Scale Irish potato producer, Tatum, 21th December 2015.

⁹⁰ Interview with Wanki Walters, 40 years, Resident IRAD Researcher Kishong, 20th December 2015.

⁹¹ Njukeng et al, "The prevalence of six viruses in potato seeds Tubers in the North West Region of Cameroon", *Journal of Experimental Biological*, Vol 09, No, 2013 p.44.

season especially in July and August when the occurrence of these pests and bacterial were very high. The second phase of molding occurred when the plants reached the stage of about 20cm. The third phase was done before the maturity of the crop. Photo 9 below shows a farmer preparing items to go and spray his potato farm.

Photo 9: Farmer spraying his farm



Source: Kibinkiri Vanessa, Nseh, 2015.

Photo 10: Flowered Irish potato after weeded and molded Irish potato



Source: Kibinkiri Vanessa, Mah, 2014.

On the photo above, one can see how Irish potato was weeded at the flowering stage.

The plant mature between 90 to 120 days. At this stage, the crop could be harvested. Before the crop was harvested, the vines were killed with a chemical called gramoxona herbicide. This was done to enable potato to remain in the ground for long before harvesting.⁹² With the improved method of farming, the maturity of the crop was indicated by withering of aerial parts and the fact that the yields could detach easily from the stolon and could not peel under simple friction.⁹³ From 1998, the improved method of cultivation required Irish potato to be harvested by lifting of tubers with the hand only. This was due to the fact that the usage of sharp sticks led to bruises on the potato, this consequently made the crop to get rotten.

Photo 11: Irishpotatoatmaturity



Source: Kibinkiri Vanessa, Tadu, 2015.

Photo 11 above illustrate Irish potato at maturity period. At this stage Irish potato could be 90 to 100days ready for harvesting, but some farmers decided to spray the field.

⁹² Interview with Kisi Fabian, 36 years, Large Scale Irish potato producer, Kishong, 9th March 2015.

⁹³ Interview with Kpuyuf Mohamedou, 45 years, Large Scale Irish potato producer, Vekovi, 7th March 2015.

Photo 12: Irish potato field after the vines are killed



Source: Kibinkiri Vanessa, Nseh, 2015.

The photo above represents sprayed Irish potato at maturity. The fields were sprayed to kill bacterial that could affect the crop, this was also done to enable the tubers to remain in the soil for a month or more without germinating or getting rotten.

Photo 13: Harvesting of Irish potato in a fenced farm in Kishong



Source: Kibinkiri Vanessa, Kishong, 2015.

The photo above shows a farmer harvesting Irish potato with the hands to avoid the destruction of tubers with sharp objects. After the tubers were uprooted, they were left in the farm for selecting before they were taken to stores.

After the harvest, the crop was kept in a dry room for it to get dry, thus, prevented the crop from getting rotten. In 2013, about 7388 hectares of land was cultivated for Irish potato and 33398 tons of Irish potato was harvested in Nso.⁹⁴

Some main producers of large scale production in Nso land included Wirsiy Patrick of Tadu, Wanki Walters in Kishong, Lukong Oliver of Kishong, Kisi Fabian of Kishong, Alfred in Ngondzen, Peter Ndzelen of Ngondzen, Kpuyuf Mohamedou of Vekovi.⁹⁵ Below are the agricultural post production statistics for 2014.

Photo 14: Irish potato being carried to stores



Source: Kibinkiri Vanessa, Kishong, 2015.

The picture above shows farmers carrying bags of Irish potato into stores for storage. After this stage the harvested tubers were selected and packed according to their sizes.

⁹⁴ Thomas Fuchi Song, Divisional Annual Report of Activities from January to December 2014

⁹⁵ Ibid, p.75.

Table 3: Bui divisional synthesis of Irish production data for 2014

Sub Division.	Total population.	Farming population.	Number of farm families.	Improved seeds.	Local seeds.	Total.	NPK.	Urea.	Total area cultivated HA	Quantity produced tons
Kumbo Central	114054	51995	8666	976544	1172804	2149348	5189	8518	2063	22654
Oku	130069	71963	11994	8111813	6078004	6889817	8848	2337	6133	35012
Jakiri	33435	200435	2508	740438	1180746	1921183	810	0	1721	8800
Nkum	114528	61459	7682	282787	2187343	2470131	7992	3940	4572	27769
Noni	0	0	0	0	0	0	0	0	0	0
Mbv en	40847	16339	2351	275717	2757	275717	327	0	143	6365
Total	432933	221817	3320	2811582	10894615	13706196	23165	14796	29264	198491

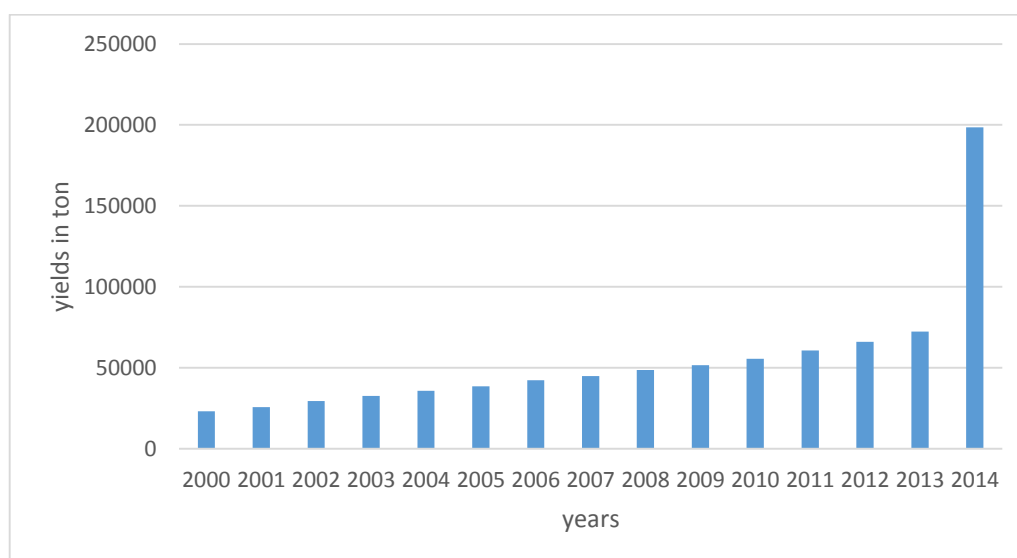
Source: Divisional Delegation of Agriculture Bui Annual Report.

Table 4: Irish potato statistics for Bui from 2000 to 2014

Years	Yields in tons
2000	23198
2001	25805
2002	29407
2003	32708
2004	35859
2005	38560
2006	42320
2007	44930
2008	48740
2009	51550
2010	55560
2011	60670
2012	66080
2013	72400
2014	198491

Source: Divisional Delegation of Agriculture Bui.

The table above represent the statistics of Irish potato cultivation for Bui Division from 2000 to 2014. From 2000 there has been a tremendous rise in the productivity of Irish potato in the area till 2014. The progressive increased in Irish potato yields has been accounted by a number of reasons the major one was the awareness created among the local on the tremendous profits gain from it. The represented in the graph below.

Graph 1: Irish potato statistics from 2000 to 2014 for Bui

Source: Estimates from the Divisional Delegate of Agriculture, Bui.

From the statistics represented on the graph above, Irish potato farming in Nso has evolved over the years in the area. Since 2000, the yields from the cultivation of Irish potato has continuously increased in the area especially with the introduction of improved seeds and improved methods of farming.

The Marketing of Irish Potato in Nso from 1936 to 2014

There has been a lot of changes in the marketing of Irish potato in Nso. The evolution has been in terms of methods of marketing, prices, markets, sellers, and means of transportation to markets, quality and quantity of Irish potato sold. These changes have made Irish potato a revenue earning crop instead of a complete food crop consume locally.

In 1935, few markets existed in Nso. These markets were the Kimbo (Mbveh) market, the Kovifem market, Oku, Mbiame and Jakiri markets. Many of the crops sold in these markets were excesses of subsistence crops, Arabica coffee and kolanuts. Irish potato was mainly cultivated for consumption and excesses sold in local markets to solve household problems like oil and salt.⁹⁶

⁹⁶ E M Chilver and P M Kaberry, *Traditional Bamenda, London, Gregg Press Limited, 1967, p.37 and 39.*

In 1950, Madam Okelly opened a women's cooperative group in Kumbo mainly for the sale of oil and later added salt, fertilizers and food crops like Irish potato from 1960 to 1970. In 1971, there was an amalgamation of women groups with similar functions. Later on in 1973, a shop was constructed in Mbve main market. This became known as the Nso Women's Cooperative Society Shop Ltd (NACU) it had branches in villages but was managed from Kumbo.⁹⁷ Between 2010 and 2011, the Kumbo Council constructed a portion in the Njavnyuy market exclusively for the sale of Irish potato and stores in which crop were kept before the sales. The choice of Njavnyuy market was because the area is not only a market but also a park whereby cars going out and into Nso were loaded. Thus, Irish potato could be easily loaded into trucks and buses to urban centers.

Photo 15: Display of Irish potato in the market



Source: Field work research 2015.

The commercialization of Irish potato in Nso is both direct and indirect. Direct commercialization involved the sale of Irish potato by the producers of themselves. They carried Irish potato on the head or in trucks to the various

⁹⁷ Anthony Ntutin, "the Economy of Nso," p.75.

markets either in villages, towns and the neighboring countries. In some cases farmers sold their yields to buyers directly from their houses. At times, Irish potato was measured and placed by the road sides where by passers-by bought directly from the farmers. Cooperatives were also involved in direct commercialization. This was because farmers brought their produce and sold directly to the buyers at a price fixed price. Indirect commercialization involved the participation of many intermediaries who intervened between the producers and the consumers.

From 1980, the number of markets increased in Nso. These markets included the Mbveh, Tadah, Nseh, Kuvluh, Ngondzen, Tatum, Kovifem, Ndenso, Takijah, Sop, Jakiri, Wainamah, Nkar, Vekovi, Noni, Nkor, Mbiame, Kikaikelaiki, Kikaikom, Kitiwum and Tarkuy.⁹⁸ The following were few of the weekly market days in Nso: *Kaavi* for Mbveh market, *Geege* for Kovifem, *Kiloovey* for Nseh and Nkar, *Ngoylum* for Tatum, Kitiwum. The increased in the number of these local markets facilitated the commercialization of Irish potato in Nso as farmers did not have to trek for long distances or spend money on transportation before potato was sold. Aside, the local markets in Nso, farmers sold their produce in towns and bordered countries like Nigeria, Chad and Gabon. The urban centers included; Douala, Yaounde, Bamenda, and the Northern Regions of Cameroon.⁹⁹

⁹⁸Interview with Bushu, late 60s years, Kumbo Market Master, Kumbo, 10th March 2015.

⁹⁹ Interview with Wirsiy Patrick, 50 years, Large Scale producer of Irish potato, Tadu, 11 March 2015.

Photo 16: Display of sprouted Irish potato seeds in the market



Source: Kibinkiri Vanessa, Kumbo, 2015

The creation of many market out lets also led to changes in the price of Irish potato as the years went by. From 1936 to 1970 the prices of Irish potato ranged from 100f per 20kg to 300f per 20kg.¹⁰⁰ The prices of Irish potato continued to rise from 1980 with a tin of Irish potato sold at 300f and 5000f in 2014. The introduction of improved species in 1998 saw a tremendous rise in the prices of Irish potato and seeds in Nso land. In 1998, 20kg of Irish potato sold by the road side cost 1500 and 2500f. Within the quarters prices were estimated between 1000 to 2000f.¹⁰¹ The awareness created by root and tubers and IRAD researchers on the profits gotten from improve seeds and the improved methods of cultivation, many farmers became more and more involved in the cultivation of Irish potato. This led to a progressive increased in the prices of Irish potato from 2500f to 5000f in 2014. The local species were sold at lower prices while the improved species were sold at higher prices due to its crispy nature and large sizes.¹⁰²

The means and cost of transportation also influence the prices of Irish potato. The various means of transportation of Irish potato to markets both within

¹⁰⁰File No DSD 4156/s.1, Ba 1966/1, Divisional Economic and Political Report Bui, 21.

¹⁰¹ Interview with Ajara Fonyuy, 49 years, Farmer, Kishong, 21 December 2015.

¹⁰² Interview with Tатаh Julia, 57 years, Retired Nurse, Kishong, 7th March 2015.

and out of the locality has also experienced a tremendous improvement with time. From 1936 to 1980, Nso had mostly foot paths aside the ring road which passed through the area. Foot paths linked villages as such goods were either on donkeys or on heads and on people's backs with the use of baskets locally known as *Nkook*.¹⁰³ Few vehicles existed and were mostly used by missionaries. The vehicles marks that existed included the land rovers and four wheel drives and bikes like *Yamaha*. In 1990, there was a move by the government to improve the ring road from Bamenda to Nkambe through Kumbo. This led to the introduction of trucks and other brands of vehicles which the farmers used to transport their crops to urban centers.¹⁰⁴ In 2013, the government took a bold step and tarred the road from Bamenda to Kumbo. This move by the government facilitated the transportation of Irish potato to market especially in urban centers and out with the use of trucks,

The methods of marketing Irish potato has also change as the years went by. From 1936 to 1940, Irish potato was sold individually by farmers in local markets. In 1950 Madam Okelly created a Women's cooperative, coupled with the stores created in almost all villages by the North West Development Authority (MIDENO). This program brought women together group women to sale their produce.¹⁰⁵ Irish potato was measured and sold in these stores. Irish potato was sold at 300f in stores and 150f in quarters. This program lasted for three years that is from 1981 to 1984. Species produced and sold here were Dong, Kijam and Madam.

After the fall of MIDENO, farmers continued the individual sale of their produce till 2006 when the root and tubers program created group farms in Nso. Villages involved include Tadah, Kishong and Kikaikelaki. This was to enable

¹⁰³ File No DSD 4156/s.1, Ba 1966/1, Divisional Economic and Political Report Bui, p.13.

¹⁰⁴ Interview with Wirngo Ramatu, 57 years, Farmer, Kuvluh, 27th December 2015.

¹⁰⁵ Anthony Ntutin, "The Economy of Nso", DIPES II Dissertation in History, E.N.S, University of Yaounde, 1986, p.76.

farmer experience and share the profit of group farming. Irish potato stores were constructed in Tadu and Kikaikelaki by the government through the root and tubers program to enable the farmers preserve their yields and seeds.

Later on in 2014, a year after the visit of the then minister of agriculture Esimi Menye, Irish potato cooperatives were created in the five sub divisions of Bui division. These were the Nkum Irish potato producer's cooperative, Jakiri Irish potato producer's cooperative, Oku potato producer's cooperative, Kumbo Irish potato producer's cooperative and Mbiame Irish potato producer's cooperative.¹⁰⁶ The creation of these cooperatives was due to the enormous yields gotten from the Mondial seeds and the necessary materials for its production. This enhanced the commercialization of Irish potato in Nso. The quantity of Irish potato sold on weekly bases ranged from 10 to 15 tons. Nkum Irish potato producer's cooperative have 236 members.¹⁰⁷

The commercialization of Irish potato in Nso land over the years can be summarized as follows.

Farmers _____ roadside vendors _____ consumers.

Middlemen _____ Wholesalers _____ retailers _____ consumers.

Rural markets _____ wholesalers _____ retailers _____ consumers.

Farmers _____ directly to cooperative societies _____ consumers.

Irish potato producer's cooperative and Mbiame Irish potato producer's cooperative.¹⁰⁸ The creation of these cooperatives was due to the enormous yields gotten from the Mondial seeds and the necessary materials for its production. This enhanced the commercialization of Irish potato in Nso. The quantity of Irish

¹⁰⁶Interview with Mr Fuchi Thomas Song, 49 years, Divisional Delegate of Agriculture Bui, 11 March 2015.

¹⁰⁷ Interview with Emmanuel 49 years, Sub Divisional Delegate of Agriculture Nkum, Tatum, 14th March 2015.

¹⁰⁸Interview with Mr Fuchi Thomas Song, 49years, Divisional Delegate of Agriculture Bui, 11 March 2015.

potato sold on weekly bases ranged from 10 to 15 tons. Nkum Irish potato producer's cooperative have 236 members.¹⁰⁹

Conclusion

Irish potato production and cultivation has experience many changes from 1936 to 2014. In terms of production, Irish potato has moved from the extensive method of cultivation to the intensive method of cultivation. The extensive method involved the use of crude tools, dependence on organic manure, while the intensive method warrant the use of fertilizers, pesticides, insecticides, machines and hired labour. Mono-cropping of Irish potato brings in much revenue from the sales. Also, the yields from the cultivation of Irish potato in Nso has tremendously increased over the years. As concerns the marketing of Irish potato, there has been lots of improvements in this sector. Improvements were in terms of market outlets, prices and the creation of cooperatives to ease the sale of Irish potato in Nso.

¹⁰⁹ Interview with Emmanuel 49 years, Sub Divisional Delegate of Agriculture Nkum, Tatum, 14th March 2015.

CHAPTER THREE

PROBLEMS FACED BY FARMERS IN THE CULTIVATION AND MARKETING OF IRISH POTATO IN NSO

Introduction

The essence of this chapter is to examine the problems, farmers faced in the cultivation and marketing of Irish potato in Nso. Problems faced in the cultivation are divided into natural and human factors. Issues involved in the cultivation include: natural and human factors. The chapter ends with a chapter conclusion.

Problems faced by Farmers in the cultivation and marketing of Irish potato in Nso

The problems producers of Irish potato faced in the cultivation and marketing of Irish potato in Nso ranged from natural to human factors. Natural factors included; changes in climate, rainfall, sun shine, fertility of the soil, pest and diseases and shortage of water in the dry season. Human factors included; limited finances, farmer grazer problem, increase in cost of land, high cost of insecticides and pesticides, high cost of seeds and inadequate storage facilities. Limited land for cultivation, difficulties of bringing producers together and inadequate farm to market roads, lack of transformation machines and the lack of fixed and uniform prices of the crop throughout the area.

Natural factors

The natural problems are those aspects of nature which man cannot change but follow their effects and adapt new ways of ameliorating them. They include excessive or delays in rainfall, sun shine, effects of changes in climate, pest, the drop in the fertility of the soil and shortage of water in the rainy season.

The effects of climate change

For the past years, the people of Nso have experienced the negative effects of climate change through alteration of seasons. The experience has been witness much on the dry spell period that came up mostly from April to mid-May or a little bit beyond. This dry spell had devastating effects on crops because it came at the time when the crops were tender.¹¹⁰ In certain years, the spell was so intense that the crops had to be replanted due to wilting caused by extreme dryness. This also came along with an outbreak of stalk borers on crops and above all leaf eating caterpillars that destroyed the foliage of plants. From January to June 2014, the dry spell was intense in the month of May which led to the outbreak of caterpillars in villages like Elak-Oku, Nkwi, Jikijem, Ichim, Manchok all in Oku Sub Division, Lam, Rifem in Mbven Sub Division and the villages of Melim and Meluf in Kumbo Central Sub-Division. This outbreak was immediately controlled with consignment of Epervier 220E from the Regional Delegate of MINADER, North West.¹¹¹ Solanum potato production was greatly affected by the spell and this coincided with the tuberisation period. Consequently, the yields were not as high as expected.

Excessive Rainfall in the rainy season and limited rainfall in the dry season

Rainfall has and will always remain an important factor in the cultivation of Irish potato, but when it becomes excessive or limited it becomes a major problem. Heavy rainfalls brought about re-current soil erosion in Nso especially in the hilly areas of Mbiame, Ngondzen, Mbam. Erosion in Geography is define as the alteration of the landforms through the removal and transport of material by water, wind, glacial movement or living organism.¹¹² The first rains in March are usually

¹¹⁰Ambrose A et al, "Growth and Yields Response of Irish potato to Climate in Jos –South, Plateau State, Nigeria", *Global Journal of Human and Social Sciences* Vol 13 2013, p.16.

¹¹¹Thomas Fuchi, Divisional Annual Report of Activities from January to December 2014 Bui, p.4.

¹¹² Njabe Roland, *Physical Geography and Map Reading*, Limbe, SUNWAY Publishers, 2002, p.46.

very heavy and the heaviest rains are usually from June, July and August. The heavy rains in March usually sweep away the top soils. This process is known as over flow. The heavy rains in June, July and August were accompanied by storms which swept away the top fertile soils. In cases where the crop has been planted, the seeds were removed and carried away.¹¹³

Furthermore, inadequate rainfall and scarcity of water in the dry season have made the task of Irish potato cultivation difficult. Irish potato planted in highlands and dry areas far from water sources posed a problem to farmers. Farmers solve this problem with irrigation. They use pipes and pumps in some cases while others use vehicles to carry water to farms¹¹⁴. These solutions are innovations brought by IRAD researchers from Bambui in 1998.

Pest and diseases

In addition to high rains, the prevalence of pests and diseases has also been a major problem to Irish potato farmers in Nso. Pests and diseases mostly came up in June, July and August, due to high rains during this period. Pests and diseases which affected Irish potato were soft root, black leg, late and early blight *phytophthora infestans*, midew, leaf virus, and purple top. Insects included; Colorado, potato beetle and tuber moth. Late blight referred to a situation whereby brown spots appeared on the leaves and later led to complete rotting of leaves, stems and tubers were also affected. These pest, micro-organism and insects retarded the growth of Irish potato.¹¹⁵ This therefore demanded the effective need of pesticides and insecticides. The effective and frequent spray of Irish potato during the mid- rainy season, became very imperative on weekly basis.¹¹⁶ Farmers

¹¹³ Fuchi Thomas, Divisional Annual Report of Activities from January to December 2014 Bui, p.4.

¹¹⁴ Abraham Dodgima, *Advanced Regional Geography, A thematic Analysis of Concepts and Cases for Cameroon Schools*, Bamenda, The leaders Print Publishers, 2008, p.7.

¹¹⁵ Njukeng et al, The prevalence of six viruses in potato seeds Tubers in the North West Region of Cameroon, *Journal of Experimental Biological*, Vol 09, 2013. p.45.

¹¹⁶ Interview with Kifem CIPRAIN, Late 60s years, Retired Agronomist, Kumbo 10 March 2015.

found it very difficult to afford insecticides and pesticides that could be used for at least three times a week because of their high cost

Photo 17: Leaves of Irish potato affected by late blight



Source: Field work photograph.

This photo shows a leaf of Irish potato affected by early blight. When it attacks a leaf, it started drying up as if the plant had already mature. As leaves dried up the tubers became rotten under, this eventually led to the destruction of the plant. When farmers notice this the plant was uprooted and thrown far from the rest of the crop.

Photo 18: Portion of the farm affected by late blight



Source: Kibinkiri Vanessa, Tadu, 2015.

This photo shows a portion of Irish potato farm affected and destroyed and late blight. When it affected a plant and it was not uprooted and taken far from the

rest, the disease continued to spread as far as possible. Plants affected by the disease eventually die up and the tubers rotten. Even if the tubers affected were harvested they could not stay for days.

Photo 19: Leaves of Irish potato affected by early blight



Source: Kibinkiri Vanessa, Tadu, 2015.

Below is a tuber affected by soft rot an effect of early and late blight. These tubers were selected and thrown away to avoid contamination of other tubers.

Photo 20: Affected by pvl 1 and 2



Source: Kibinkiri Vanessa, 2015.

Fall in the fertility of the soil

Furthermore, the reduction in the fertility of the soils was one of the natural factors that hindered potato cultivation in Nso. Since 1936, farmers practiced the burning of the farm and in some cases slash and burn (Ankara) to obtain high yields.¹¹⁷ This practice steadily led to a decline in soil fertility because many micro-organism like termites, wireworms were burnt. These micro-organisms enrich the fertility of the soil. Also, the acidity of the soil was reduced by burning. All these exposed the soils to erosion which led to a reduction in the fertility of the soils. The decrease in the fertility of the soil warranted the use of both chemical fertilizers and organic manure to salvage the situation.¹¹⁸ Farmers in Nso found it hard to afford fertilizers especially with the continuous rise in the prices of fertilizer every year. This therefore hinder the effective production of Irish potato.

The major constraint to potato production in Nso was the rapid decline in soil fertility. This was occasioned by continuous cultivation on the same plot without adequate replenishment of mined nutrients. Soil phosphorus in major potato growing parts of Nso was as low as 2.9 while total nitrogen was lower than 0.15%. The situation was exacerbated by the inherent high soil acidity with pH values of 4 to 5 being common was use in a long period of time, yet it was shown that continuous application of this fertilizer led to increasing soil acidity. This acidity problem was compounded by the fact that the soils in these highlands are derived from acidic volcanic rocks and have been highly leached by high rainfall. Most of the potato growing areas in Nso had a soil pH of less than 5.5 severely limits availability of potassium, nitrogen, phosphorus, sulphur, calcium and magnesium, while avail excessive levels of Aluminum, manganese, Boron, Iron

¹¹⁷Phyllis M. Kabbery, *Women of the Grass fields*, London; Gregg Press Limited 1968, p.56.

¹¹⁸Interview with Mr Fuchi Thomas Song, 49years, Divisional Delegate of Agriculture Bui, 10 March 2015.

copper and Zinc.¹¹⁹ It was possible that this problem of low soil pH led to nutrient imbalance hence reducing ware potato yields even further.

Human problems

The following social and human problems account for the hindrances farmers encounter in the production and marketing processes.

Farmer grazer problem

Farmer-grazer conflict was an impediment faced by farmers in Nso. Farmer-grazer conflict has been very common in areas like Nkuv, Banten, Kigomen, Nkor Mbiame and Takuh. This was because settlers of these areas were Mbororo whose means of livelihood was cattle rearing. They used these areas to practice transhumance of their cattle and in the course of their activities, their cattle most at times destroyed crops of farmers which led to conflict between the two parties. Given the fact that some parts of Nso had vast land, part of which were used by heads men for the grazing of their cattle and sheep. These grazers most at times allowed their animals to stray around.¹²⁰ This posed a serious threat to the cultivation of Irish potato especially for farmers who could not afford to fence their farms, saw their crops damaged by the stray animals. Farmer-grazer was popular in villages in Mbiame, Tadu, Takuh, Tatum, Kishong, Kovifem, Kitiwum Nkor just to name a few.¹²¹ As such, the issue of farmer-grazer conflict has been an obstacle to Irish potato producers in Nso.

The high cost of improved seeds

Improved seeds sold in Nso were very expensive to the average local farmer, compared to the low cost of local species. 1kg of improved seeds in the Kishong

¹¹⁹ Ibid.

¹²⁰ Interview with Mariana Lemnyuy, 58 years, Farmer, Mbiame, 30th December 2015.

¹²¹ Interview with Mr Fuchi Thomas Song, 49 years, Divisional Delegate of Agriculture Bui, 10 March 2015.

seed store cost 1000f, time went on when the government subsidized the prices like from 2001 to 2003, farmers bought it at 500f. Twenty kg of the improved species in local market ranged from 2500 to 4000f between 2000 to 2010 but from 2010 to 2014 the price of 20kg of improved seeds was bought at 5000 to 7000f.¹²² From 1936 to 1980, 20kg of the local seeds was sold at a minimum of 150f to 1000f. Between 1990 and 2014, there was a sharp increase in the prices of the local seeds from 1500f to 4000f in the local markets.¹²³ Many average farmers found it difficult to afford the improved seeds because of the high cost involved not only to buy the seeds but in the whole process from planting to harvesting. This was a big problem to Irish potato farmers in Nso.

The high cost of fertilizers, and fowl dung

The high cost of fertilizers and fowl dung was a constraint to effective cultivation of Irish potato in large quantities in Nso. A bag of fertilizer in the 1990s range from 10,000 to 15,000f, but from 2000 to 2010, the price of a bag of fertilizer increased and ranged from 20,000f to 25,000f.¹²⁴ This made the cultivation of Irish potato very expensive for the average local farmers. Fowl dung proved to have been the most suitable dung among the others for the cultivation of Irish potato, due to its readily available nutrients from experience.¹²⁵ Even though these dung from fowls were essential for the cultivation of Irish potato, larger quantities of it can only be gotten from Bafoussam which was very expensive for farmers.¹²⁶ This was coupled with the bad roads from Bamenda to Bafoussam.

¹²² Interview with Fai Kom- Meluf, 65 years, Village Head and Farmer, 11 march 2015.

¹²³ Interview with Ntanin Hellen, 69 years, Kumbo, Business woman, 11 March 2015.

¹²⁴ Interview with Ntanin Hellen, 69 years, Kumbo, Business woman, 11 March 2015.

¹²⁵ Christopher Tankou, "The Effects of Green Manure and Intercropping on Potato Production in the Western Highlands of Cameroon", *The International Journal of Scientific and Technological Research* Vol 3, p.23.

¹²⁶ Interview with Wanki Walters, 40 years, Resident IRAD Researcher and Worker, Kishong, 20th December 2015.

Limited capital

More to the high cost of fertilizers and dungs was inadequate capital to expand production a hindrance to large scale production. The production of Irish potato involved many processes up till when the final produce are gotten. Each step, money was needed to enhance the quality and quantity of the yields. Given the expensive nature of improved seeds, machines, sprayers, insecticides, pesticides and money were needed to employ labor. Farmers also needed money to buy pipes and pumps for irrigation and to either buy or rent a plot.¹²⁷ These were expensive for farmers who had embraced local methods of cultivation for a long time.

The problem of land acquisition

Over the years, Nso witnessed a rapid increase in its population. This increase in population led to scarcity of land in Nso for settlement. The scarcity of land was mostly noticeable in places like Kumbo Central, Tubin and Jakiri. In these areas, farm land was not available. Settlers in these areas went as far as Njotin, Simon Nkoh, Tadu, Kai, Kov to obtain a piece of land to farm on. This was a long distance from the main urban areas. Even in areas where vast land was available, the scramble to own a property was very high among farmers and between farmers and grazers.¹²⁸ Inadequate land for rotational purposes among farmers was a real cause for concern. As a result, most Irish potato producers resorted to mono cropping. This was a practice where farmers cultivated Irish potato on the same piece of land on a continuous basis. This posed problems in pest and disease control. Fungal diseases infestation was consequently highlighted to be prevalent in areas where farmers did not practice crop rotation. The acquisition of land by women was also a bone of contention. Even though women dominated the process of farming in Nso since 1960, it was very difficult for women due to strong holds

¹²⁷ Interview with Peter Ndzelen 50 years, Farmer, Ngondzen, 27th December 2015.

¹²⁸ Interview with Kisi Fabian, 36 years, Farmer, Kishong, 9 March 2015.

to tradition and the fact that the constitution did not support the aspect of women to own land.¹²⁹ Thus, women cultivated the land but men own the land. Over the years, women have started to own land. This was due to the continuous work done by the ministry of women empowerment and Non-Governmental Organization engaged in the fight for women's rights.

Limited production and irrigation equipment as an infrastructural constraint

Although modern production equipment such as tractors and ploughs were essential to increase Irish potato productivity and yield performance, there is limited uptake as most poor resourced farmers cannot afford to buy them. Despite the availability of irrigation water which is gravity-fed, most smallholder potato farmers could not afford poly vinyl chloride (PVC) pipes that were required to convey water from the mountains to their potato fields. Some of the water sources were as far as fifteen kilometers from their fields and as such would require huge investments in the form of irrigation pipes. This was thus, a constraint to Irish potato cultivated in the dry season in Nso.

Inadequate storage facilities

Farmers in Nso also faced the problem of inadequate storage facilities. Apart from the few stores the government created in some few villages for some farmers groups the storage was mostly done on individual bases. In 1960, Madam Okelly constructed a cooperative store in Kumbo beside the Fon's palace to help women store their produce. Later on MIDENO constructed stores in almost all villages in Nso.

¹²⁹ Interview with Fai Kom Meluf, 65 years, Traditional Ruler, Meluf, 11 March 2015.

Poor or inadequate Farm to market roads

In addition to the inadequate storage facilities poor or absence of farm to market roads was another problem Irish potato farmers faced in Nso. Poor road networks posed a menace to the people of this area especially those that link the interior villages to the urban markets like Buea, Yaounde, Douala and bordered countries. Some of the poor roads included the following; Mbiame to Kumbo, Kuvluh, Nseh, Ngondzen to Kumbo, Jotin, Nkor, Oku, Mbam to Kumbo central market at Mbveh and Ndzen to Kumbo this hindered the smooth marketing of Irish potato in Nso.¹³⁰ Part of the stretch of the ring road that link Bamenda to Nkambe through Kumbo was very poor. Due to this bad state of roads, farmers usually witnessed postharvest losses since Irish potato is a perishable crop.¹³¹ Many bags of Irish potato usually got bad or rotten on the road to urban centers and some in stores without transported to market centers. These losses due to poor accessibility sometimes discouraged Irish potato producers from engaging in large scale production. It was only in 2013-2014 that the stretch from Bamenda to Kumbo was tarred. This reduced the burden and losses which farmers encountered in the transportation of the crop to urban centers.

The problem of bringing together producers of Irish potato

Producers of Irish potato in Nso are many, they range from small scale to average and large scale producers of the crop. Many at times large scale producers grouped themselves, while average producers found themselves together and small scale producers usually are forgotten. To bring these producers together under a common banner was very difficult. This was because the large scale producers thought the small scale producers did not have enough yields to join them. As such, they could turn to benefit from grants or the support given to them by the

¹³⁰ Interview with the Fon of Nseh, 65 years, Sub Fon, Nseh, 27 December 2015.

¹³¹ Festus A Numfor Peter, "Post-harvest Technologies of Root and Tuber Crops in Cameroon", *Memoires et Travail de L'IRA* No 1, February 1987, p.7.

government when they do not deserve to have the support.¹³² The problem of bottlenecks was also a major problem in bringing the producers together.

Some coordinators of producer groups together with some sub divisional delegates of Agriculture connived with agriculture post heads to select some producer and leave others out especially when grants were given by the government. This was rampant in 2013 when the then Minister of Agriculture visited Nso to motivate his second agriculture plan.¹³³ He did this through the donation of seeds, pesticides, insecticides, fertilizers, animal dung, watering cans just to mention but these were not given to many of the producers of Irish potato. This donation was to improve intensive and large scale production of Irish potato in Nso one of the major producers of the crop in the country.

The absence of transformation factories and machines

Another problem of Irish potato production in Nso was the absence of machines and factories to transform Irish potato into finished products. Irish potato by nature existed as a perishable crop thus, could not be stored for a long period of time. In this case, to better keep the crop for long was to transform it into finished products like chips, flour and cookies. Preserved potato could be brewed to alcoholic beverages such as vodka, waste potato used to produce polylactic acid,¹³⁴ but this has not been the case in Nso. Faced with this situation, farmers could only sell the crop directly to buyers after every harvest to avoid losses due to its perishable nature. In 2013, the government in partnership with the Kumbo urban council estimated a budget of over 30,000,000F to construct a potato transformation factory in Nso, but the plan has not been realized.¹³⁵ The absence of the transformation factory made farmers to encounter a lot of post-harvest losses.

¹³² Idrissa Fane et al, *Linking Actors of potato producers and Marketing Roparawa and Rimbaraga initiatives in North Western Rwanda*, Rwanda, Bull 374, p.63.

¹³³ Interview with Ngoran John, 55 years, Farmer, Mah, 14 March 2015.

¹³⁴ Nicolaus Cromme, *Strengthening potato Value Chains, Technical Policy Options for Developing Countries*, Rome; FAO, 2010, 22.

¹³⁵ Interview with Mr Fuchi Thomas Song, 49 years, Divisional Delegate of Agriculture Bui, 10 March 20

Irish potato could only be preserved within four to five months after which the process of germination began.

Absence of fixed and uniform prices in local markets

The absence of uniform or common prices for the sale of Irish potato was another problem which hindered the marketing of Irish potato in Nso. It was usually common to find farmers in different parts of Nso who sold Irish potato at varied prices. For instance at Mbve market, 20kg of Irish potato could be sold at 3000f while in Kovifem, Nseh and Nkor markets the same quantity could be sold at 1500f. Farmers did not come together to establish a unique price for the sale of Irish potato throughout the Division. Farmers who had urgent need of money gave out the crop at very low prices while those who were not could wait for a rise in prices to sale at higher prices in order to make profits. These lack of uniformity consequently led to low income from the sales of Irish potato and intermediaries took advantage of this to make profits.

Low profits from sells due to intermediaries

Furthermore, Nso farmers faced the impediment of low prices in local markets and by the road sides. Also, producers of Irish potato did not come together to established a fixed and uniform price in all the Sub-divisions of Bui Division. This haphazard sell of Irish potato by farmers led to little gain from the sales. Another factor that accounted for low profits from sales was the fact that many of the buyers in local markets were intermediaries commonly called *Buyam sellam* who took it to retailers in towns or sold directly to local consumers.¹³⁶ As years went by, many producers started transporting their goods directly to the urban centers or cities like Douala and Yaounde and also to bordered countries like Nigeria,

¹³⁶ Interview with Emmanuel Konyuy, 49 years old, Sub-divisional Delegate, Tatum, 21 December 2015.

Chad and Gabon.¹³⁷ This move by the farmers led to reduction in profits usually enjoyed by intermediaries thus, a booster to their incomes.

Access to communication technology

Communication technology uptake was still very low among Irish potato farmers. The use of electronic bank transfers and other non-banking system methods of money transfer. Considered to be very useful were hardly used to help smallholder farmers access payments and also make payments for procuring their production requirements.¹³⁸ Use of the internet was also almost nonexistent. Adaptation to the rapidly changing globalized agro-food market is taking a bit of time for the farmers. It was acknowledged however, that set up of necessary facilities required a lot of public and private sector partnership in order to capacitate the smallholder farmer.¹³⁹ To keep farmers up-dated on, how they could use and exploit the advantages which information technology brought.

Crop yield performance. The uptake of modern information technology platforms such as cellphones significantly determines market choice for agricultural commodities. Farmers could benefit from the use of technology to get real time market prices for Irish potato. While this avenue would be very important to explore, there was minimum use of communication to do business.¹⁴⁰ To some extent, cell phones were however, seen as a growing feature that the farmers were beginning to hold onto. This was attributed much to power out stages and network problems in the interior parts of Nso and in some areas absent of electricity in places like Mbiame, Mbams, Nkor and parts of Oku.

¹³⁷ Ibid.

¹³⁸ Interview with Mr Fuchi Thomas Song, 49years, Divisional Delegate of Agriculture Bui, 10 March 2015.

¹³⁹ V.D Catherine, "Evaluation of Irish Potato Production and Marketing Performance, Case Study of Mbeya Rural District, Tanzania." Master's Thesis in Agriculture, University of Morogoro Tanzania. 2008, p.58.

¹⁴⁰ Interview with Mbuh John, 70 years, Retired Secretary Bishops House Kumbo, Tatum, 18th August 2015.

The quality of potato produce

One of the reasons why smallholder farmers were only able to sell their produce through limited market channels was because they undertook limited value addition activities such as grading, sorting and packaging. The smallholder Irish potato farmers seldom took heed of the quality concerns of their produce.¹⁴¹ As such, they were unable to meet the quality specifications of other formal and informal market channels which hold product quality in high regard. The low quality of the potato produce was also attributed to the use of retained seed which is prone to attack by diseases in the field and during storage. All these factors contributed to quality an important attribute towards the access of output markets by smallholder potato farmers.

Restricted engagement in contract farming

Many farmers complained that contract farming engagement influenced the extent to which smallholder potato farmers got access to input and output markets. This gave an impression of lack of unanimity on the role of contract farming arrangements. Contract farming arrangements could be in the form of resource provided arrangements where farmers were able to access high quality inputs for crop production. Contract farming arrangement also involved product and production management by the value chain financier. In such cases, the financier also procured the harvested yields from the producer. As such, contract farming arrangements enabled Irish potato producers to access input and output markets. At the beginning of the planting seasons, some Credit unions like Kumbo Police Cooperative Credit Union and Nkum Cooperative Credit Union used to offer help to farmers by Irish potato farmers.¹⁴²

¹⁴¹ Interview with Ngeh Julius, 40 years, Farmer, Kishong, 29 December 2015.

¹⁴² Interview with Mr Fuchi Thomas Song, 49years, Divisional Delegate of Agriculture Bui, 10 March 2015.

Conclusion

To conclude, Irish potato producers in their quest to produce and market the crop to make revenue, usually encountered many problems. These problems ranged from natural to human factors, thus a hindrance to large scale production and makes the marketing of Irish potato an uphill task for farmers. Social and human factors are divided into problems faced in the cultivation and the Marketing process. Much progress have been made at the local level and at the level of the government to ameliorate the poor condition faced in the production and marketing of Irish potato in Nso

CHAPTER FOUR

THE SOCIAL AND ECONOMIC IMPACT OF IRISH POTATO PRODUCTION IN NSO

Introduction

Irish potato has been the back bone of the Nso people. Its importance ranged from economic to the social and the political domains. As concerns the economic domain, it has provided a source of revenue, increased in wealth or income, increased in the standard of living, the creation of cooperative societies and a source of employment. In the social domain, Irish potato production has change the lives of the locals in that, many have constructed houses, sent their children to the highest level of education, increased the diet of the locals, change their statues in terms of social class and enable the construction of new infrastructures.

The economic Impact of Irish potato production in Nso

Source of employment

Irish potato production has provided employment to many people in Nso. Many street boys and girls who were involved in prostitution have gain employment in the various processes involved in the production of Irish potato in Nso. Thus, reducing these vices in the society.¹⁴³ The various processes involved in the production and marketing of Irish potato usually needed people to provide the labour in the processes to come out with the final produced. These processes involved ploughing, weeding, molding, spraying, harvesting, packaging, and the transportation of Irish potato to either the stores or to markets for sale.¹⁴⁴ Each of these processes required laborers to facilitate the growth and the final produce of

¹⁴³Interview with Mbuh John, 70 years, Retired Secretary Bishops House Kumbo, Tatum, 18th August 2015.

¹⁴⁴ Irish potato production guidelines, Pretoria: Department of Agriculture, Forestry and Fisheries Republic of South Africa, 2013. P.13.

Irish potato. The need for transporters of Irish potato to trucks has also provided employment to boys and men who are commonly known as *Bambeh boys*.¹⁴⁵ Thus the production of Irish potato in Nso has provided employment to many people in the community.

Source of revenue and increased in the income of the producers of Irish potato

Furthermore Irish potato cultivation became a source of revenue and increased the income of the local population. Many large scale producers of Irish potato got much revenue from this activity. A bag of Irish potato cost 27000f to 30000f during the dry season during the rainy season it ranged from 20000f to 25000f. 20kg that is 20litres bucket from 2006 to 2014 was sold from 3000f to 5000f in Nso land.¹⁴⁶ Consequently an increased in the income of the local population. Also the fact that improved seeds took only 90 to 120days to mature gave the possibility for the crop to be cultivated three times a year. Consequently provided high incomes to the local population.

The creation of cooperatives in Nso

High yields from Irish potato cultivation made the area renown as concern this sector. The remarkable production led to the creation of Irish potato cooperatives by the government 2014 Nso. Five Irish potato cooperatives were created in the five Sub Divisions of Nso. They are the Nkum Irish potato producers' cooperative, Kumbo Central Irish potato producers Cooperative, Jakiri Irish potato producers Cooperative, Oku Irish potato producers Cooperative and The Mbiame Irish potato producers cooperative.¹⁴⁷ This went a long way to facilitate the commercialization of Irish potato by producers of the crop in Nso. Through

¹⁴⁵ Interview with Bushu, 60years, Market master Kumbo, Kumbo, and 10th March 2015.

¹⁴⁶ Interview with Kisi Fabian. 35 years, large scale producer of Irish potato, 29 December 2015.

¹⁴⁷ Thomas Fuchi Song, Divisional Annual Report of Activities from January to December 2014

these cooperatives the government provided Irish potato farmers with seeds, insecticides, pesticides watering cans fowl dung and fertilizers. This gesture was made to enhance the production of Irish potato in this area. Through these cooperatives farmers had the opportunity to establish fixed and common prices for the sale of Irish potato. This went a long way to help farmers to increase and improve their incomes.

Entrepreneurship

Irish potato production provided self-employment to many people in Nso. With a capital of 200,000f for a start, a farmer could buy a sprayer for 40,000f, a hoe 700f, cutlass 1000f, insecticides and pesticides for 6000f, a buy of fertilizer for 25000f a bag of fowl dung for 5000f and 40kg of improved seeds for 10,000. These could serve a farmer for one planting season, and the yields from this production could be estimated at 400,000f.¹⁴⁸ This means that the farmer could gain 200,000f for one planting season. Large scale farmers employed many laborers in their farm. Thus, the production of Irish potato made both the young and the old to be self-employed. Large scale farmers of the crop were mostly in places like Bantén, Kishong, Nseh, Oku, Ngondzen, Tadu, Vekovi and Tatum.

Increased in the Gross Domestic product (GDP) and the national income

The cultivation of Irish potato in Nso contributed to the national produce of Cameroon. Gross domestic product involved the total products that a country produced in a year.¹⁴⁹ The fact that Irish potato production was a crop produce yearly in Cameroon, led to increase in the Gross Domestic Product of the country. Irish potato was also a source of foreign earning, given the fact that, Irish potato

¹⁴⁸ Interview with Ngeh Julius, 40 years, Farmer, Kishong, 29 December 2015.

¹⁴⁹ David Mbah, *Research, Innovation in Cameroon, Economic Commission for Africa, Food Security and Sustainable Development Division, Selected Science and Technology Research and Applications in Cameroon*. Yaounde Cameroon, 1998. P.2.

was sold to bordered countries like Nigeria, Gabon and Chad.¹⁵⁰The government also created seed production center in Kishong Bui Division and the sales from the center were determine by the government. The money gotten from this center entered the state treasury thus, an increase in the national income of Cameroon.¹⁵¹

The social impact of Irish potato production in Nso

The social impact of Irish potato production in Nso included increase in the standard of living of the farmers, education and health, diet, infrastructure.

Diet

The cultivation of Irish potato in Nso was felt in the diet of the people. Even though a large percentage of it was sold, farmers consumed a smaller percentage of it. It served as one of the stable food to the people of Nso and is prepared in many ways. Irish potato was eaten either fried, roasted, boiled, porridge, boiled and pounded or cooked with beans known locally as *tuh kun*.¹⁵² Irish potato served as a main meal which is rich in a variety of food nutrients and provided good health to the community. It contain minerals and fiber which prevents colon cancer and improved glucose which gave energy to the farmers to work harder.¹⁵³This acted as a positive impact to the farmers.

Health and education

Through the cultivation of Irish potato many farmers have were able to sponsor the education of their children and pay hospital bills of the sick. Many potato producers sponsored children right to the University and masters level.¹⁵⁴

¹⁵⁰ Mbah, *Research. Innovation in Cameroon*, 1998, p.2.

¹⁵¹ Interview with Wanki Walters, 40 years, Resident IRAD Researcher and Worker, Kishong, 20th December 2015.

¹⁵² Interview with Tani Emerencia Yikiy, 70 years, Farmer, Kishong, 20th December 2015.

¹⁵³Nicolaus Cromme, *Strengthening potato Value Chains, Technical Policy Options for Developing Countries*, (Rome; FAO, 2010), p.22.

¹⁵⁴ Interview with Lukong Oliver, 60 years old, Sub-Divisional Delegate of Basic Education Nkum, 2015.

Examples included Lukong Oliver, Tatah Julia both in Kishong, Emmanuel Kongnyuy in Tatum and Patrick of Tadu. At the Secondary level many Farmers were able to sponsor their children from Irish potato farming without assistance from people. The health conditions of the farmers were restored thanks to the money gotten from potato production through the payment of hospital bills payment of medication.¹⁵⁵ Also in education the delegation of Agriculture for Bui and IRAD researchers usually organized training seminars to trained farmers of the profit gotten from improved methods of the cultivation of Irish potato. Construction of Agricultural schools was a positive impact of in Nso. Non-Governmental Organizations like SHUMAS and ACOHOC have constructed vocational schools with agriculture as the main subject in the syllabus. These school were mainly for youths who abandoned education and street children. In these schools youths were train on the improved methods of agriculture especially with crops like Irish potato, corn, beans and gardening. Example of these schools included the ACOHOC Agriculture and Vocational School in Kishong and the SHUMAS center in Kitiwum.

Improvement in the Social status of the Farmers

Irish potato cultivation enhanced the social status and the level of infrastructure of the farmers. Many farmers have constructed modern houses well equipped with inner toilets, bought vehicles, bikes.¹⁵⁶ The standard of living of the farmers have improved in that, farmers have enough income to buy a variety of food stuffs which provided them with a balance diet. Also the dung gotten from fowls was tested and confirm best for the cultivation of Irish potato by IRAD researchers. This provided an opportunity for farmers to engage in its domestication thus, booster to the diet of the farmers and the dung used for cultivation.¹⁵⁷ In terms of

¹⁵⁵ Interview with Mourine Leinyuy, 59 years, Farmer, Nseh, 27 December 2015.

¹⁵⁶ Interview with Kisi Fabian, 35 years, Farmer, Kishong, 20 December 2015.

¹⁵⁷ Interview with Franka Kila, 45 years, Farmer, Mbam, 21 December 2015.

clothing many farmers have change their wardrobes from the sales of Irish potato. Also in the aspect of infrastructure the government has constructed Irish Potato stores for farmers in villages like Tadu and Kikaikelaki.¹⁵⁸

Infrastructure

In terms of infrastructure the cultivation of Irish potato has improved the infrastructures of the locals. The construction of schools, group stores, improvement of road net-works and houses constructed by potato producers constitute the various benefits gotten by potato producers in Nso Land. Many farmers have benefited from the farmers seed stores created by the government through the Root and Tubers program (NRTDP). Through the initiative of the Root and Tubers program Irish potato stores were constructed in Kikaikelaiki, Banten and Kitiwum.¹⁵⁹ This facilitated the storage of Irish potato to registered Irish potato members since they had a problem of storage. The cultivation of Irish potato has also been of great benefit to farmers. This is because through the sales from Irish potato many farmers were able to construct modern houses for themselves thus an improvement in their conditions of living.

Through community development many farmers came together to improve roads and paths that led to farms. Example of these roads and foot paths included the road from Nseh to Kuvluh, Tadu to Tubin, Nkor Noni to Kumbo. SHUMAS created a center in Kigomem to encourage the cultivation of crop like Irish potato, cabbage and carrots with the exclusive use of organic manure and dung from animals. This has been a means to enhance sustainable agricultural practices in the area. Also the cultivation of Irish potato also led to the construction of the Irish potato market in Njavnyuy alongside stores in the market for the storage of the

¹⁵⁸ Interview with Ngoran Terence, 49 years, Farmer, Mah, 21 December 2015.

¹⁵⁹ Interview with Nkwei Gregory, 60 years, Chief of Agriculture Post, Kumbo, 10th March 2015.

yields destined for urban centres.¹⁶⁰ Irish potato farming in Nso has enable many poor farmers to realize their political ambitions. Many farmers in this area had always dreamed of becoming politicians but due to limited finances, they could not realize their dreams. But with the introduction of improved methods of cultivation and improved seeds given to farmers of these locality, many have been able to realize their goals. The fact that a hectare of cipira, tubira and mondial produced at least 10 tons of Irish potato couple with a situation whereby a bag of Irish potato was sold at 25000fCFA raise the incomes of the local farmers. Many councilors were able to raise their campaign funds from the sale of Irish potato in this area. The following councilors were able to finance and contest to be councilors either for SDF or CPDM through Irish potato farming. Wiraker Eric, Alfred Nzedzen, Shufola Walters Nseh.¹⁶¹ Shufola Walter got in contact with IRAD researchers in Kishong who gave him improved seeds. He cultivated and gain much income from it and later used the money to fulfill his dream to be a politician. He campaigned under the CPDM ticket and won the council election in Nseh. While wiraker Eric campaign under the SDF ticket in Kishong and won the council elections in the area.¹⁶²

Break in gender barriers

The cultivation of Irish potato strike a balance in gender. This was because both men and women were involved in both the cultivation and marketing of Irish potato in Nso. Thus neither men nor men were discriminated in this sector of the economy. Both men and women had the same rights when it concerns the distribution of seeds, insecticides, fertilizers and all the necessary materials for the smooth cultivation of the crop in this area.¹⁶³ The same rights were respected

¹⁶⁰ Interview with sYufenyuy Ibrahim, 55 years, Deputy Mayor in charge of Agriculture, Kumbo, 10th March 2015.

¹⁶¹ Interview with Shofola Walters, 39years, Farmer, Nseh 27 December 2015.

¹⁶² Interview with Wiraker Eric, 45years, Farmer, Kishong, 1 January 2015.

¹⁶³ Interview with Tatah Julia, 58years, Retired Nurse, Kishong, 9 march 2015.

when it came to access to markets and storage of goods in stores. With the intensive method there were no particular jobs allocated to specific people, consequently at each stage both men and women were involved.

Food security

Irish potato has contributed much in the maintenance of food in not only in the community but also the country at large. The fact that Irish potato was cultivated three times a year ensured a steady and continuous supply of the crop all year round. During the rainy season Irish potato could be cultivated two times and in the dry season it could also be cultivated with the help of irrigation or along river courses. This ensure the continuous availability of the crop throughout the year. In the dry season the prices of Irish potato were usually very high, this encouraged many farmers to engage in its cultivation in the dry season to gain more income.¹⁶⁴

Negative Impact of Intensive Irish potato farming

Low quality of Irish potato, degradation of the environment, difficulties of storing Irish potato for long, misuse of fertilizers and insecticides.

Low quality of Irish potato

Many farmers and consumers of Irish potato have been complaining of the quality of the crop cultivated with fertilizers and pesticides. Irish potato cultivated with manure had all the natural nutrients but the one cultivated with excessive fertilizers and pesticides have been said to be watery and tasteless. The nutritional value of Irish potato cultivated with excessive fertilizers and pesticides have dropped over the years. With this excessive application of fertilizers many consumers have complain of stomach disorder after consuming it.¹⁶⁵ To solve this

¹⁶⁴ Bime Berinyuy, "Production and Marketing of food stuffs in Bui Division, An Effort in Rural Transformation", PHD Thesis in Geography, University of Yaounde I, 1984, p.78.

¹⁶⁵ Interview with Kifem CIPRAIN, Late 60s years, Retired Agronomist, Kumbo 10 March 2015.

problem farmers have continue to stabilize the measurements of fertilizers and pesticides applied in Irish potato farms. Moderation of the usage of fertilizers and the fact that the farm is spread at maturity and allowed for at least one month for the tubers to lose water have gone a long way to make the yields crispy and tasteful.

Difficulties of storage for long

From the low quality of storage, difficulties of storage has been another negative aspect with tubers from intensive cultivation. It has been realized by farmers that tubers cultivated with the usage of intensive methods do not stay for long before the process germination started. The transportation of improved yields harvested immediately after 90 or 120 day was very difficult in the sense that the tubers easily peel by simple friction.¹⁶⁶ As a result of transportation of the yields from one area to the others, tubers usually incurred bruises which render its storage period very limited. Consequently improved seeds produced from the intensive methods could not be stored for a long period of time as compared to old seeds cultivated under extensive farming.

Degradation of the environment

The excessive usage of fertilizers, fungicides, insecticides and pesticides have led to the dilapidation of the environment. Excessive application of pesticides fertilizers, washed away by rain into rivers led to contamination of those river thus dangerous to the health of the locals who depended on stream and river water for drinking.¹⁶⁷ Also little grass grew in areas which were usually cleared with insecticides. Micro-organisms which enhanced soil fertility were also killed as a result of excessive application of fertilizers.

¹⁶⁶ Interview with Wirsiy Patrick, 50 years, Large Scale producer of Irish potato, Tadu, 11 March 2015.

¹⁶⁷ Interview with Shey Kwei Gregory, 60 years, Chief of Agriculture Bui, Kumbo, 10th March 2015.

Conclusion.

To conclude the production of Irish potato production has brought many positive impacts to the people of Nso in both economic and the social domains. These impacts have gone a long way to improve the standard of living of the population and also to develop the community and the country as a whole. The impact of Irish potato production was also felt in the border countries like Nigeria, Chad and Gabon which needed food. In spite of its importance producers of Irish potato encountered a lot of difficulties in both the cultivation and the commercialization process.

GENERAL CONCLUSION

From the findings of Irish potato farming in Nso 1936-2014, it reveals that Irish potato farming has taken over from coffee farming in Nso. This was confirmed by the thousands of hectares used in the cultivation of Irish potato and huge yields produced in the area. The prices of Irish potato have also superseded those of the existing crops in the area, this has helped to change the standard of living of many farmers. Major innovations and changes have been seen in the type of seeds, methods of cultivation, conservation and marketing of Irish potato. However, many farmers have faced many difficulties which hindered the smooth cultivation and marketing of the crop.

Concerning the introduction of the different species of Irish potato from 1936 to 2014, there have been lots of controversy concerning the precise date in which Irish potato was introduced in Nso. Notwithstanding the introduction of majority of the early seeds were attributed to European missionaries and explorers who came to the area. The species introduced from 1936 to 1990 in Nso produced low yields per hectare but in 1998 improved species like Cipira and Tubira were introduced in the area. The improved seeds produced high yields of at least 12 tons per hectare within a short period between 90 to 120 days. The spread of the crop at the beginning was an uphill task for those who brought the seeds but they were able to convince the locals to accept its cultivation. Also, geographical features like climate, topography, soils, rains, sunlight, temperatures influenced the cultivation of Irish potato in Nso. Favorable climate and soils played a great role in favouring Irish potato cultivation in Nso. Cross breeding of Irish potato was also a good move to improve the quality of seeds put at the disposal of farmers. Certain changes have also been made on the calendar for its cultivation. Land acquisition has also been another bone of contention in Nso. The process of acquisition of land by women has been very difficult for women but much process

have been made to realize this purpose. The drastic increased in population over the years has render land scarce which made its acquisition difficult for farmers to own land.

As regard the cultivation, marketing and conservation of Irish potato in Nso much have change from 1936 to 2014. From 1936, extensive mixed cropping of Irish potato with other crop was the main practiced, during this period, the soils were very fertile and did not warrant the use of fertilizers. Between 1990 and 2014, there was a dropped in the fertility of the soil and farmers had to look for substitutes to enrich the soil. Chemical fertilizers were therefore used to improve the fertility of the soil. The type of labour used has also change from 1936 to 1990 family and communal labour was mostly used but, from 2000 to 2014 paid and hired labour was mostly used. The conservation of Irish potato has also improve over the years. Concerning, the marketing of Irish potato in Nso, a lot was done to ensure improvement in this aspect. Irish potato cooperatives were created to facilitate the sale of Irish potato in Nso. The increase in markets and prices also enhance the marketing of the crop, improvement in urban transport has also facilitated the transportation of yield to urban centers and out of the country.

Looking at the problems faced by farmers in the cultivation and marketing of the crop. It was revealed that farmers encounter difficulties in the cultivation of Irish potato which range from natural to human problems. Natural factors involved those aspects which man cannot change but can only help to control. While human factors involve those which are caused by man and could be control or solved.

It was equally realized that the impact of Irish potato farming in Nso cannot be over emphasized. The impacts include economic and social. The high yields produced by farmers were sold at considerable prices which have help to improve the standard of living of the farmers. Despite these, Irish potato farming also produced some negative effects. Further study can be carried out on the transformation of Irish potato in Nso. Stakeholders can also in the future rethink

the status of Irish potato, that is whether to classify Irish potato as a food crop or as a cash crop in Cameroon. That is changing the paradigm from the colonial perspective of regarding crops to the African manner of placing crops.

SOURCES AND BIBLIOGRAPHY

I-PRIMARY SOURCES

1-Archival Documents

National Archives Buea (NAB), File No, Cb1966 to 1972 /S.I, Divisional Economic and Political Report Bui.

National Archives Buea (NAB), File No, Cb 1968/I, Divisional Economic and Political Report Bui.

National Archives Buea (NAB), File No. CbI1923/Ab, Assessment Report Bansa District.

Divisional Archives Bui, File No, 7384/BA/NWP/18 SDO Bui 1983.

2-Oral Sources

Name	Age	Occupation	Place and date.
Ajara fonyuy	49	Farmer	Kishong, 21th December 2015.
Bushu Micheal	60	Market master	Kumbo, 10 march 2015.
Emmanuel Kongnyuy	49	Sub Divisional Delegate of Agriculture	Tatum, 21 December 2015.
Emmanuel Sunjo	45	Farmer	Tatum 21Decemder 2015.
Fai Brigit	70	Farmer	Kiyan, 9 March 2015.
Fai Kom Meluf	65	Traditional Ruler.	Meluf, 11 March 2015.
Fon Nseh	65	Traditional Ruler	Nseh, 27 th December 2015.
Franka Kila	45	Farmer	Mbam, 21 December 2015.
Fuchi Thomas Song	49	Divisional Delegate of Agriculture Bui.	Kumbo, 10 and 11 March 2015.

Kifem Ciprain	60	Retired Director of Agriculture and Agronomist	Kumbo, 10 December 2015.
Kisi Fabian	36	Farmer	Kishong, 9 march 2015.
Kpuyuh Mohamedou	45	Farmer	Vekovi, 7 th March 2015.
Late Sahka Catherine	60s	Retired Nurse	Tubin, 9 March 2015.
Lukong Oliver	59	Sub Divisional Delegate of Basic Education.	Kishong, 20 th December 2015.
Mariana lemyuy	58	Farmer	Mbiame, 30 th December 2015.
Mourine Leinyuy	59	Farmer	Nseh, 27 th December 2015.
Ndifon James	55	Agric Officer Oku	Kumbo, 10 th March 2015.
Ngeh Julius	40	Farmer	Kishong, 29 December 2015.
Ngoran Erasmus	49	Farmer	Kishong, 21 December 2015.
Ngoran John	45	Farmer	Mah,
Nkwi Gregory	60	Chief of Agric Kumbo.	Kumbo, 10 th March 2015.
Ntanin Hellen	69	Trader	Kumbo, 11 March 2015.
Odette Berinyuy	31	Director CEAC Kishong.	Kishong, 20 th December 2015.
Peter Ndzelen	45	Farmer	Ngondzen, 27 th December 2015.
Tansho David	146	Trader	Kishong, 9 March 2015.
Tatah Julia	58	Retired Nurse	Kishong, 9 March 2015.
Wanki Walters	40	IRAD Worker	Kishong, 20 th December 2015.
Wirngo Ramatu	57	Farmer	Kuvluh, 27 th December 2015.
Wirnkar Denis	47	Farmer and SHUMAS coordinator Kishong.	Kishong, 20 December 2015.
Wirsiy Patrick	50	Farmer	Tadu, 11 March 2015.
Yufenyuy Ibrahim	55	Deputy Mayor in charge of Agriculture Bui.	Kumbo, 10 th March 2015.
Yuk Renata	57	IRAD Researcher.	Kishong, 20 th December 2015.

II- SECONDARY SOURCES

1-Books.

Collection ITCF-ITPT. *Maladies de la pomme de terre*. N0 5619. Institut technique des céréales et des fourrages, 8 Avenue du Président Wilson 75116 Paris.

Cromme Nicolaus, Adam B. Prakash. *Strengthening potato's Value .Technical and Policy Options for Developing Countries. Food and Agricultural Organization and the common Fund for Commodities*, Italy, 2010.

David Crystal. *The Cambridge Paperback Encyclopedia*, The new Updated Edition, Cambridge University Press, 1994.

Fane Idrissa, Razika Kribes, Philippe. *Linking Actors of potato producers and Marketing Roparawa and Rimbaraga initiatives in North Western Rwanda*, Rwanda, Bull 374.2006.

GoHeen Miriam. *Gender and Power in the Cameroon Grass Fields: Men Own the Fields, Women Own the Crops*. London, University of Wisconsin Press, 1972.

Irish potato production guidelines, Pretoria: Department of Agriculture, Forestry and Fisheries Republic of South Africa, 2013.

Kabbery M. Phyllis. *Women of Grass Fields: A Study of the Economic Position of Women in Bamenda*. London, Gregg Press Limited. 1968.

Kabbery P.M and E.M Chilver, *Traditional Bamenda, Pre-colonial History and Ethnography of Bamenda Grass fields*. London, 1967.

Kathryn S. March and Rachelle L. Taquu. *Womens, Formal Associations in Developing Countries, Catalyst for Change*. London, West view Press. 1999.

Kohls, R. L. and Uhls, J. N. (1990). *Marketing of agricultural products*. New York, Macmillan Publishing Company, 1990.

- Kololafe M. F, *Agricultural Science for West African Schools and Colleges*. Second Edition. Oxford University Press 1979.
- Lafon Joseph. *History of the Catholic Church in Kumbo Diocese 1912-1988*, Yaounde, CEPER, 1989.
- Mbah David, Research, *Innovation in Cameroon, Economic Commission for Africa, Food Security and Sustainable Development Division, Selected Science and Technology Research and Applications in Cameroon*. Yaounde Cameroon, 1998.
- Ndenecho Neba Emmanuel, *Mountain Geography and Resource Conservation Sustaining Mountain Environmental and Rural Livelihood in Bamenda High Land*, Bamenda, Unique Printers, 2006.
- Ndifon Abraham Dobgima, *Advance Regional Geography for Cameroon Schools*. Douala, the Leader Print, 2008.
- Neba Aaron S, *Modern Geography of the Republic of Cameroon Bamenda*, Neba Publishers, CAMDEN, N. J. 08101, Second Edition, 1987.
- Njabe Roland and Fobang Richard, *Physical Geography*. Limbe, Sunway Publishers, 2002.
- Njabe Roland Nkwelle, *Human and Economic Geography*. Limbe, Sunway Publishers, 2000.
- Njualem D.K. *Evolution of Twelve Irish Potatoes Varieties in the North West Highlands*, Bamenda 1999.
- Numfor Festus A Peter AY. *Postharvest Technologies of Root and Tuber Crops in Cameroon*. A Survey. February 1987.
- Paul Demo. *Identification and Control of Late Blight: Phytophthora Infestans and Bacterial Wilt (Pseudomonas solanacearum) of Irish Potatoes*, Bambui, 1997.
- Verkijika Fanson. *Cameroon History for Secondary Schools and Colleges: From Pre-Historic Times to the Nineteenth Century*, London, Macmillan Publishers Limited, 1989.

Articles and Journal

Fonjong Lotsmart N. “Changing Fortunes of Government Policies and its impact on Agricultural innovation in Cameroon”, *Nordic Journal of African Studies* Vol 13, 2004.

Mahungu M.N and V. M. Manyong, “Proceedings of the Ninth Triennial Symposium jointly organized by the ISTRC-AB and Kenya Agricultural Research”(KARL).*International Society for Tropical Root Crops, Africa Branch*, Mombasa, Kenya, 1-5 November 2004.

Njualem D.K, Evaluation of Irish Potatoes Varieties in the North West Highlands, Bamenda, 2000.

Njukeng et al, “The prevalence of six viruses in potato seeds Tubers in the North West Region of Cameroon”, *Journal of Experimental Biological*, Vol 09, 2013.

Paul Demo, “Identification and Control of late Blight *phytophthora infestans* and Bacterial Wilt”, *Potato Journal* Vol 172 1995.

Tankou Christopher, “The Effects of Green Manure and Intercropping on Potato Production in the Western Highlands of Cameroon”, *The International Journal of Scientific and Technological Research*, Vol 3, 2014.p13_29

Zemba A. Ambrose, Solomon Z, Wuyep “Growth and Yields Response of Irish potato to Climate in Jos–South, Plateau State, Nigeria”, *Global Journal of Human and Social Sciences* Vol 13 2013.

2-Unpublished Works

Theses, Memoires and Long Essay.

Berinyuy Bime Henry, “Production and Marketing of Food Stuffs in Bui Division, Cameroon; An effect in Rural Transformation”, Doctorate Thesis in Geography, University of Yaounde I, 1984.

- Bongfen Roland Nteh. “Agro Pastoral Intensification and Diversification in Kumbo Central Sub Division”, DIPES II Dissertation in Geography E.N.S Yaoundé. 1999.
- Carol Yvette Edjimbi, « La Culture, La production la transformation et la Commercialisation du manioc a Zoetele » (1980-2000), DIPES II Dissertation in History, E.N.S Yaounde, 2011.
- Fondufe nee Sakaah Lydia, “The Production and Marketing of Maize in Kumbo Central Bui Division”, DIPES II Dissertation in Geography, E.N.S. Yaounde. 1996.
- Fontem D. A and B. Aighewi. “Effects of fungicides on Late Blight Control and yield loss of potato in the Western Highlands of Cameroon”, Master’s Thesis in plant Protection and Plant Science, University of Dschang. Cameroon.
- Kibinkin Vanessa. Irish Potato Production and Marketing in Kishong 1983-2010, Long Essay in History, University of Buea, 2013.
- Mbohli Samuel Penn, Potato (*Solanum Tuberosum*). Production, marketing and its impact on the environment in Santa Sub-division, Dissertation in Geography, ENS Yaounde, 1998.
- Nnorge Marius Ewane, “Changes in Food Crop production and Eating Habits; A consequence of a sustained population growth in Ngusi Tomble Sub Division, (1976-2010)”, DIPES II Dissertation in Geography E.N.S Yaounde
- Ntutin Anthony, “The Economy of Nso” DIPES II Dissertation in History, E.N.S. Yaounde, 1986.
- Tamfu Richard Nwarong. “The Effects of Plant Extract on Root Diseases of Irish Potato (*Solanum Tuberosum*)”, Ph.D in Agronomy and Farm Management Crop Production, programs, Schools of Agricultures, ABUBAKAR TAFAWA BELAWA University 1999.
- Uze Evaristus Isoh, “Effects of Different Doses of Gabberelic Acid on Dormancy Breaking of Seeds, Tubers of Potato (*Solanum Tuberosum* L)”, University of Dschang and Agriculture.



APPENDICES

27
2 pages

REPUBLIQUE DU CAMEROUN
PAIX - TRAVAIL - PATRIE

MINISTRE DE L'AGRICULTURE
ET DU DEVELOPPEMENT RURALE

DELEGATION REGIONALE
DU NORD OUEST



Minader

Ministère de l'Agriculture et du Développement Rural
Ministry of Agriculture and Rural Development



REPUBLIC OF CAMEROON
PEACE - WORK - FATHERLAND

MINISTRY OF AGRICULTURE
AND RURAL DEVELOPMENT

REGIONAL DELEGATION
FOR NORTH WEST

DIVISIONAL DELEGATION OF AGRICULTURE AND RURAL DEVELOPMENT, BUI

**ANNUAL REPORT OF ACTIVITIES
JANUARY TO DECEMBER 2014**

Presented By:

FUCHI Thomas SONG
(Ingenieur D'Agriculture)
Divisional Delegate

SPECULATION: SOLANUM POTATO

Agric. Post	Total Pop.	Farming Pop	No Farm Families involved	N° of Samples	Total Quantity Of Seeds (KG)		Total Quantity of Fertilizers (Bags)	Total Area Cultivated (Ha)	Total Quantity Produced (Tons)
					Improved	Local			
MBIAME	40847	16,339	2,042		275717	275,717	326.776	143.0	3656
LIP									
MBONSO	3090	1,854	309						
TOTAL	40,847	16,339	2,351	0	0	275,717	326.776	143.0	3656

SPECULATION: SOYA BEANS

Agric. Post	Total Pop.	Farming Pop	No Farm Families involved	N° of Samples	Total Quantity Of Seeds (KG)			Total Quantity of Fertilizers (Bags)		Total Area Cultivated (Ha)	Total Quantity Produced (Tons)
					Improved	Local	Total	NPK	Urea		
MBIAME		0	0			0	0	0	0	0.0	0
LIP	3090	1,854	309			13215.93	13215.93			339.9	253.38
MBONSO	8584	5,150	858		1373.44	16910	18284	0	0	562.3	497.872
TOTAL	0	0	1,167	0	1,373	30126	31,500	- 0	0	902.2	751

SPECULATION: GROUNDNUTS

Agric. Post	Total Pop.	Farming Pop	No Farm Families involved	N° of Samples	Total Quantity Of Seeds (KG)			Total Quantity of Fertilizers (Bags)		Total Area Cultivated (Ha)	Total Quantity Produced (Tons)
					Improved	Local	Total	NPK	Urea		
MBIAME		0	0			0	0	0	0	0.0	0
LIP	3090	1,854	309			12347.64	12347.64			309.0	247.2
MBONSO	8584	5,150	858		0	42920	42920	0	0	986.6	888.444
TOTAL	0	0	1,167	0	0	55268	55,268	0	0	1295.6	1136

**SOLANUM
POTATO**

SPECULATION:

Agric. Post	Total Pop.	Farming Pop	No Farm Families	No of Samples	Total Quantity Of Seeds (KG)			Total Quantity of Fertilizers (Bags)		Total Area Cultivated (Ha)	Total Quantity Produced (Tons)
					Improved	Local	Total	NPK	Urea		
MBAM-NSO	22,626	13,576	1,697		-	546,418	546,418	593.93	339.39	476.94	2,761.79
TATUM	36,290	14,516	1,815		106,148	93,447	199,595	3,447.55	1,815	988.72	7,258
KUVLU	9,213	5,528	691		-	82,917	82,917	1,520.15	414.59	759.38	5,666.00
DZENG	14,376	8,626	1,078		88,628	91,216	179,844	571.45	107.82	265.28	504.60
NGONDZEN	15,259	9,155	1,144		-	1,264,590	1,264,590	915.54	572.21	1,725.79	7,152.66
NSEH	16,764	10,058	1,257		88,011	108,756	196,767	942.98	691.52	355.72	4,425.70
TOTAL	114,528	61,459	7,682	-	282,787	2,187,343	2,470,131	7991.589	3940.0225	4571.842173	27766.73098

BEANS

SPECULATION:

Agric. Post	Total Pop.	Farming Pop	No Farm Families (FF)	No of FF with Spec.	Total Quantity Of Seeds (KG)			Total Quantity of Fertilizers (Bags)		Total Area Cultivated (Ha)	Total Quantity Produced (Tons)
					Improved	Local	Total	NPK	Urea		
MBAM-NSO	22,626	13,576	1,697			41,405.58	41,405.58			749.95	257.94
TATUM	36,290	14,516	1,815			50,806.00	50,806.00			1,169.63	889.11
KUVLU	9,213	5,528	691			18,587.23	18,587.23			297.12	109.17
DZENG	14,376	8,626	1,078			13,800.96	13,800.96			369.75	359.04
NGONDZEN	15,259	9,155	1,144			38,567.12	38,567.12			646.60	441.75
NSEH	16,764	10,058	1,257			24,328.76	24,328.76			445.46	442.57
TOTAL	114,528	61,459	7,682	-	-	187,496	187,496	-	-	3,678.50	2,499.57

JAKIRI	33,435	20,061	2,508	740,438	1,180,746	192,183	810	0	1721	8800
NKUM	114528	61459	7682	282787	2187343	2470131	7992	3940	4572	27769
NONI	0	0	0	0	0	0	0	0	0	0
MBVEN	40,847	16,339	2,351	0	275717	275717	327	0	143	3656
TOTAL	432933	221817	33201	2811582	10894615	13706196	23165	14796	14632	97891
SPECULATION: COFFEE										
SUB DIVISON	TOTAL POP	FARMING POP	NUMBER FARM FAMILIES	IMPROVED SEEDS	LOCAL SEEDS	TOTAL	FERTILIZERS NPK	UREA	TOTAL AREA CULTIVATED(HA)	QUANTITY PRODUCED (TONS)
KUMBO CENTRAL	45,121	13536	1692	572087	856179	1428266	0	0	1037	1590
OKU						0				
JAKIRI						0				
NKUM						0				
NONI	10,272	4109	514	0	564960	564960	853	0	56	137
MBVEN						0				
TOTAL	55393	17645.3	2205.6375	572087.063	1421139.2	1993226.2	853	0	1093	1726
SPECULATION: TOMATO										
SUB DIVISON	TOTAL POP	FARMING POP	NUMBER FARM FAMILIES	IMPROVED SEEDS	LOCAL SEEDS	TOTAL	FERTILIZERS NPK	UREA	TOTAL AREA CULTIVATED(HA)	QUANTITY PRODUCED (TONS)
KUMBO CENTRAL	45	45	45	656	0	656	99	20	31	383
OKU										
JAKIRI										
NKUM										
NONI										
MBVEN										
TOTAL	45	45	45	656	0	656	99	20	31	382.5
SPECULATION: CABBAGE										