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**CHARACTERIZATION OF INDIGENOUS CHICKEN PRODUCTION SYSTEM IN  
WABINYONYI SUB COUNTY, NAKASONGOLA DISTRICT**

**BY**

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**A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF  
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AWARD OF A DEGREE OF BACHELOR OF ANIMAL PRODUCTION AND  
MANAGEMENT OF BUSITEMA UNIVERSITY**

**MAY 2013**


## DECLARATION

I, **KIWANUKA GERALD** to the best of my knowledge hereby declare that the work herein is original and has never been presented to any University or institution of higher learning for any award. All sources of literature used have been quoted and acknowledged by means of complete references.

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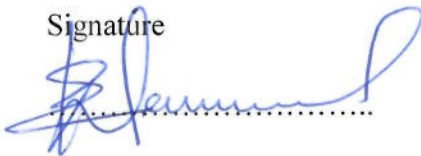
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## **DEDICATION**

To my Mother Ms. Nakyeyune Christine and big brother Kasirye Henry Zisirwe who have tirelessly supported me throughout my academic journey at Busitema University. I owe them my greatest gratitude.

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## LIST OF ABBREVIATIONS

IC	Indigenous chickens
S/C	Sub county
LC1	Local council one
GDP	Gross Domestic Product
SPSS	Statistical Package for Social Sciences
HH	Household
%	percent
NAADS	National Agricultural Advisory Services
<i>Et al</i>	and others
No.	Number
NCD	Newcastle Disease
Fig.	Figure

## ABSTRACT

This study was conducted in Wabinyonyi sub-county in Nakasongola district in Central Uganda in March 2013 to characterize the indigenous chicken production system. It was a survey using a structured questionnaire to collect responses from 144 indigenous chicken farmer households. Data collected was analysed using SPSS.

The dominant (87%) production system was extensive (scavenging) with the majority (91%) practicing seasonal supplementation with home grown grains and household food leftovers. The purpose of chicken production was mainly sale for income and home consumption (87%). The average flock size per household was 15-30 birds. Only 83% of chicken owners prepared separate overnight houses for birds and the rest (17%) kept birds in various night sheltering places. Almost all (93%) of interviewed chicken owners experienced chicken disease problems especially Newcastle. The average age of cockerels at first mating and pullets at first egg were 5-6 and 6-7 months, respectively. The average number of eggs laid/batch was 13-16. Number of times a hen hatches per year was 3-4. Average number of eggs incubated/hen was 10-12 and 8-10 chicks on average were hatched. Slaughter age of cock and a hen were 7-8 and 7-12 months, respectively. Only 47% practice selection of birds for breeding and the cock is used for 2-3 years for breeding purposes. Women were the major responsible members of the household involved in various chicken husbandry activities.

Despite the many problems involved in IC keeping, relatively promising performance of the local chickens in the study area was observed which is explained in terms of relatively good egg production per batch, number of batches per year and the relatively low ages at sexual maturity.

The productivity of scavenging birds in the study area can be enhanced by simple changes in management techniques that promote improvement in productivity and reduce mortality.

## CHAPTER ONE: INTRODUCTION

### 1.1 BACKGROUND

Indigenous chicken (IC) production is common in rural resource poor households in developing countries. They play a vital role in the human livelihoods and contribute significantly to food security of the rural communities as there are no cultural or religious taboos to chickens and their products (Worku *et al.*, 2012). The world poultry population has been estimated to be about 16.2 billion, with 71.6 % in developing countries (Bushra Badhaso, 2012) and in Africa, village poultry contributes over 70% of poultry products and 20% of animal protein intake (Kitalyi, 1998). In East Africa over 80% of human population live in rural areas and over 75% of these households keep indigenous chickens and Uganda is not exception to this situation (Bushra Badhaso, 2012). IC are raised by the rural households under extensive system of production and this production system is generally described as low input low out-put, which is a characteristic of the rural households' enterprises (Okeno, 2011). Although, this production system is preferred due to its low-input requirements, it exposes chicken to harsh conditions such as poor nutrition, uncontrolled breeding, predators, disease and parasite challenges (Abdelqader *et al.*, 2007; Gondwe and Wollny, 2007). Despite these challenges, Indigenous chickens have been able to adapt and satisfy the needs of the households.

Basing on the importance of indigenous chickens, studies have been initiated to describe the local chicken production systems though investigations on indigenous chickens in Uganda are scarce (Ssewanyana *et al.*, 2008) and yet not so in some other developing countries (Tadelle *et al.*, 2003; Gondwe and Wollny, 2007; Muchadeyi *et al.*, 2007; Abdelqader *et al.*, 2007). Characterization of production system is the first step to be undertaken if any production improvement is to be realized. This is because it helps in understanding of the production, management and breeding practices of farmers and other associated factors which are essential in development of holistic improvement strategies (Okeno, 2011). Characterization studies should be conducted under on-farm conditions through baseline data collection rather than on-station experimental studies (Pedersen, 2002).

## REFERENCES

- Bessei, W. (1987)**, Tendencies of world poultry production. Paper presented at 3rd international symposium on poultry production in hot climates. June 19-22, Hameln, Germany.
- Gueye, E.F. (2000)**. Approaches to family poultry development. Proceeding of the 21<sup>st</sup> World's poultry congress. Montreal Canada.
- Gunarantne, S.P., Chandrasiri, A.D., Hemalatha W.A. and Roberts J.A., (1993)**, Feed resource base for scavenging village chickens in Sri Lanka. *Tropical animal health and production* 25 (4): 249-57
- Hoyle, E. (1992)**. Small-scale poultry keeping in Welaita, North Omo region. Technical pamphlet No. 3 Farmers Research Project (FRP). Farm Africa Addis Ababa.
- Kitalyi, A. J. (1998)**. Village chicken production systems in rural Africa household food security and gender issues: FAO, Rome.142: <http://www.fao.org/DOCREP/003/W8989E/W8989E00.htm>
- Kyarisiima, C.C., Kugonza D. R. and Twesigye C. K., (2004)**; The Potential Role of Uganda Indigenous Chicken in Poverty Alleviation. *The Uganda Journal* (2004) 50, 85-90.
- Mbugua, N.P., (1990)**. Rural smallholder poultry production in Kenya; In Proceedings, CTA Seminar on Smallholder Rural Poultry Production, Thessaloniki, Greece, 9-13 October, 1990. Vol. 2, pp. 119-131.
- Mekonnen G.,( 2007)**. Characterization of smallholder poultry production and marketing system of Dale, wonsho and loka abaya weredas of southern Ethiopia, M.Sc. Thesis presented to the School of Graduate Studies of Hawassa University.
- Meseret Molla Bogalle (2010)**; characterization of village chicken production and marketing system in gomma wereda, jimma zone, Ethiopia; M.sc. thesis Jimma University, Ethiopia
- Mogesse, H.H. (2007)**; Phenotypic and Genetic Characterization of Indigenous Chicken Populations in Northwest Ethiopia, PhD Thesis submitted to the Faculty of Natural and Agricultural Sciences, Department of Animal, Wildlife and Grassland Sciences, University of the Free State, Bloemfontein, South Africa

**Olwande, P.O., Ogara, W.O., Okuthe, S.O., Muchemi, G., Okoth, E., Odindo, M.O. and Adhiambo, R.F., (2010)** Assessing the productivity of indigenous chickens in an extensive management system in Southern Nyanza, Kenya. *Tropical Animal Health and Production*. 42, 283-288.

**Pedersen, C. V. (2002)**, Production of semi-scavenging chickens in Zimbabwe; PhD Thesis, The Royal Veterinary and Agricultural University, Copenhagen, Denmark

**Sonaiya (2000)**; Family poultry and food security: research requirements in science, technology and socioeconomics. Proceedings XXI World's Poultry Congress, Montreal, Canada, August 20-24.

**Kwapil S., Mangeni J. W. N. and Mukiibi G., 1992**; Baseline survey on husbandry, socio-economic role and Newcastle disease of village poultry in Iganga district, Uganda. In: Proceedings of the 2nd Workshop on Veterinary Epidemiology, August 30-September 10, 1992, Entebbe, Uganda.

**Sewannyana, E., Ssali, A., Kasadha, T., Dhikusooka, M., Kasoma, and Kalema, P., (2004)**; Characterisation of Indigenous Chickens in Uganda, Proceedings of the Livestock Research Programme (LSRP) Annual Scientific Workshop, in collaboration with DANIDA's Agricultural Sector Research Programme (ASPS) and the National Agricultural Research Organisation (NARO).

**Ssewanyana, E., Onyai, A.O., Ogwal, J., Mukasa, B., Nsamba, P. & Masaba, J., (2003)**; Characteristics of Rural Chicken in Apac and Kumi district of Uganda. *Uganda Journal of Agricultural Sciences*, 2003, 8: 159-164, ISSN 1026-0919 National Agricultural Research Organisation.

**Tadelle, D. and Ogle, B. (2001)**, Village poultry production system in the central high lands of Ethiopia. *Tropical Animal health and production*, 33:521-537.

**Tadelle, D. and Peter, K.J. (2003)**, Indigenous chicken in Ethiopia: neglected but worth the cost of conservation through improved utilization. Humboldt University of Berlin,

**Tadelle, D., and Ogle, B. (1996a)**. A survey of village poultry production in the central highlands of Ethiopia (M.Sc. Thesis), Swedish University of Agricultural Science Pp.22

**Ssewanyana E, Ssali A, Kasadha T, Dhikusooka M, Kasoma P, Kalema J, Kwatoto B.A. and Aziku L., (2008)**, On-farm characterization of indigenous chickens in Uganda; National Livestock Resources Research Institute, P. O. Box 96 Tororo, Uganda and Department of Veterinary Services and Animal Industry, P. O. Box 44 Kumi, Uganda.

**Kugonza D. R., Kyarisiima C. C. and A Iisa (2008)**, Indigenous chicken flocks of Eastern Uganda: I. Productivity, management and strategies for better performance Department of Animal Science, Makerere University, P.O. Box 7062 Kampala, Uganda

**Natukunda K., Kugonza D.R., and Kyarisiima.C.C, (2011)**, Indigenous chickens of the Kamuli Plains in Uganda: I. Production system and flock dynamics, Department of Agribusiness and Natural Resource Economics, College of Agricultural and Environmental Sciences, Makerere University, P.O Box 7062 Kampala - Uganda

**Hunduma Dinka, Regassa Chala, Fufa Dawo, Endale Bekana and Samson Leta., (2010)**, Major Constraints and Health Management of Village Poultry Production in Rift Valley of Oromia, Ethiopia; Adama University, School of Agriculture, Private P.O. Box: 1457, Adama, Ethiopia

**Okeno T.O. Kahi A.K. and Peters J.K., (2011)**, Characterization of indigenous chicken production systems in Kenya: household flock structure, dynamics and breeding practices; Department of Animal Breeding in the Tropics and Sub-Tropics, Humboldt University of Berlin, Philippstraße 13, 10115, Berlin, Germany

**Sempiri Geoffery\_ (2011)**, Assessment of local poultry production and marketing in Najjembe sub county, Mukono district; <http://simplyhealthylifemagazine.blogspot.com/>

**Worku Z., Melesse A. and T/Giorgis Y., (2012)**, Assessment of Village Chicken Production System and the Performance of Local Chicken Populations in West Amhara Region of Ethiopia; *J Anim Prod Adv* 2012, 2(4): 199-207

**Fisseha Moges, Abera Mellesse and Taddesse Dessie, (2010)**, Assessment of village chicken production system and evaluation of the productive and reproductive performance of local chicken ecotype in Bure district, North west Ethiopia; Andassa Livestock Research Center, P. O. Box 27, Bahir Dar, Ethiopia.