Evaluation of knowledge and practices on pesticide use among small scale cotton farmers in Kitui and Kirinyaga Counties, Kenya

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DECLARATION

This thesis in my original work and has not been presented for a degree in any other University.

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DEDICATION

To my parents, Joseph Mwanzau and the late Esther Mwanzau and my daughters, Nicole Mwende and Evelyne Nduku.

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ABBREVIATIONS

ABD	Agriculture Business Development
AGOA	African Growth and Opportunity Act
EMCA	Environmental Management Coordination Act
ESP	Extension Service Providers
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
ILO	International Labour Organization
IPEN	International POPs Elimination Network
KARI	Kenya Agriculture Research Institute
MOA	Ministry of Agriculture
MOH	Ministry of Health
NEMA	National Environmental Management Authority
PAN	Pesticide Action Network
PCPB	Pest Control Products Board
POPs	Persistent Organo Pollutants
PPE	Personal Protective Equipment
SPSS	Statistical Package for Social Scientists
UNEP	United Nations Environmental Programme
WHO	World Health Organization

ABSTRACT

The objective of the study was to evaluate the knowledge, practices and effects on human health associated with pesticide use among cotton farmers in Kitui and Kirinyaga counties of Kenya. The multi-stage sampling procedure was used to select two study districts, Chuluni and Mwea in Kitui and Kirinyaga counties respectively where 168 farmers were sampled through cluster sampling procedure. Face to face interviews were conducted using a questionnaire with close-ended questions in the months of July and August, 2008. Data collected on variables on effect of knowledge of farmers on pesticide use, storage and disposal of pesticides and human health due to pesticide handling as influenced by; age of farmers, education levels of farmers, duration farmers had grown cotton and status on trainings attended where correlations were done to establish relationships. The data collected was analyzed using the Statistical Package for Social Scientists (SPSS) version 12.0 and results were presented in tables and bar graphs.

Demographic data of sampled farmers showed that; 56% of cotton farmers in Chuluni were aged 36-60 years and 38% were over 60 years old, while in Mwea, 56% were aged 36-60 years and 41% were over 60 years old. On education levels, 53% of farmers in Chuluni had primary education and 39% were illiterate while in Mwea, 61% of farmers had primary education and 29% were illiterate. Study on knowledge of farmers on pesticide use showed that; 66% of cotton farmers in Chuluni relied on the Cooperative group for supply of pesticides while 40% in Mwea depended on advice from Extension service providers and another 40% made choice depending on the pest to be controlled.

Use of personal protective equipment was a practice that had not been adopted by majority of farmers, since in Chuluni district 91% did not wear personal protective equipment while applying pesticides and 100% in Mwea.

The study established that cotton farmers suffered adverse health effects as a result of handling pesticides: 76% of farmers in Chuluni experienced burning sensation, 50% experienced eye irritation and 39% experienced dizziness. In Mwea 62% of the farmers experienced burning sensation, 52% experienced eye irritation and 37% experienced dizziness. As a way of mitigating or minimizing the adverse effects after handling pesticides, 36% of farmers in Chuluni took fresh milk and 20% washed their bodies while in Mwea 35% took fresh milk and 17% washed their bodies. The Ministry of Agriculture and agrochemical companies played a role on enhancing knowledge on pesticides use among cotton farmers by conducting farmers' trainings: 74% of farmers in Chuluni had attended training in 2007 while only 30% for Mwea area.

Statistical treatment of the data for both Chuluni and Mwea districts showed that there was no relationship between, education levels of farmers; and determination of pesticide to use, time of day farmers applied pesticides, direction of the wind during pesticide application, methods of pesticide storage and ill effects experienced on skin. Each of the relationships showed $p > 0.05$. Further there was no relationship between attendance of trainings by farmers; methods of pesticide storage and ill effects experienced on skin as

$p > 0.05$. However there was relationship between education levels of farmers and the way they determined the amount of pesticide to use, ($p < 0.05$).

This study demonstrated that knowledge of cotton farmers in both Chuluni and Mwea on pesticide use was reflected on their practices. From the study, it is recommended that cotton farmers should be trained on pesticide use and handling while at the same time the Government of Kenya should consider making the personal protective equipment accessible and affordable to farmers.