
FACULTY OF AGRICULTURE AND ANIMAL SCIENCES (FAAS)
DEPARTMENT OF CROP PRODUCTION AND MANAGEMENT
**FARMER KNOWLEDGE OF PESTICIDE USE, HEALTH SAFETY
PRACTICES, AND ITS ENVIRONMENTAL EFFECTS IN SOROTI DISTRICT,
EASTERN UGANDA**

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DECLARATION

DECLARATION

I **KATO HUSSEIN IBRAHIM** hereby declare that this is my original piece of work that has never been presented by anyone to any university, institute or college for an academic credit.

Sign.......... Date.. 10TH MARCH 2024

APPROVAL

APPROVAL

This research report has been submitted with my approval by the appointed university supervisor.

Sign: 

Date: 10TH MARCH 2024

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DEDICATION

I dedicate this research report to my dear parents, all brothers and sisters and the entire community of Busitema University, Arapai campus.

ACKNOWLEDGMENT

I extend my sincere gratitude to Allah for His bounties bestowed upon me and every individual who had a hand in the accomplishment of this research report. Special thanks go to my supervisor Mr. Turyasingura Geoffrey for his assistance and continued guidance that has enabled me accomplish a valuable write-up of this research report.

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LIST OF ABBREVIATIONS AND ACRONYMS

PPE- Personal protective equipment

E.G- For example

i.e.- that is to say

PAN Europe- Pesticide Action Network

DALYs- Disability-adjusted life years

FAO- Food and Agriculture Organization

O' level- Ordinary level

A' level- Advanced level

ABSTRACT

Irresponsible pesticide handling and application have adverse effects to human health and the environment that include killing of non-target organisms, water contamination, soil contamination and air pollution. This research study focused on assessing the safety practices used by farmers during pesticide handling and application, the farmer knowledge of the potential risks of irresponsible pesticide use to human health and the environment and the farmers' perception on the risks associated with irrational use and mishandling of the pesticides. The study was carried out in Soroti district, eastern Uganda where a survey was conducted in two Subcounties (Gweri and Arapai) using survey questionnaires that had structured, multiple choice and Likert-scale questions. The results of the study showed that only 12.8% of the farmers had full protective gears for pesticide application and the rest had either a combination of some protective equipment or nothing at all. Thus, the government should improve access to Personal protective Equipment through subsidizing or distribution to the farmers. Only 55.7% of the farmers were confirmed to adhere to the recommended pesticide-use safety practices and this calls for extension services to increase awareness of the pesticide-use safety practices. The average score in a test that assessed the farmer knowledge of the potential risks of irresponsible pesticide use on human health and the environment was 57.8% out of 100% which indicates that the farmers were not fully aware of the potential risks of pesticide effects. Thus, this also demands the enhancement of the extension services to raise awareness on this matter. The assessment of the farmers' perception on the risks associated with irrational use of the pesticides revealed that 37% agreed and 28.3% strongly agreed that pesticides can cause cancer and other health problems and only 25% agreed and 12.8% strongly agreed that pesticides can harm beneficial insects and wildlife. None of the farmers strongly disagreed, 40% agreed and 22.2% strongly agreed that pesticides pollute air, water and soil. These results of the study also call for the need for the increase in the awareness of the pesticide effects among the farmers.

CHAPTER ONE

INTRODUCTION

1.1 Background information

Pesticides are substance or mixtures of substance used for preventing and controlling pests, weeds, vectors, rodents, and insects in agriculture to increase productivity. Pesticides are also used in the household to control and kill mosquitoes, ticks, rats, lice, cockroaches among others (Mahmood *et al.*, 2016). Pesticide use safety practices include all procedures, actions, and policies undertaken to minimize the risk of exposure to potentially hazardous pesticides (Alebachew *et al.*, 2023). Pesticide use safety practices can also be demonstrated by the use of appropriate personal hygiene, effective laundry, separate pesticide storage at home, using the recommended concentration and quantity based on labeling, avoiding eating and drinking during spraying, proper use of personal protective equipment, and proper disposal of empty containers (Khan *et al.*, 2013) . In Uganda, the Use of personal protective equipment while applying pesticides is very low despite the high risk and frequency of exposure (Okonya & Kroschel, 2015). Uganda uses 18,928.16 tonnes of pesticide every year (Ssemugabo *et al.*, 2022). East Africa uses 153,901.4 tonnes of pesticides per year(Ssemugabo *et al.*, 2022). Pesticide use in Africa makes up 4% of the global pesticide market only, with a rough estimate of 75 000 to 100 000 tonnes of pesticide active ingredient used in the continent (Ssemugabo *et al.*, 2017). Worldwide, it is estimated that approximately 1.8 billion people engage in agriculture, and most of them use pesticides to increase productivity (Alebachew *et al.*, 2023). An estimated average of 5.6 billion pounds of pesticides is utilized globally per year as herbicides, insecticides, fungicides, and microbicides (Alebachew *et al.*, 2023).

Pesticides are toxic and thus pose great risks to human health and the environment. Despite the potential dangers these chemicals pose to man and the environment, the global pesticide use has continued to grow recurrently, reaching 4.1 million tonnes per year in 2017, an increase of nearly 81% from 1990. Following this, the global impact of inappropriate handling of pesticides led to an estimated 155,488 deaths and 7,362,493 disability-adjusted life years (DALYs) in 2016 (Alebachew *et al.*, 2023). It is estimated by the World Health Organization (WHO) that about 18.2 per 100 000 agricultural workers have occupational-related pesticide poisonings worldwide (Ssemugabo *et al.*,

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