



## Research Article

### FIELD VIABILITY OF NEEM BASED BIOPESTICIDES FOR THE ADMINISTRATION OF BUG VERMIN OF COTTON

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**Mr. Yohana Iliya**

College of Agriculture and Natural Resources, Ghana

**C. M. Yakubu**

College of Agriculture and Natural Resources, Ghana

#### ABSTRACT

Cotton is a significant fiber crop filled in northern Ghana. Its development is plagued with various bug issues. Current irritation the executives rehearses in cotton fields depend on the utilization of chlorpyrifos and lamda cyhalothrin based manufactured insect poisons which is exorbitant to most laborer cotton ranchers. Consequently, this study pointed toward evaluating the field adequacy of neem based biopesticides like neem seed portion concentrate and neem seed oil as an option for the administration of bug vermin of cotton in northern Ghana. The medicines were 2% NSO, 5% NSO, 5% NSKE, 10% NSKE, chlorpyrifos exchanged with lamda cyhalothrin and untreated control. The outcomes showed that 10% NSKE altogether ( $P < 0.05$ ) diminished the wealth of bollworms, aphids and white flies to 0.75, 3.71 and 3.29 separately while for the untreated control they were all around as high as 3.07, 14.14 and 6.75 individually. The neem was non-poisonous to the regular adversaries. Seed cotton yield were somewhere in the range of 52.20% and 90.82% higher in the neem treated plots than the untreated control while yield misfortune was 64.79% lower on the 10% NSKE treated plots than the untreated control plots.

#### KEYWORDS

Cotton, Azadirachtin, Bug Vermin, Hunters, Biopesticides.

## INTRODUCTION

Cotton is a significant fiber crop filled for the most part in northern Ghana. Its development is compromised by the plenty of bug bothers related with the yield from the vegetative development stage to the time of collecting.

Early season irritations of cotton incorporate jassids (Leafhoppers), *Empoasca facialis*, aphids, *Aphis gossypii*, grasshoppers, *Zonocerus variegatus*, cotton leafworm, *Spodoptera littoralis*, cotton looper, *Cosmophila flava*, and bug creepy crawlies. The middle of the season bug irritations of cotton are spiked bollworm, *Earias sp.*, red bollworm, *Diparopsis watersii*, African bollworm, *Heliothis amigera*, and cotton leaf roller, *Sylepta derogata*.

Control of these bug irritations of cotton by and by depends on the utilization of chlorpyrifos and lambda cyhalothrin based manufactured bug sprays. The utilization of these pesticides has added to the expanded efficiency of cotton and other rural harvests. This regardless, they have likewise caused biological harm, actuated genuine wellbeing danger among laborers during detailing and field applications.

To conquer the issues of manufactured substance perils, one of the most mind-blowing control measures is the utilization of results of plant beginning. This is a result of their biodegradability, least diligence and least poisonous to non-target organic entities, financial

and simple accessibility. As of now, around 200 plants with insecticidal exercises are known.

Additionally, the less poisonous impacts of neem on regular adversaries makes it viable for incorporated both the board in trimming frameworks where normal foes are being stressed as a significant part of irritation the executives. Subsequently, the target of this study was to survey the field viability of neem seed bit concentrate and neem seed oil as an option for the administration of bug vermin of cotton in northern Ghana.

## MATERIALS AND STRATEGIES

The neem seed oil was created as follows; 1 Kg neem seeds were beat into a smooth glue and moved into a bowl for massaging. Working was done utilizing cold water. The utilization of the virus water is to forestall the disintegration of azadirachtin which is the dynamic fixing. Massaging went on until the oil began shaping on the outer layer of the glue. The oil was moved into various holders and the interaction rehashed until a significant part of the oil was separated from the glue. The neem seed oil was utilized to get ready watery arrangements of fixation 2% and 5% for field application.

Neem powder was ready by beating the dry neem seed in a mortar. The 5% w/v neem seed piece separate was

ready by dissolving 0.25 Kg neem seeds powder into 5L of water for the time being (24hours). The 10% w/v neem seed bit extricate was ready by dissolving 0.5Kg neem seed powder into 5L of water. The subsequent arrangements were stressed and applied on the field utilizing a 15L limit rucksack sprayer.

## TESTING OF BUG

Inspecting was done week by week when showering of the cotton plants with different medicines. Twenty (20) plants were tested along a slanting in each plot for the presence of the two irritations and regular foes of cotton. This was finished by noticing the leaves and stems of each plant for something like 10 minutes and counting the overflow of every bug nuisance or regular adversary.

## RESULTS AND CONVERSATION

Splashing with 5%NSO, 5%NSE and 10%NSE decreased the overflow to 6.32, 6.54 and 6.68 jassids per plant and these were not unique ( $P<0.05$ ) from the jassids overflow on the plots treated with Lamda cyhalothrin for the 2009 season. For a similar period, 2%NSO, 5%NSO, 5%NSKE and 10% NSKE fundamentally ( $P<0.05$ ) decreased the overflow of aphids to 4.89, 1.71, 2.29, and 3.71 individually. For the bollworm complex, their overflow on plots treated with 2%NSO, 5%NSO, 5%NSKE and 10% NSKE were 1.14, 1.14, 0.89, and 0.75 individually and these were altogether lower ( $P<0.05$ ) than 3.07 recorded on the untreated control plots. For cotton

sifters, 2%NSO, 5%NSO, 5%NSKE and 10% NSKE recorded overflows of 16.1, 18.3, 22.9 and 24.0 and these were unique ( $P<0.05$ ) from the numbers on the untreated control plots. Number of whiteflies per plant on 2%NSO, 5%NSO, 5%NSKE and 10% NSKE were 2.61, 2.96, 2.54 and 3.29 individually.

There was no distinction in the wealth of jassids and whiteflies on the plots treated with the different neem medicines and chlorpyrifos substituted with lamda cyhalothrin. Overflow of jassids and whiteflies on 2%NSO were 4.36 and 3.08 individually. On the 5%NSO the overflow of jassids and whiteflies were 2.92 and 2.75 individually while on the 5%NSKE their overflow were 3.67 and 3.19 separately.

The overflow of regular foes saw on plots treated with neem based biopesticides and untreated plots showed that these organic pesticides were less poisonous to advantageous insects (spiders, preying mantids and ladybird creepy crawlies), and may be viable with natural control presently stressed in helpful yields that frequently cover huge hectares. Khalid and Shad revealed that the less poisonous impacts of neem on advantageous arthropods could be because of the fleeting idea of azadirachtin.

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