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Effect of Karate 25Ec, neem seed aqueous extract and cigarette filter extract on the yield of Ife-Brown in Mubi, Adamawa State, Nigeria

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ABSTRACTS

Experiment was carried out in 2006 and 2007 cropping seasons at Adamawa State University, Mubi experimental farm. The experiment was to sort for safer, affordable, available control measure to cowpea (vigna ungniculate) pest for the poor resource farmers who are involved in the highest percentage production. The research was to investigate the effect of karate 25Ec, neem need aqueous extract and cigarette filter extract on the yield of Ife-brown in Mubi. Four chemicals karate 25Ec, neem seed aqueous extract, cigarette filter extract and the combination of the three chemicals were used. Control plots were laid down in series of similar experiment in a randomized complete block design (RCBD). Data were collected and analysed. The result in 2006 and 2007 showed that the combination of karate25Ec, neem seed aqueous extract and cigarette filter extract recorded the highest weight of 380.09g and 490.00 the control plot recorded the lowest weight of 165.16g and 162.15g respectively.

Key words: Cowpea, extract, karate25Ec, Chemicals.

INTRODUCTION

Cowpea *(Vigna unguiculata)* or beans as commonly called is indigenous to West Africa. Cowpea is a major staple food crop in sub-Saharan Africa, especially in the dry savanna regions of West Africa. The seeds are a major source of plant proteins and vitamins for man, feed for animals, and also a source of cash income. The young leaves and immature pods are eaten as vegetables [1]. Cowpea can be grown as a scale crop or in mixture with crops like groundnut, maize, guinea corn and millet [2]. Despite the importance of cowpea to the economic well being of man, the crop suffer set back to pest and diseases [3,4], hence distorted translocation and leaf formation as well as fruiting were affected.

Plant based insecticides (PBI) have been used for many centuries [5,6] among limited resource farmers in developing countries to control insect pests of both field crops and stored produce, but their potential was initially limited and ignored. Nicotine, rotenone and pyrethrum were popular among the PBIs used to some extent for storage pests control and other pests in green houses [7].Some of these plant species possess one or more useful properties such as repellency, anti feed ant, fast knock down, flushing action, biodegradability, broad-spectrum of activity and ability to reduce insect resistance [8].However, most of them are either weak insecticidally or may require other plant species with different mode of action (depending on the ratio and rate of application) to increase their potency [9]

Chemical control of cowpea pests and disease in the most effective of all measures, but these chemicals pose threat to the environment, and are costly to the poor farmers, toxic, persistence, non availability at the time of need, and are highly technical in their application [10]. However, most small-scale farmers do not adequately control insect pests and diseases because of the high cost of chemicals and labour [11].

These and many others reasons discourage their usage; hence necessitates the look for alternative measures. Therefore this work aims at sorting for safer, affordable, available control measures to cowpea pest for the poor resource farmers who are involved in the highest percentage production in this region.

MATERIALS AND METHODS

Field experiment were conducted during 2006 and 2007 cropping seasons at the experimental farm Department of Crop Science, Adamawa State University, Mubi, to investigate the effect of Karat 25Ec, Neem seed aqueous extracts and Cigarette filter extract on the yield of cowpea (Ife-brown).

Insecticides dilution and plant extracts preparation.

Karate 25Ec was bought from an agrochemical store in Mubi Central Market; 250ml of the insecticide was diluted in 5litres of distilled water, kept and ready for application. About 2kg of unripe neem seeds were collected within the University premises, using pestle and mortar, the seeds were pounded into paste which was soaked into 5 litres of distilled water, kept in the laboratory for 48 hrs the mixture were sieved using 0.5mm sieve into a container, ready for application.

Cigarettes filter extract preparation was done by placing 2kg of cigarette filter obtained from bars and hotels premises in Mubi metropolis. The cigarette filters were placed in a boiling pot containing distilled water and allowed to boil for 1on a hot plate. Using 0.5mm sieves, the boil Cigarette filters were sieve and allowed to cool ready for use.

Experimental design

Four chemicals Karate 25Ec, Neem seeds aqueous extracts, Cigarette filter extracts and the combination (Karate 25Ec + Neem seed extract + Cigarettes filter extracts) and control plots were laid out in series of similar experiment in a experiment in a Randomized Complete Block

Design (RCBD) and replicated five times. Plot size of 4m x 30 cm with 0.5 m space between plots and 1.0m between blocks (replicates) were used. The trial sites were plough and harrowed using tractor. The seed were sown at about 3 seed per hole spaced at 30cm. Weeds were control manually using hoe. Insecticides and plant extracts were applied at 4 weeks after sowing and at a two weeks interval twice.

Data collected

i. Number of flowers after 1st, 2nd 3rd sprayed. Flowers were taken 5 randomly selected plants after every sprayed operation. Mean number of flowers was recorded.
ii. Number of mature pods after 1st, 2nd and 3rd sprayed. Mean number of mature pods was then recorded.
iii. Grain weight (kg) per plot. At maturity a plot is harvested, threshed carefully, winnowed and the weight of the grains was recorded.
iv. 1600 seeds weight (kg) from each harvest plot, 1000 seeds were taken at random, weight with a weighing balance, and record in kg.

Data collected were subjected analysis of variance after which the least Significant Difference (LSD) was used to separate significantly different treatment means.

RESULTS AND DISCUSSION

Table 1:- Mean number of flowers, pods, weight of 1000 seeds and the total weight of Ife-brown per plot grown in Mubi; during 2006 cropping season.

Treatment	Number of flowers			Number of pods			Weight of 1000	Total grain
	Sprayed intervals			Sprayed intervals			Seeds/plot (g)	Weight per plot (g)
	1	2	3	1	2	3		
Karate 25Ec (A)	2.50 a	4.70 a	5.70 a	1.1 a 0	25.60 a	50.01 a	69.50 a	321.17 a
Neem seed extracts (B)	2.20 a	4.50 a	3.70 a	2.02 a	27.10 a	30.10 a	65.04 b	261.15 b
Cigarette filter (C)	3.50 b	4.00 a	5.00 a	0.50 a	21.10 ab	32.01 b	66.06 b	251.00 c
A + B + C	3.50 b	5.70 a	6.70 a	1.09 a	16.21 b	19.01 c	70.01 a	490.00 d
Control	2.00 a	3.00 b	3.70 b	2.70 b	15.21 c	17.12 c	59.30 c	162.15
LSD (0.05)	1.00	1.50	1.60	1.50	5.21	9.51	1.14	2.51
Cv (%)	8.15	9.05	10.10	11.16	7.52	19.17	18.15	17.00

Means in the same column followed by different letters are significantly different (P=0.05) according to LSD.

Table 1 & 2 shows that the mean numbers of flowers and mature pods after first, several and third sprayed, weight of 1000 seed per plot (g) at harvest and the total weight of harvested cowpea per plots (g) during the 2006 and 2007 cropping season.

During the 2006 cropping season (table 1) there was no significant different (P=0.05) in the number of mature pods after 1st sprayed and the weight of 1000 seeds/plot (g), but significant difference (P=0.05) exist in all the remaining parameters. There is significant difference

(P=0.05) when karate 25Ec was used to sprayed, as compared with cigarette filter extract (c) in all the intervals.

Table 2: Mean number of flower, pods, weight of 1000 seeds and the total weight of Ife-brown per plot grown in Mubi; during 2007 cropping season.

Treatment	Number of flowers			Number of pods			Weight of 1000	Total grain
	Sprayed intervals			Sprayed intervals			Seeds/plot (g)	Weight per plot (g)
	1	2	3	1	2	3		
Karate 25Ec (A)	2.50 ^{a}	4.70 ^{a}	5.70 ^{a}	1.1 ^{a} 0	25.60 ^{a}	50.01 ^{a}	69.50 ^{a}	321.17 ^{a}
Neem seed extracts (B)	2.20 ^{a}	4.50 ^{a}	3.70 ^{a}	2.02 ^{a}	27.10 ^{a}	30.10 ^{a}	65.04 ^{b}	261.15 ^{b}
Cigarette filter (C)	3.50 ^{b}	4.00 ^{a}	5.00 ^{a}	0.50 ^{a}	21.10 ^{ab}	32.01 ^{b}	66.06 ^{b}	251.00 ^{c}
A + B + C	3.50 ^{b}	5.70 ^{a}	6.70 ^{a}	1.09 ^{a}	16.21 ^{b}	19.01 ^{c}	70.01 ^{a}	490.00 ^{d}
Control	2.00 ^{a}	3.00 ^{b}	3.70 ^{b}	2.70 ^{b}	15.21 ^{c}	17.12 ^{c}	59.30 ^{c}	162.15
LSD (0.05)	1.00	1.50	1.60	1.50	5.21	9.51	1.14	2.51
Cv (%)	8.15	9.05	10.10	11.16	7.52	19.17	18.15	17.00

Means in the same column followed by different letters are significantly different (P=0.05) according to LSD.

Except after the first sprayed with the combinations [karate 25Ec + Neem seed extract + cigarette filter (A+B+C)] whence there was a significant different (P=0.05) in the numbers of flowers, there were significantly no difference in all the remaining parameters with karate 25Ec. At harvest the total grain weight per plot when treated with Neem seed extracts (B) and cigarette filter (C) are at par (P=0.05). Likewise treating cowpea field with karate 25Ec and the combination of Neem seeds extract and cigarette filter are at par (P=0.05).

The highest grain weight per plot of 380.09 g was recorded when the combination of karate 25Ec, cigarette filter, and Neem seeds extracts were used, follow by 314.77g, obtained from plot treated with karate 25Ec. The use of Neem seed extracts and cigarette filter results to 246.7g and 258.72 g respectively, there is much higher than 165.16 g obtained at the control.

Table 2 show similar trends with the highest total weight per plot (490.00g) when treated (sprayed) with the combination of karate 25Ec, Neem seed extracts and cigarette filter extracts. As usual all, the control treatment recorded the lowest total weight per plot (162.15 g). The weight of 1000 seeds/plot (g) treated with karate 25Ec and these treated with the combination of karate 25Ec, Neem seed extracts and cigarette filter extracts are at par (P=0.05). Also plots treated with only Neem seed extracts and cigarette filter extracts are at par (P=0.05). But the combinations of karate 25Ec, Neem seed extracts and cigarette filter extract recorded the highest weight of 70.01g and the control plot recorded the lowest of 59.30g.

CONCLUSION

The research has help, in finding out the effectiveness of karate25EC, neem seed extracts and cigarette filter on cowpea (Ife brown) production in Mubi. The result also showed that farmers should go for easier way of controlling insect pests on cowpea farms, by using cigarette filter extracts and neem seeds extracts, though commercial insecticides gives a better result but it is

very expensive and has adverse effect on both man and environment. These results would serve as a reference material for further studies in the area on *ife-brown* production.

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