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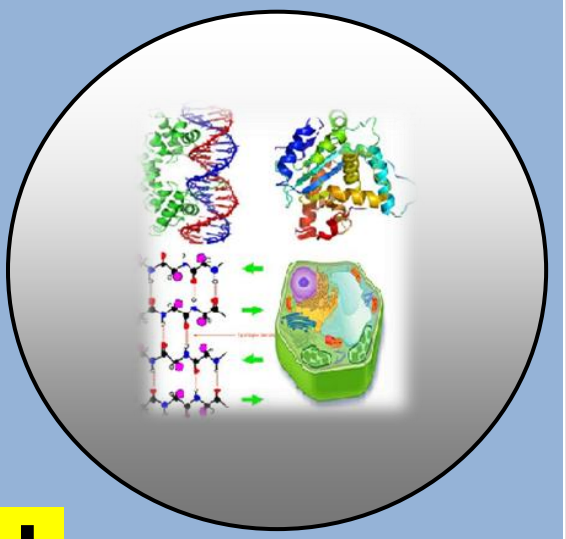

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Anti-Fly Larvae Using Safe Methods in Animal Manure

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ABSTRACT

The aim of this study finding safe methods to anti-fly larvae in animal manure at animal production farms, results showed that, the mean of mortality percentage to fly larvae in animal manure, were recorded (91.51 and 95.27%, 84.25, 94.37 and 91.82), after 30 days from treatment with Diazinon 60% EC, Vertimec 1.8% EC and Butox 5% EC (1ml/liter), Radiant 12% SC (4ml/L) and Quicklime, respectively, So biocides or safe better from chemical .Recommended the animal production farms, good ventilation with periodical removal of animal manure and renewal with straw substrates, and the use of safer on the husbandry soil are recommended in order to control of the immature stages of some external parasites, and control in the weakest phase of its development such as fly larvae and tick with safe use of pesticides on the environment and the least expensive.

Key words:* Butox, Diazinon, Fly Larvae, Quicklime, Vertimec, Radiant and Safe Environment.

INTRODUCTION

Flies are a group of insects that belong to one of the most species-rich orders, the order Diptera, suborder Cyclorrapha. The most important vectors of infectious diseases are members of this group. This fact explains their importance for human, animal, and communal hygiene. The problem becomes more severe as the number of these insects increases and the damage is veterinary or medical. This aspect of fly noxiousness is very obvious on stock farms, where, beside their vector role, they are the greatest molestants. While searching for a feeding place and a place for oviposition, flies disturb the anilmals, which leads to aggressive behavior, decrease of milk production, and poor growth and has a negative economic effect.

Besides this, the importance of flies stems from the fact that they often come in contact with pathogenic fungi, bacteria, and viruses, and therefore carry infectious diseases such as dysentery, anthrax, and different kinds of conjuctivitises. The vector role is especially significant in the case of bloodsucking flies such as *Stomoxys calcitrans*. For all the mentioned reasons, fly control is of great importance in animal production, but also in communal hygiene. Stock farms are very suitable habitats for flies because the microclimate is convenient for quick and abundant development. Large amounts of substrate for oviposition and larval development, as well as non persistent control measures, lead to greater abundance of these pests (Grabovac and Petrić, 2003). The house fly, Musca domestica (L) and the stable fly, Stomoxys calcitrans (L) are common pests of livestock farms. Both species develop in decomposing organic manure or other decaying organic matter, and both can cause substantial annoyance problems for the animals, farm operators, and neighbors during the fly season. Especially, the haematophagous stable fly can affect animal welfare and cause reduction in weight gain of beef cattle and milk production of dairy cattle when the animals remain unprotected (Berry et al., 1983; Bruce and Decker, 1958; Campbell et al., 1987). In North America, stable fly-related problems have been estimated to cost more than $100 million per year (Campbell, 1993). Although house flies have not directly been proven to reduce the performance of livestock animals, suppression of this fly species is necessary because of nuisance or public health problems (Chavasse et al., 1999; Iwasa et al., 1999; Pospischil, 1994; Thomas and Skoda, 1993). Insecticides provide the most common method of control but are becoming less effective. House fly populations have developed resistance to most insecticides currently in use (Keiding, 1999; Meyer et al., 1987; Pospischil et al., 1996) and resistance has also been reported for populations of stable fly (Cilek and Greene, 1994). Furthermore, the opinion among farm operators and the public concerning the use of pesticides is predominantly negative. Consequently, there is general interest among livestock producers, especially among organic producers, in non-chemical methods of fly control.

MATERIAL AND METHODS

The present study was conducted in the farm animals of the Faculty of Agriculture, Assiut University, during 2010 year. This farm consisted of about five feddans, including the buildings of animal- sheds and animal food storages. This farm contains buffaloes, cattle and sheep. The aim of study control of fly larvae's in animal manure with using five treatments (2 pesticides, 2 bio-pesticide and Quicklime).

Each pesticide was sprayed on five regions of manure contained flies larvae in farm animal and then compared with the control regions. The pesticides were: Diazinon60% EC, Vertimec1.8% EC, and Butox 5% EC at the concentration of 1cm/1liter water and the second region was treated by Radiant 12% EC 4cm/1liter water and Quicklime. The results were taken after 1, 3, 5, 7, 10, 15, 20, 25 and 30 days.

The percentage of reduction in the population density of fly larvae was computed according to the formula given by Henderson and Tilton (1955).

% Reduction = 1-[(C1/T1) × (T2/C2)] × 100

Where,

C1= pre-treatment population density in control habitat.

C2= post treatment population density in control habitat.

T1= pre-treatment population density in treated units.

T2= post treatment population density in treated units.

Data were analyzed using analyses of variance (MSTAT-C 1988) and means were separated using the least significant differences method (LSD) at 5% probability level (Steel and Torrie, 1984), only when a significant "F" test was obtained. The percentage of reduction was calculated by Henderson and Tilton (1955). All percent mortality data were arcsin transformed to suit the analysis.

The common names and chemical group of the pesticides used in the toxicological and control studies are:

1. Diazinon 15 % and 60% EC
Common name (diazinon)
Chemical group: Organophosphate
Used method: Spraying

2. Vertimec1.8% EC
Common name (abamectin)
Chemical group: macrocyclic lactone (avermectins)
Used method: Spraying

3. Radiant 12% SC
Common name (spinotrame)
Chemical group: Synthetic pyrethroid
Used method: Spraying

4. Butox 5%EC
Common name (deltamethrin)
Chemical group: Synthetic Pyrethroid
Used method: Spraying

5- Quicklime, more formally known as calcium oxide (CaO), is a caustic alkaline substance that is produced by heating limestone.

RESULTS AND DISCUSSION

Data in Table (1) and figure (1) represented the percentage of mortality for fly larvae in animal manure after one to 30 days after applications with Diazinon 60% EC, Vertimec 1.8% EC spray at 1cm/liter and Radiant 12% SC at 4cm/liter. Results showed that, the one day post treatment gave an initial kill of 93.85%, 89.28% and 82.14% when treated with Diazinon 60% EC, Vertimec1.8% EC and Radiant12% SC, respectively. The activity of the product increased gradually to attain 100%, 100% and 96.83% after 7 days, respectively. The activity of the product decreased gradually to attain 85.27%, 96.90% and 78.52% after 20 days, respectively. However after 30 days the percentage of mortality reduced to 79.22%, 84.41% and 69.48% for fly larvae in animal-manure, respectively.

The percentages of mortality for fly larvae in animal manure after one to 30 days after applications of Quicklime at dust and Butox 5% EC spray at 1cm/liter were presented (Table 1). Results showed that the one day post treatment gave an initial kill of 93.10% and 89.66% with Butox 5% EC and Quicklime. The activity of the product increased gradually to attain 100% after 7 days when used Butox 5%EC and Quicklime after so, the activity of the product decreased gradually to attain 89.44%n 91.44% after 20 days respectively. However, after 30 days the percentage of mortality reduced to be 83.83% and74.85% for fly larvae in animal- manures, respectively (Grabovac and Petrić, 2003 and Mehlhorn *et al*., 2010).

In general, Vertimec 1.8% EC showed the highest toxicity for fly larvae followed by Diazinon 60% EC Can be used as biocides or safe on the environment also, Quicklime is To make it, limestone (CaCO3) is broken up and shoveled into a kiln, which is heated to very high temperatures. The high temperatures release carbon dioxide (CO2) from the stone, can also be used to eliminate fly larvae this method is safe and effective. These results coincided with those obtained by (Abo Elmaged, 1998) he found that bio-pesticides have effect on fly larvae and their use are safe to the environment.

CONCLUSION

Generally must pay attention now safe pesticides on the environment and the least expensive to be used in the field of public health, and reduce the widespread use of chemicals and the need for rational use of pesticides. Non-chemical measures are the first choice, is the use of chemical intervention only when necessary. It should be based on the selection and use of various chemical and non-chemical methods of vector and pest control on their effectiveness, sustainability and cost effectiveness, (World Health Organization, 2006).

Table 1. Reduction ratio of fly larvae by using Diazinon 60% EC, Vertimec1.8 % EC and Butox 5% EC using (1ml/L), Radiant 12% SC using 4ml/L and Quicklime under field conditions in farm animals, Faculty of Agriculture, Assiut University during, 2010.

Days	Mean ±SE (%)				
	Diazinon 60% EC	**Vertimec 1.8% EC**	**Radiant 12%SC**	**Butox 5% EC**	**Quicklime**
1	93.85 ± 0.97 cd	89.28 ± 1.57 ef	82.14 ± 0.91 h-k	93.10 ± 0.88 de	89.66± 1.52 ef
3	96.36 ± 0.92 bc	96.36 ± 0.92 bc	86.36± 1.60 e-h	97.52 ± 1.46 bc	97.52± 1.46 bc
5	100.00 ±0 a	100.00 ± 00 a	90.82± 0.93 de	100.00± 0 a	100.00± 0 a
7	100.00 ± 0 a	100.00± 00 a	96.83 ± 1.62 b	100.00 ± 0 a	100.00± 0 a
10	100.00 ± 0 a	100.00 ± 00 a	98.57 ± 1.46 a	98.46± 1.57 ab	98.46 ± 0.78 b
15	87.97 ± 2.03 e-g	100.00 ± 00 a	84.21 ±1.33 g-j	94.96± 1.48 cd	92.44 ± 1.48 de
20	85.27± 2.09 f-i	96.90 ± 00.79 b	78.52± 0.93 k	91.44 ± 1.15 de	89.44 ± 1.24 ef
25	80.88 ± 0.75 i-k	90.44± 1.98 de	71.32 ±1.30 l	90.00 ± 1.18 ef	84.00± 1.18 f-h
30	79.22± 0.66 jk	84.41 ±1.14 f-j	69.48± 1.32 l	83.83 ± 1.06 f-h	74.85 ± 2.11 i-k
Mean	91.51 b	95.27 a	84.25 c	94.37 a	91.82 b

- Means followed by the same letter are insignificantly different

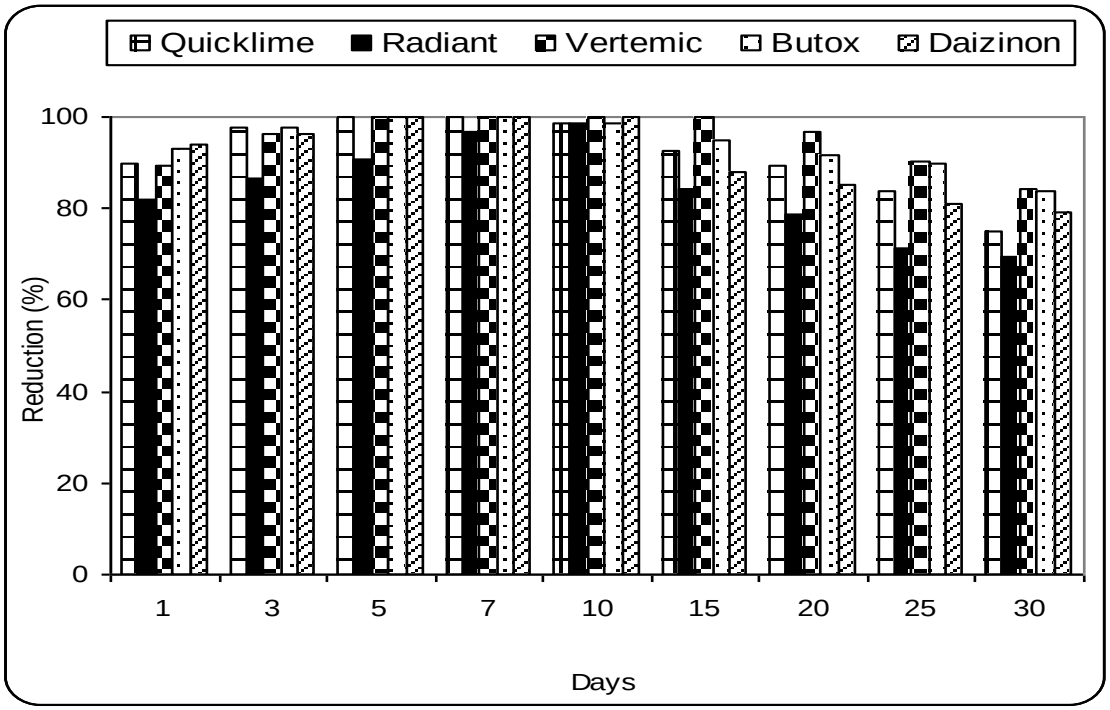

Fig. 1 Reduction ratios on fly larvae treated with Diazinon 60% EC, Vertimec1.8% EC and Butox5% EC (1ml/L), Radiant 12% SC 4ml/L and Quicklime under field conditions, farm animals, Faculty of Agriculture, Assiut University during, 2010.

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