

INSECTIGIDAL DUSTS TO CONTROL PESTS OF STORED PADDY

Stored paddy (in Kerala) is damaged by various types of insects among which the rice weevil *Sitophilus oryzae* L., the lesser grain borer *Rhizopertha dominica* B., and the grain moth *Sitotroga cerealella* Ol., are more important. All these insects bore into the grains destroying the internal contents and the loss brought about by them is often considerable. Mixing the grains with insecticidal dusts is a method by which stored paddy can be protected from insect infestations. One of the possible drawbacks of the use of insecticides in this way on stored grains is the poison hazard which it may cause to higher animals and human beings. But it is now known that there are many insecticides which if used cautiously can be advantageously employed in controlling storage pests. Materials found effective against storage pests when used as dusts include paddy husk charcoal (Narasimhan & Krishna Moorthi 1944) rhizome of *Acorus calamus* (Israel and Vedamurthi 1958), Kaolin, Eucalyptus wood ash (Darling 1947), pyrethrum powder (Beckley 1948), B. H. C. (Swaine 1952) and diatomite (Michelmores 1952):

In a test using the materials given in Table I paddy grain (of variety PTB 10) were mixed up with the materials in a seed mixing drum at the rates indicated in the table, packed in small gunny bags, labelled and arranged at random in a circle on the floor of the godown. Untreated lots of grains similarly packed served as control. Each treatment and control was replicated thrice. Paddy grains heavily infested with *S. cerealella*, *R. dominica*, *S. oryzae*, and *T.*

castaneum were placed in the middle of the circle as source of infestation.

Results were assessed by drawing samples of grains from each bag at monthly intervals for a period of 6 months and examining them for insect infestation. This was done by counting the number of grains damaged by the insects in 500 grains from each replication.

Results are given in Table I. Analysis of variance of the data has shown that all insecticidal treatments are significantly effective at 5% level in preventing insect damage.

Among the dusts silica gel is found to be significantly superior to all other treatments followed closely by BHG and lindane. These are followed in the descending order of effectiveness, by Kaolin, *A. calamus*, DDT, pyrethrum, maiathion and paddy husk charcoal. It may be mentioned that silica gel is an inert material and non-poisonous to higher animals. So it can be used with advantage in protecting stored paddy from insect infestation without any risk of poisoning hazard.

Reference

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TABLE 1

Insect damage in paddy grains under various treatments observed at different intervals after the treatments

Sl. No.	Insecticide and concentration	Quantity used per Kgm. of grain (g)	Percent damage at various intervals (months)					
			1	2	3	4	5	6
1	Pyrethrum 0.5%	2	0.40	1.00	1.40	2.13	2.53	2.66
2	D. D. T. 10%	2	0.46	1.33	1.60	1.86	2.26	2.53
3	B. H. G. 10%	2	0.34	0.93	1.00	1.73	1.86	2.00
4	Malathion 1%	2	0.46	1.40	1.80	2.53	3.00	3.06
5	Lindane 1%	2	0.40	1.06	1.33	1.93	2.06	2.06
6	<i>Acorus calamus</i> powder	10	0.58	1.66	1.86	2.26	2.33	2.53
7	Burnt paddy husk powder	10	0.46	1.46	2.46	3.06	3.13	3.26
8	Kaolin	10	0.34	0.86	1.13	2.06	2.33	2.46
9	Silica gel	10	0.20	0.60	0.73	0.80	0.86	0.86
10	Control	—	1.00	2.06	2.60	3.33	4.60	4.66

F test significant

G. D. at 5% level = 6.573

Based on their effectiveness the insecticidal dusts can be ranked as follows:—

T ₉	T ₃	T ₅	T ₈	T ₆	T ₂	T ₁	T ₄	T ₇	T ₁₀
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