

FIELD TRIALS ON THE EFFECTIVENESS OF TREATMENT OF HESSIAN WITH DDT FOR PACKING WOOLLENS

by

N. P. Rao

Defence Science Laboratory, Delhi

ABSTRACT

In the course of investigations on packing of woollen textiles in hessian impregnated with DDT, it was revealed that the treatment had a highly significant effect in killing all woolly bears passing through the treated fabric.

Introduction

The effect of DDT impregnation of sacks for the protection of stored cereals against insect infestation was studied in the UK by Parkin¹, and in this country, on impregnation of jute bags with lindane, by Pingale². In view of the promising results obtained by the use of such treated fabrics in the control of insect pests of foodstuffs, trials were undertaken to ascertain the utility of treated fabrics for packing woollens.

Trial

The incorporation of DDT (about 1% on weight of fabric) in hessian for the purpose of this trial was done in the batching oil stage during manufacture by the trade. Freshly disinfested woollens were packed and bundled in bales using DDT treated and untreated hessian for packing. Felt pannels heavily infested by woolly bears were placed in between the bales to provide the source of infestation. Subsequently large numbers of woolly bears were also put over the bales, and the trial lasted for 15 months.

Observations and analysis of data

It was observed that in the case of bales where hessian treated with DDT was used, only dead insects were found inside, larval and pupal skins were conspicuous by their absence, thereby indicating that the larvae died so quickly after passing through the DDT barrier that they had no chance of moulting. The experimental data in respect of the DDT treated hessian were analysed statistically. Contingency Tables with values of χ^2 are given in the Appendix.

Conclusion

The treatment of hessian with DDT (about 1% on weight of fabric) had a highly significant effect in killing all woolly bears passing through the treated fabric.

Acknowledgements

Grateful acknowledgements are due to COD Kanpur and ISSPO.

References

1. Parkin, E. A., *Ann. Appl. Biol.* **35**, 233, 1948.
2. Pingale S. V., *et al*, *J. Sci. Industr. Res.* **14B**, 6, 1955.

APPENDIX

OBSERVATIONS AFTER 3 MONTHS

The contingency tables with values of χ^2

		Live	Dead		
Adults	H ₀	23	4	27	$\chi^2=17.70$
	H ₁	0	9	9	
		23	13	36	(1 df)
Larvae	H ₀	38	6	44	$\chi^2=45.7$
	H ₁	0	26	26	
		38	32	70	
Combined (Adults & Larvae)	H ₀	61	10	71	$\chi^2=67.36$
	H ₁	0	35	35	
		61	45	106	

OBSERVATIONS AFTER 15 MONTHS

Adults	H ₀	48	2	50	$\chi^2=32.86$
	H ₁	0	6	6	
		48	8	56	(1 df)
Larvae	H ₀	10	4	14	$\chi^2=59.25$
	H ₁	0	84	84	
		10	88	98	(1 df)
Combined (Adults & Larvae)	H ₀	58	6	64	127.01
	H ₁	0	90	90	
		58	96	154	(1 df)