

THE ROLE OF ORGANO-PHOSPHORUS AND SYNTHETIC PYRETHROID
INSECTICIDES IN MOTHPROOFING

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ABSTRACT: Before the role of organophosphorus and synthetic pyrethroid insecticides in mothproofing can be defined, some thought must be given to defining a mothproofing. Mothproofing is a word that is difficult to define. However, for the purpose of discussing the role of these insecticides in mothproofing, we will consider mothproofing to be the ability of a treatment to prevent fabric-insect damage to woolen cloth or other keratinous materials.

About 75 organophosphorus compounds have been investigated as mothproofers at this laboratory. Ciba C-9491 (0-(2,5-dichloro-4-iodenphenyl) 0,0-dimethyl phosphorothioate) and Gardona (R) (2-chloro-1-(2,4,5-trichlorophenyl)=vinyl dimethyl phosphate) were promising in several areas. C-9491 was promising as a short-term protectant when applied during padding or when applied in the dry-cleaning process. Gardona showed promise as a protectant for woolens in storage when applied to washable woolens during rinsing. The cloth was protected for at least 5 years. Gardona has also been applied during drycleaning. Also, when Gardona was padded on finished piece goods, the fabric has been protected in storage for 3-1/2 years.

About 12 synthetic pyrethroid insecticides have been investigated for their mothproofing ability at this laboratory. The older pyrethroids such as allethrin, barthrin, and dimethrin showed some promise as short-term protectants. More extensive studies have been conducted with more recent synthetic pyrethroids such as tetramethrin and resmethrin. The latter insecticide has been especially promising. Woolen cloth sprayed with oil aerosol or aqueous pressurized sprays of resmethrin have been protected for as long as 2 years when stored in the dark. Resmethrin has also been applied during padding, and recent research has indicated that it may also be applied from a high-temperature acid dyebath.

Although none of the organophosphorus or synthetic pyrethroid insecticides have yet been registered or recommended for public use as mothproofers, it appears that both types of compound have a role in the protection of keratinous materials against insect damage.

Organizers' Note: No paper presented for publication.