IRB EFFICACY REVIEW

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FILE OR REG. NO. 40285-1

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DATA ACCESSION NO(S). 243732

PRODUCT MGR. NO. 16

PRODUCT NAME(S) DEGESCH PHOSTOXIN (R) NEW COATED TABLETS

COMPANY NAME Degesch America, Inc.

SUBMISSION PURPOSE Amendments to label

CHEMICAL & FORMULATION 55% aluminum phosphide fumigant pellets

Efficacy Review: DEGESCH PHOSTOXIN (R) NEW COATED TABLETS, 40285-1
Degesch America, Inc.
Weyers Cave, VA 24480

200.0 INTRODUCTION

200.1 Uses

A 55% (or more - see CSF, chemistry review) aluminum phosphide pellet to be used for grain fumigation or fumigation of burrows of the following rodent species: woodchucks, yellow-belly marmots, prairie dogs (except Utah prairie dog), Norway rats, roof rats, house mice, ground squirrels, moles, voles, gophers, and chipmunks.

200.2 Background Information

Registrant is in the process of updating the label for this product. In the latest submission, modified use directions and one efficacy study are included.

201.0 DATA SUMMARY

The efficacy study submitted was a report of trials involving the control of the California ground squirrel (Spermophilus beecheyi). Four treatment conditions were used: no treatment (check), U.S. Fish & Wildlife Service gas cartridges, single dose (two 3-g. tablets) of phostoxin pellets, and double dose (four 3-g. tablets) of phostoxin pellets. The authors (Salmon and Gorenzel) used visual observations of squirrels and the plugged-burrows methods of estimating rodent activity. Activity was reduced on all plots, both in core study areas and in "buffer areas" following the start of the treatment period. This observation once again illustrates the essentiality of using check plots in ground squirrel control studies. Visual observation data estimated 60% reduction in both the check area and in the gas cartridge area. Adjustment of the cartridge data for the control effects (reduction in check plot due to "natural" factors) resulted in an estimate of no effect of the product. In the Phostoxin plots, no squirrels were seen after treatment. Thus, reduction estimates were 100% whether adjusted or not. Visual observation data were limited by relatively low numbers of sightings.

Burrow counts before and after treatment produced higher total numbers of observations than did the visual surveys. Results 4 and 8 days after treatment are summarized below (plots were retreated 4 days after initial application):

Treatment Group	4 Days after 1st Treatment % Control, core (core + buff)		8 Days after 1st Treatment % control, core (core + buff)	
	Raw	Adjusted	Raw	Adjusted
Check area	62%(75%)	--	71%(78%)	--
Gas Cartridge area	95%(95%)	86%(80%)	92%(94%)	72%(72%)
One Dose Phostoxin	97%(93%)	93%(74%)	99%(97%)	97%(88%)
Two Doses Phostoxin	100%(98%)	100%(94%)	99%(96%)	98%(92%)

These data indicate that the Phostoxin treatments provided a substantial degree of ground squirrel control. They also demonstrate the "Cheshire cat" effect on control estimates when adjustments for trends in untreated

areas.

It is clear from the ground squirrel data reported here and from the earlier studies submitted on control of woodchucks and prairie dogs that this product is effective in controlling burrowing sciuromorphs. Since phosphine gas in one form or another kills millions of rodents annually, these results are not surprising. The critical factor affecting the success of Phostoxin treatments of burrows is the location and proper sealing of all openings. Consequently, little gain would be expected from asking for data for other species such as our infamous "public health" pests: Norway rats, roof rats, house mice.

In a review of 3/27/81, a previous efficacy reviewer made several recommendations for label use directions. Comments on the revised label appear under "CONCLUSIONS".

202.0 CONCLUSIONS

I have no objection to the approval of this label. The efficacy data submitted support the effectiveness of this product for the control of California ground squirrels. Together with studies submitted previously, these data suggest general effectiveness for the product in killing rodents in their burrow systems when applications are properly made and the systems are properly plugged.

On the right panel of the revised label, the top heading would be clearer if it were written "FOR CONTROL OF MOLES AND THE FOLLOWING BURROWING RODENTS:". This wording would also permit deletion of "Moles" in the list which follows the colon (:), thus removing the chance for any reader to get the impression that the registrant considers moles to be rodents.

The importance of the direction "Seal tightly by shoveling . . . crumpled newspaper" could be emphasized by underlining that sentence.

William W. Jacobs
Biologist
TSS/IRB
June 18, 1981