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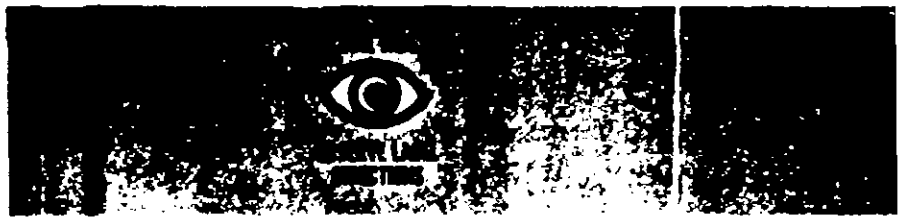

TECHNICAL BULLET

FOR THE USE OF
RABON® 97.3 ORAL LAR
IN CATTLE FEEDS

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RABON® ORAL LARVICIDE FOR USE IN CATTLE FEEDS

RABON® Oral Larvicide prevents the development of fly larvae in the manure of treated cattle. When used as directed, it will aid in the control of horn flies *(Haematobia irritans)*, face flies *(Musca autumnalis)*, house flies *(Musca domestica)*, and stable flies *(Stomoxys calcitrans)*, which breed in cattle manure. RABON Oral Larvicide can be used in complete feeds, concentrates, or protein and mineral supplements. RABON larvicidal rations may be fed to breeding cattle, lactating dairy cattle, or growing-finishing cattle, either in dry lot or on pasture.

DESCRIPTION

RABON is the registered trade name for 2-chloro-1-(2,4,5-trichlorophenyl) vinyl dimethyl phosphate. RABON Oral Larvicide is a specially prepared granulated material designed to provide optimum larvicidal activity in the manure. RABON 7.3 Oral Larvicide is available to the feed manufacturer for formulating larvicidal feeds.

ACTION

When fed to cattle, RABON Oral Larvicide passes through the digestive system into the animal's manure where it kills fly larvae on contact shortly after fly eggs hatch. By preventing larval development, RABON Oral Larvicide helps to control adult fly populations.

Manure from treated cattle will remain larvicidal up to six weeks; manure older than six weeks will not support fly development unless it becomes wet or contaminated with fresh manure.

TOXICOLOGY

The toxicology of RABON Oral Larvicide has been investigated in extensive field and laboratory studies in both domestic animals and wildlife. Cattle of both sexes, various ages and breeds, and maintained under a variety of management conditions, have been treated with many times the recommended dose and milk production, reproduction, growth, and feed efficiency were not adversely affected. RABON Oral Larvicide can be used in conjunction with other organophosphate insecticides or phenothiazine-derived compounds.

Animals will refuse to eat excessive amount of RABON Oral Larvicide. The only reaction observed when cattle and calves were fed 100 times the recommended dose was a reduction in feed consumption. Normal consumption resumed promptly when feeds containing proper levels of RABON Oral Larvicide were offered.

Care must be taken when feeding RABON Oral Larvicide to newborn calves. Adverse reactions in calves are not seen when RABON Oral Larvicide is fed in the grain portion of the diet, but intoxication can occur if excessive amounts are fed through the milk.

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Overdosing with this compound will result in only slight inhibition of the enzyme cholinesterase within the nervous system and at the neuromuscular junction. Intoxication can be reversed by the administration of atropine.

PALATABILITY

RABON Oral Larvicide is palatable to cattle when used as directed.

EFFECT ON THE ENVIRONMENT

RABON Oral Larvicide does not affect beneficial insects such as dung beetles or other insect predators that normally inhabit the manure. The manure from treated cattle may be used immediately as fertilizer. While RABON Oral Larvicide is not presently recommended for animals other than cattle, accidental consumption by other animals is not dangerous.

To prevent pollution of the environment, good sanitation practices should always be followed when disposing of animal wastes.

AREA-WIDE CONTROL

RABON Oral Larvicide prevents the development of horn flies, face flies, house flies, and stable flies in the manure of treated cattle but does not affect existing adult flies. Since flies tend to migrate from farm to farm, the use of a feed additive larvicide should be considered as only a part of the total fly control program. Periodic spraying of buildings or animals with other insecticides may be necessary in order to control invading adult flies.

FEEDING AND MANAGEMENT

Start feeding RABON Oral Larvicide early in the spring before flies begin to appear and continue feeding throughout the summer and into fall until cold weather restricts fly activity. The proper feeding period will vary with climate and should be determined by the emergence date of flies in previous years for your area.

Rations containing RABON Oral Larvicide may be fed up to slaughter and to lactating dairy cows without withholding the milk from market during or after treatment.

RABON Oral Larvicide should be used in conjunction with other good management and sanitation practices. All potential fly breeding material such as manure, old hay, and silage which contains overwintering fly pupae should be removed from the premises. Manure should not be allowed to accumulate around barns, fences, or under feed bunks during the fly breeding season. When starting a feeding program during the fly season, it is desirable to use other control measures to reduce the population of existing adult flies.

In some cases, supplemental fly control measures may be needed in and around dry lots, calf pens, and barns to control adult house flies and stable flies which can breed not only in cattle manure but in other decaying vegetable matter or silage on the premises.

RECOMMENDED FEEDING LEVEL

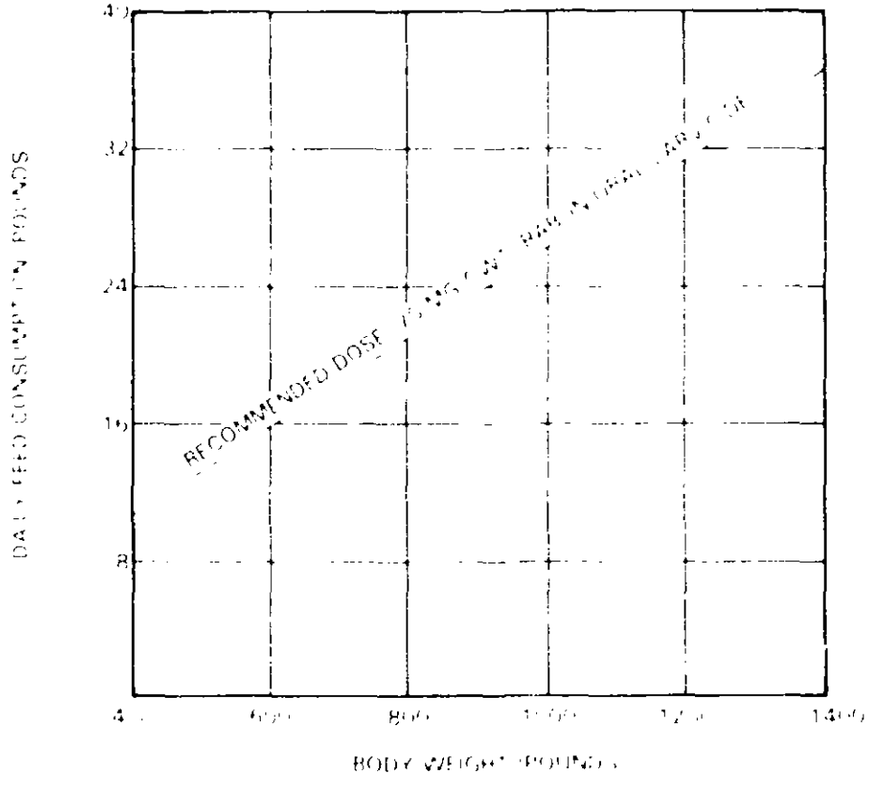
For effective fly control, it is important to insure that all cattle on the premises receive adequate levels of RABON Oral Larvicide on a daily basis. The recommended feeding level of RABON Oral Larvicide to cattle is 70 mg per 100 pounds of body weight daily. The amount of RABON Oral Larvicide consumed by individual animals on a daily basis may vary, but fly larvae control will not be affected.

A practical feeding regimen can be planned whereby a single feed can be fed to all animals within a like group. Examples are illustrated below.

Growing-Finishing Beef Cattle-A single complete feed containing 26.4 mg of RABON per pound of feed can be fed to all steers and/or heifers, weighing from 400 to 1400 pounds, within a group. As long as the daily feed consumption of the larvicidal feed approximates that shown in Figure 1, the cattle will be receiving the larvicide at an acceptable level.

FIGURE 1

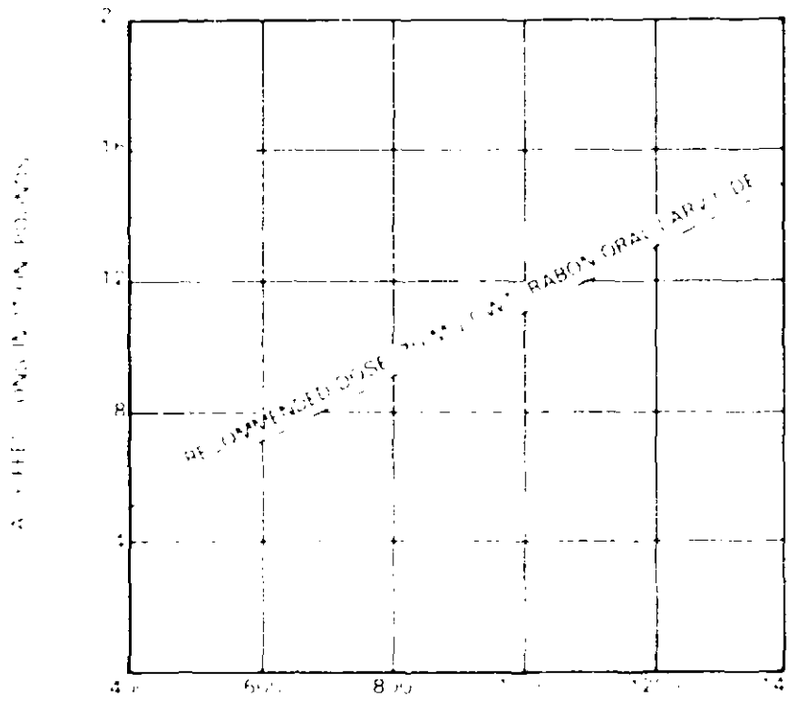
DAILY CONSUMPTION OF COMPLETE RATION CONTAINING 26.4 MG RABON PER POUND OF FEED REQUIRED FOR FLY LARVAE CONTROL



Lactating Dairy Cows-A single concentrate feed containing 66 mg RABON per pound of feed fed along with roughage can be fed to all lactating cows within the herd. As long as the daily feed consumption of the larvicidal feed approximates that shown in Figure 2, the cows will be receiving RABON at an acceptable level.

FIGURE 2

DAILY CONSUMPTION OF DAIRY FEED CONTAINING 66 MG RABON PER POUND OF FEED REQUIRED FOR FLY LARVAE CONTROL



Hand-Fed Beef or Dairy Cattle-A common practice in many cattle operations is to hand-feed a supplement at a given level per head daily. A single supplement which contains 792 mg RABON per pound of supplement and which is fed at the rate of 1 pound per head daily can be fed to cattle weighing between 400 and 1200 pounds. Cattle weighing between 1200-1700 pounds should be fed this supplement at the rate of 1½ pounds per head daily.

DIRECTIONS FOR MIXING LARVICIDAL FEEDS

RABON Oral Larvicide will mix uniformly in cattle feeds when good blending procedures are followed. Blending studies performed in typical feed mills indicated that mixer coefficients of variation of 2 to 8 percent can be achieved.

Directions for mixing various cattle feeds with RABON Oral Larvicide are given in Table 1.

Feeds prepared with RABON Oral Larvicide should not be pelleted, nor be mixed with feeds containing predominantly pellets. Further, RABON should not be mixed in liquid feed supplements. Additionally, the use of this product with medicated feeds requires the approval of the Food and Drug Administration.

TABLE 1 MIXING DIRECTIONS

FEED PRODUCT	DAILY FEEDING RATE	RABON IN SUPPLEMENT MG LB	RATIO SUPPLEMENT TO FEEDSTUFFS	USE LEVEL OF RABON IN FEED MG LB	LARV
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

120°F for extended periods of time. Under normal warehouse conditions, RABON 9[illegible] Oral Larvicide is stable for a minimum of 2 years.

RABON Oral Larvicide was mixed with several typical cattle rations. RABON was found to be stable in [illegible] for up to 3 months, in complete feeds for up to 6 months, in protein supplements [illegible] up to 1 year in mineral mixtures when all were stored under normal conditions. Storage of feedstuffs containing RABON Oral Larvicide at elevated temperatures (over 100°F) for [illegible] has a detrimental effect on the stability of RABON; therefore, complete feeds and protein supplements stored under such conditions should be fed within 4-6 weeks of manufacture.

ANALYTICAL METHODS

Sampling procedures, analytical procedures, and standards used for determining RABON Oral Larvicide in various feed products are available upon request from Shell Chemical Company, Agricultural Division. Over the past 12-14 months several independent testing laboratories have successfully analyzed feedstuffs containing RABON Oral Larvicide. The Directory of the American Council of Independent Laboratories, Inc. [illegible] laboratories which [illegible] RABON products.

KEEP OUT OF REACH OF CHILDREN
CAUTION

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
CAUTION

Harmful if swallowed. Avoid contact with skin and eyes. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating or smoking. If in eyes, wash with plenty of water for 15 minutes. If irritation persists, see a physician.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Keep out of lakes, streams or ponds. Do not contaminate water by cleaning of equipment or disposal of wastes.

NOTES