

# Effectiveness of DDT Against Flies in Livestock Barns

By  
J. A. MUNRO<sup>1</sup>  
KENNETH REDMAN<sup>2</sup>  
J. H. LONGWELL<sup>3</sup>

**T**ESTS conducted by the North Dakota Agricultural Experiment Station at Fargo with DDT<sup>1</sup> during 1944 produced encouraging results. A single application of DDT was applied either as a dust or wet spray to all livestock buildings on the experiment station grounds. Detailed observations were made however, on only the dairy and hog barns.

A dusting mixture, composed of 10 percent DDT with pyrophyllite as the carrier, was applied in the dairy barn about 3 p.m. on July 25 by means of a hand duster, directly after the cattle had been brought in from out-of-doors. Immediately prior to application the floors were swept clean and most of the windows closed. Within 15 to 20 minutes after the dust was applied the flies were observed dropping to the floor and by 4 p.m., which was milking time, the cows could be milked without the need of applying a fly spray such as had been required on preceding days.

The number of flies killed approximated 3 to 4 per square foot of floor surface for the first day after the dusting, but rapidly diminished thereafter. On the third day following the treatment the herdsman found it necessary to resume the application of a fly-spray in an effort to get rid of the flies at milking time.

## More Lasting Effect From DDT Spray

For the spraying experiment, the spray used consisted of 1 pint of a 25 percent DDT self-emulsifying concentrate in 20 gallons of water to which .28 pounds of copper sul-

phate (blue vitriol) was added for its possible fungicidal effect. The spray was applied by means of a power sprayer to the interior of a hog barn on August 10 on the livestock grounds of the experiment station. Spray pressure was maintained at 125 to 150 pounds. Approximately 30 gallons of the spray was required to dampen the ceiling and walls of the interior of this building. Several small doors along the side of the building, leading to the hog lots outside, were allowed to remain open continuously to permit the hogs ready access; these openings also permitted the flies to drift in or out at will.

Shortly after the application of the spray, flies began falling to the floor and in 24 hours the number averaged 45 dead flies per square foot of floor surface. During four days of the week following, August 15 to 18 inclusive, the average number of dead flies accumulating on the floor for each day was 13, 14, 2, and 27 respectively. The death rate of flies was higher on warm days when fly activity was greatest. For the four weeks following, observations covering 24 hour periods made at weekly intervals, showed an average of 26, 16,

<sup>1</sup>Entomologist

<sup>2</sup>Acting Assistant Entomologist

<sup>3</sup>Chief, Division of Animal Industry



Figure 1. Typical view of flies on the forelegs of a cow.

18, and 28 dead flies respectively per square foot of floor surface. These observations were discontinued September 15th as the fly season was then nearly over.

Throughout the season the herdsman at the hog barn operated a large size standard cone-type screen fly trap. He reported that when the DDT application was made, the catch of flies in the fly trap dropped off abruptly. Previous to the DDT application, the fly trap had become  $\frac{1}{4}$  to  $\frac{1}{2}$  full of flies and required emptying each week, but from the time of applying the DDT (August 10th) to the end of the fly season in September, the total amount of flies captured by it approximated only  $\frac{1}{4}$  trapfull and did not justify a single emptying.

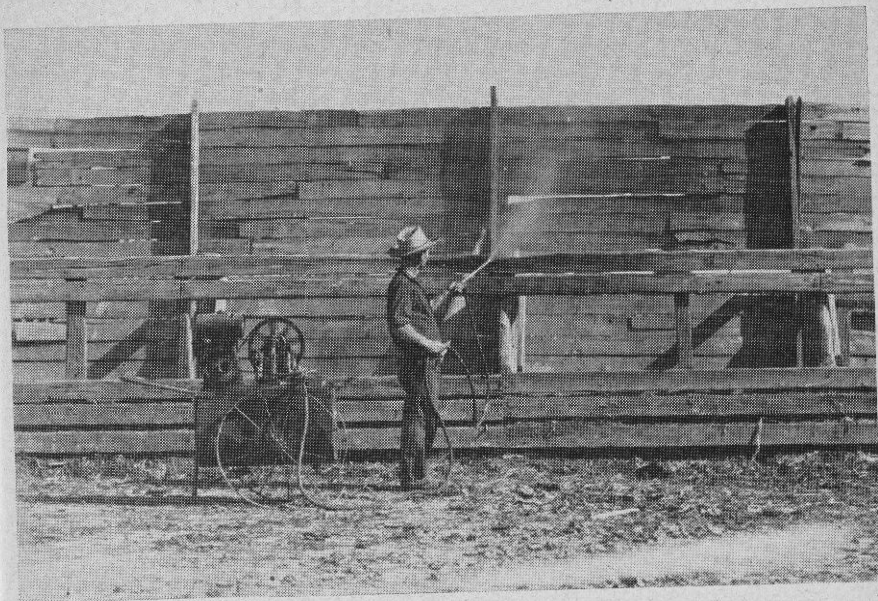
While detailed notes were not taken on other buildings treated, an occasional inspection of them indicated practically the same results being obtained as in the dairy and hog barns. Heaviest kills were being obtained in the buildings

which allowed the flies ready access.

Stable flies comprised  $17\frac{1}{2}$  percent of the flies killed, with the balance houseflies, according to identification of a sample submitted to Mr. C. F. W. Muesebeck, in charge, Division of Insect Identification, U.S. Bureau of Entomology and Plant Quarantine. The flies were determined by Mr. M. T. James.

Prior to applying the spray in the hog barn the herdsman called attention to raw patches behind the ears of the hogs, which were apparently caused by the stablefly. Within a week after the application of the spray the injured areas had formed scabs and were healing over, and no further injury of this nature was noticed throughout the balance of the season.

The outstanding advantages of DDT for use in livestock barns against flies would appear to be (1) its convenience of application and (2) its lethal action on blood sucking species, such as the stable-



The inner walls of the paddocks were also sprayed with DDT.

fly, which will not normally enter a fly trap. As all supplies of DDT, except limited quantities for research, are required by the military it is unlikely that this insecticide will be available for civilian needs for some time to come.

The 10 percent DDT pyrophyllite dusting mixture was furnished for testing by Merck & Co., Inc., Rahway, N.J. and the 25 percent DDT self-emulsifying spray concentrate by McConnon & Co. Inc., Winona, Minnesota.

**Canada thistle seed** will maintain its viability for 5 years. In experiments it has germinated after 20 years. The seed varies in germination, may run 30 percent or less. (M. K. Bellue in Volume XXXIV, Number 1, State of California, Department of Agriculture Bulletin.)