

INSECT INFESTATION IN WESTERN CANADIAN GRAIN LOADED IN RAILWAY CARS AT PRIMARY ELEVATORS

by
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Introduction

During the storage and transport of cereal grains, pest control procedures are applied at as many points as possible in the system to eliminate insect populations. Grain exported from Canada must be substantially free of any live insects. Measurements of insect populations have been made in a terminal elevator (Smith and Loschiavo 1979) and in railway boxcars (Loschiavo 1974). Sampling of farm granaries has also been conducted (Liscombe and Watters 1962). Some of these measurements were based on too small a sample to give a reliable estimate of the population. Therefore, a programme was begun to re-assess some of these measurements. The estimate of infestation of grain loaded on boxcars was selected as one that needed to be reassessed with a different method. The method and the results obtained by using it are reported in this paper.

Method

Five primary elevators within an area 50 km south and west of Winnipeg, Manitoba, were chosen for sampling once a month from the beginning of summer until the grain shipments declined in the cold weather. The objective was to sample grain being loaded into 4 railway cars at each elevator each month. Sometimes this was not possible because not enough cars were loaded at the elevators that month.

To collect the sample, a grain scoop holding 100 g of wheat was drawn through the stream of grain as it dropped from an elevator bin into the scale hopper which held about 1.4 t (50 bu) of wheat. In 1977, a sample of 1 kg (1600 cc) of grain was collected from each hopper of grain; in 1978, 2 samples of 500 g (800 cc) from each hopper of grain, in an attempt to improve the accuracy of the estimate. About 35 samples were collected at random from the grain loaded into a boxcar; about 65 samples were collected from hopper cars. Samples were taken from 103 boxcars and 22 hopper cars in 1977 and 113 boxcars and 23 hopper cars in 1978. The amount of grain in a boxcar, averaged 52 t (114,000 lb) and ranged from 36 to 71 tonnes (79,470 to 156,000 lb). Hopper cars held an average of 84 t (185,000 lb) of grain and ranged from 74 to 92 t (162,000 lb to 202,400 lb).