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A TRIAL ON THE USE OF EC02FUME IN A WHEAT SILO IN VIETNAM

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ABSTRACT

The silo chosen for the demonstration was located at the Binh Dong Flour Company mill in District 6 of Ho Chi Minh City, Vietnam, 12km from the city center. The bin was situated in a position sheltered from winds and ambient temperatures during the fumigation were around 28°C to 30°C. The bin held 1,100 metric tons of wheat that had been in storage for about a month. It was not fully loaded and since some grain had been removed, the upper surface was funnel-shaped and reached 6m from the silo top. Grain temperature was 34°C. Dimensions were: 9.1 m diameter, 23m height. The height of the upper conical funnel of the grain was 2.6m. The silo was flat bottomed with seven separate grain outlets distributed evenly around the base. The diameter of each outlet was 20 cm, and they merged into one large duct that discharged into a transporting bell. Of the seven outlets, the central one only was not equipped with a closing/opening valve, so that grain always filled the space inside the duct. The silo walls were made of bolted sheets carefully sealed to provide a gas-tightness that was deemed sufficient. There was no ventilation at the top of the silo, and the gap between top of silo and the silo wall was very small. Furthermore there was no ventilation system at the bottom of silo. After the Eco2fume treatment had been completed, analysis of the results of two insect samples was undertaken. One sample was taken within the grain mass at a depth of 40 cm from the top, and the other was taken from the grain surface. The following results were obtained: The sample on the grain surface contained four insect species: *Tribolium castaneum*, *Sitophilus sp.*, *Rhyzopertha dominica* and *Ahasverus advena*. The *Sitophilus sp.* and *Tribolium castaneum* were completely controlled whereas *Rhyzopertha dominica* and *Ahasverus advena* were mainly alive. The sample withdrawn from the grain mass contained five species, among which *Alphitobius sp.*, *Tribolium castaneum* and *Sitophilus sp.* were all dead while, as before, *Rhyzopertha dominica* and *Ahasverus advena* were mainly alive.