

CARBON DIOXIDE FUMIGATION TRIALS IN INDIA

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Carbon dioxide (CO₂) fumigation trials were conducted, for the first time in India, on two stacks of milled rice (moisture content 12.2 and 12.6%) in jute bags, containing 126 and 147 tonnes, and in a silo filled with 2200 metric tonnes of wheat (moisture 9.9%) in the Food Corporation of India storage complex at Borivilli, Bombay. The first stack had a 0.2 mm reinforced PVC cover and was treated at a rate of 2.4 kg CO₂/tonne. The initial top concentration of 76% CO₂ declined to 48% on the 15th day, whereas, the second stack covered with 0.15 mm plain PVC cover and dosed at 2.5 kg/tonne, the top concentration was reduced from 82% to 76%. Complete mortality of all stages of *Oryzaephilus surinamensis* (L.), *Ephestia cautella* (Walker) and *Cryptolestes* sp. was achieved.

The 3800 m³ silo did not pass the conventional pressure decay test. Nevertheless, at 1.84 kg/m³ dosage the final CO₂ concentrations at the bottom, grain surface level and at the extreme headspace were 78, 28 and 2% respectively after 15 days.