

## QUALITY CONSERVATION OF PADDY STORED UNDER GAS-TIGHT SEAL OUTDOORS IN THE PHILIPPINES

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Paddy stacks of capacities ranging from 13.4 to 31.9 tons were stored in flexible enclosures, outdoors for a duration of 78 to 183 days. Quality of the paddy was compared with that of three control stacks (5.3-5.6 tons capacity) held under tarpaulins in the open for 78-117 days. The trials were conducted at the NAPHIRE compound, Nueva Ecija, the Philippines.

The enclosures consisted of heavy-duty PVC based sheeting sufficiently gas-tight to control insect infestations. They were designed in Israel for stacked bag storage ("Volcani cubes") and weld-mesh supported silos in which the paddy was stored in bulk. The upper layers of both storage systems were covered with a layer of rice hulls aimed at reducing temperature gradients, while plastic sheeting placed between this insulating layer and the grain, served to prevent moisture transfer to the top grain layer. Moisture content, grain temperature and gas concentrations were measured throughout the trials.

Initial and final samples were taken to determine changes in paddy quality, insect infestation, fungal infection, milling recovery, head rice, yellow kernels, brokens, germination and weight loss were analyzed.

Percent milling recovery and levels of yellowing in the gas tight stacks showed no significant change.

The levels of head rice and brokens were preserved in 7 out of 9 stacks. A decrease in percent of head rice in two stacks was attributed to the biological aging phenomenon. The two control stacks showed decrease in head rice and increase in brokens. Rice yellowing was very pronounced in one of the control stacks.