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## Preliminary studies on the holding of live mussels after harvest

W. G. Yap and C. F. Orano

Green mussel *Perna viridis*, ranging in size from 37 to 71 mm and averaging 60 mm were harvested to study the applicability of chilling to keep mussels alive for a longer period and to review the existing methods of packaging and transport. The mussels were declustered by hand with the byssus left intact, washed and packed using three methods: (1) traditional way using sacks; (2) styrofoam box ; (3) styrofoam box with two kg block of ice inside a metal tray intended to catch the water from the melting ice so as not to drip on the mussels. Three replicates were made for each treatment with 100 mussels per replicate.

No difference was observed in the mortality rates between mussels packed in sacks or in styrofoam boxes with no ice. In both methods, more than half of the mussels were dead after 36 hours, and no survivors were noted after three days. The chilled mussels were observed to last for three days without a single mortality (Fig. 1). This is similar to results obtained by Guevarra, *et al.*, as reported by Legaspi (1979). The first mortality was observed only on the 84th hour. By the fourth day less than 10% of the chilled mussels were dead. On the sixth day, an average of 60% was still alive. Mortality rate drastically increased on the sixth day with no survival beyond the seventh day. Temperature inside the box ranged from 6<sup>o</sup>–9<sup>o</sup>C.

Although the data available from these preliminary studies are limited, results indicate the effectivity of keeping mussels alive for as long as four days with minimal mortality rates. This guarantees a transport time of as long as 48 hours with another two days to spare for selling the mussels.

Deterioration of dead mussels was observed to be very rapid. In spite of the 12 hour interval in opening the sacks and removal of the dead mussels, they still exuded a fetid odor. Drippings from the mussels also accumulated in the sacks and contaminated the others.

Presently, mussel marketing depends on the proximity of the market and the availability of direct and reliable transportation. In the case of Sapijan Bay gatherers they usually pack their mussels in sacks containing 40–60 kg. Mussels from Batan Bay are also packed in bamboo crates containing 150 kg. Mussels are normally packed in clusters. These are then declustered, sorted,

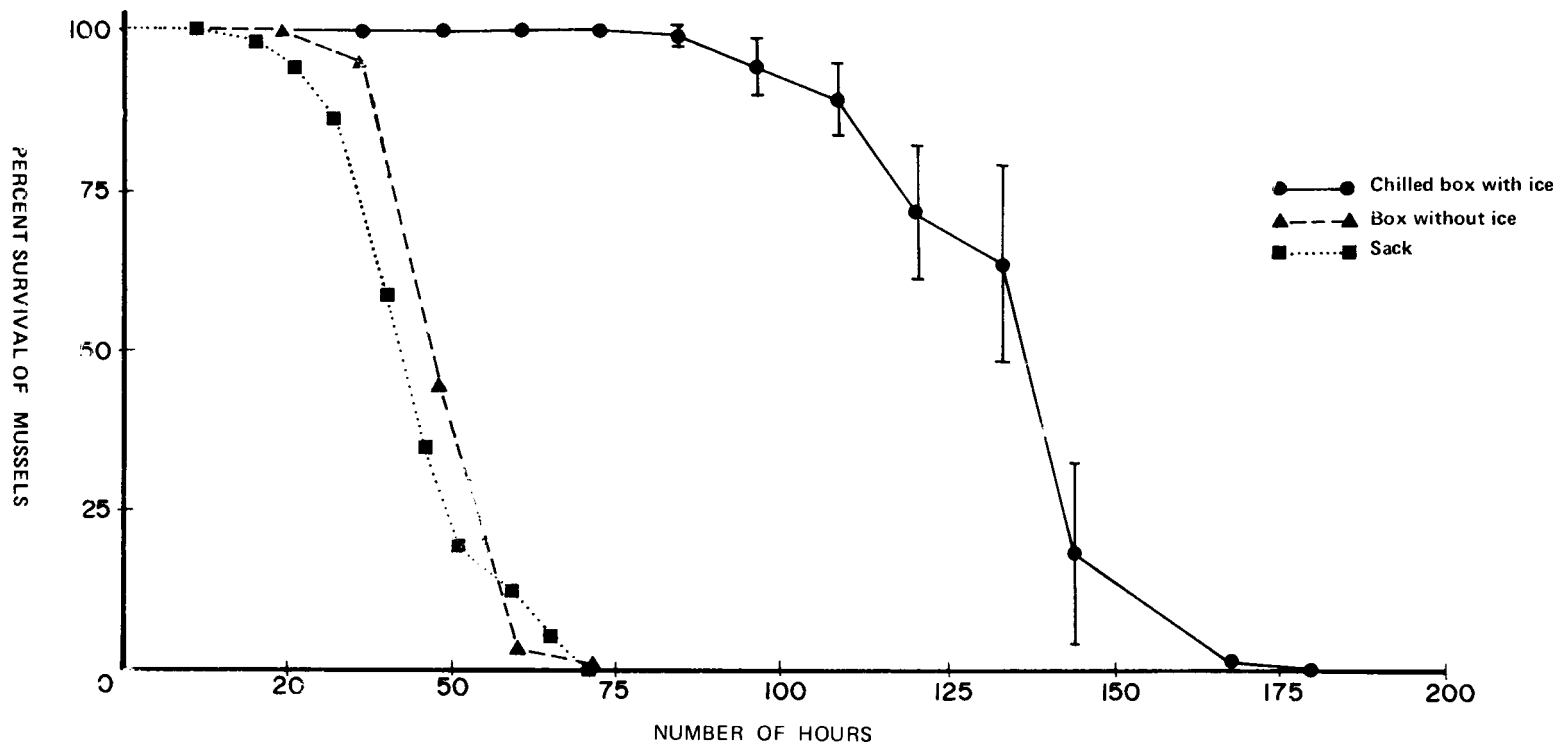


Figure 1. Survival of mussels out of water using three different methods of packing.

and washed upon arrival in Manila or other markets. This method reportedly results in better survival compared to declustering before packing and transport. Some growers also maintain holding facilities for live mussels consisting of a floating net cage moored in the shallow subtidal area of Manila Bay or concrete tanks with aeration facilities.

While mussels held in cages or tanks may have higher survival rates upon arrival in Manila, it is also probable that its condition index would decrease due to spawning. It has been observed in the green mussel that spawning is induced once mussels are taken out of water for some time and immersed again. Once spawning takes place, there is a loss of gonadal material with subsequent decrease in flesh weight (Dare and Edwards, 1975). Once spent, the palatability and nutritional value of the mussels are also affected.

On the other hand, survival is not a guarantee that the quality of mussels are preserved. As in the case of the New Zealand green mussel, *P. canaliculus*, detectable loss in quality still occurs after three days out of water and chilled between 5°C–7°C under high humidity conditions and alive for 7 days. Without chilling, quality is affected after 24 hours exposure to air.

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