

Mechanized Harvests:

In an article in the August 2000 issue of the Global Aquaculture Advocate, Les Hodgson (owner of Marco Sales, a shrimp importer/processor), Kieth Gregg (pond manager at Harlingen Shrimp Farms) and Robins McIntosh (former farm manager at Belize Aquaculture) discussed mechanized shrimp harvests. Some excerpts:

There are several types of mechanical harvesting systems, including Archimedes screw systems, reciprocating vacuum/pressure pumps, and recessed impeller pumps. The screw system has many advocates because it's simple and easily repaired on the

farm.

It requires only a small electric motor because it's designed to elevate shrimp, not water. Pump harvesters require larger motors to move water and shrimp, but the water-moving capability can be a useful tool. Our experience has been with recessed impeller pumps, so we will focus on them. Recessed impeller pumps create a water current that lifts the shrimp to a the de-watering tower without the impeller blade ever touching the shrimp. These pumps have been used for for moving tomatoes, live trout and juvenile shrimp. Recessed impeller pumps are hydraulically driven by a separate electric, diesel, or gas-powered motor. The pumps are available in submersible and non-submersible designs. The non-submersible design tends to lose its prime periodically, which can be problematic during peak harvest periods, so in Texas and Belize, we use the submersible design.

We prefer to discharge shrimp from the de-watering tower directly into 1-cubic-meter insulated boxes containing an ice slurry . We prefer boxes without drainage plugs due to the danger of unintentional draining, which can result in spoilage if the product is stored in boxes for several days.

To minimize the number of workers needed during harvest, boxes are pre-filled with about 21 inches (53 cm) of ice slurry. Slush ice is ideal for this purpose. Another option is to pass block ice through a flaking machine and then add water to create a slurry. If bacteria are a problem, chlorine can be added to the ice slurry at low levels. For the European market, sodium bisulfite is added prevent black spots.

Mechanical harvesting systems reduce labor requirements for pond harvesting by at least 50%. For example, Harlingen Shrimp Farms utilizes six people to harvest ponds that yield up to 40 tons. This includes a supervisor, two workers for the pallet jack, a forklift operator, and two workers operating the harvest machine.

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