

# Limestone Springs Fishing For Business

BY LISA RISSER

**RICHLAND (Lebanon Co.)** — Tucked into a seven-acre nook between the Millardsville Quarry Lake and the Tulpehocken Stream is the kind of place of which every fisherman dreams. A place where the trout are always biting, and there is plenty of fish for everyone.

Unlike most farming operations, Limestone Springs raises not livestock or crops, but fish. Rainbow, brown, and brook trout and coho salmon are produced to stock ponds or rivers, sell to markets or distributors, and offer good fishing for sportsmen.

Of the 665,000 pounds of fish produced annually, more than half are processed for commercial sale, a quarter goes for live stocking of ponds, with the remainder going for fee fishing.

Limestone Springs, which began in the late 1950s as a family-owned operation, was purchased in '79, after sitting idle for about a year, by a New Jersey power company. The company, interested in aquaculture, operated it in conjunction with a property in Newark, N.J. Several years later, the Richland-based operation was sold to former employees including Richard Colantano, president, and Jack Kiely, vice president.

## Raising fish

The farming cycle begins with a shipment of "eyed eggs," which are fertilized and have begun development. A freshly fertilized fish egg is called a green egg.

"We tried to harvest our own eggs for a year," said Renee Swank, vice president of operations. "We found the process too

time consuming for the volume of eyed eggs that we need."

The process also was a bit too fragile for the company. Once the eggs are fertilized, they must sit in incubating trays through which water flows, and they must remain untouched until they eye or else the eggs die. The average time it takes to eye is about 16 days. Hatching occurs anywhere from 19 to 80 days depending on the water's temperature.

Limestone Springs requires five shipments of 700,000 eyed eggs per year. "We need about 1.2 million green eggs to get the eyed eggs that we need," reported Swank.

## Hatching small fry

Once the eggs hatch, the half-inch fry (small fish) are kept in the hatch house, which has about eight raceways, until they double or triple in size. Called fingerlings at this size, the young fish are moved outside to a series of staggered raceways.

"We have to keep the fish separated by size because fish are cannibalistic; the big ones eat small ones," said Swank. "Sometimes you'll see a couple very big fish in a raceway, which means they were missed when the other fish were moved and a young group was moved in."

Fish-eating birds such as blue herons are a problem for the farm. Swank estimates that up to 33 percent of the small fingerlings are lost due to hungry birds. Firecrackers and electric wire, similar to that used to contain livestock, help to keep birds away.

Trout are kept for about a year, or until they are 11 to 15 inches in

length. The smaller fish measuring 11½ to 12 inches are used mainly for stocking, although the firm will stock any size fish that the customer requests. Twelve- to 13-inch trout are generally put into the property's man-made stream for fee fishing. The largest fish are used for processing with the biggest generally being sold whole



## A rainbow trout

instead of filleted for use in restaurants.

The youngest fish, those up to four inches in length, are fed a commercial feed with 55 percent protein and 15 percent fat. For older fish, the protein amount is reduced to 38 percent, while the fat content is reduced to 12 percent. Some of the feedstuffs included in the pelletized feed include fish meal, corn distillers, cereal food fines, soybean meal, brewers dried yeast, blood meal, kelp, and assorted minerals and vitamins.

Mature fish eat about one percent of their body weight, while the percentage is larger for smaller fish. "The fish eat more during warmer weather," said Swank. "In the winter, they go into a dormant period. They're almost like a bear that hibernates."

The fish in the outside pens are fed with demand feeders suspended above the water. The fish learn to hit a wire, which moves a disc inside the feeder that allows a small amount of pellets to drop at a time. Amounts are kept small because the trout aren't bottom feeders like catfish and will only eat feed as it falls through the water.

## Quarry lake provides water

The farm is located in an almost ideal place for a fish hatchery. The nearby 27-acre quarry lake provides much of the water necessary for operation. Via a gravity system, water flows to a pumping station where it is sent to the various raceways. Water is forced through the pens at up to 400 gallons per minute to supply oxygen. Additional oxygen is provided by floor- or side-mounted air jets.

"We bring in water at saturation (the natural amount of oxygen in the water) and super saturate it by injecting oxygen," explained Swank. "This gives us the capability of increasing our carrying capacity by 10 times the normal rate."

The additional oxygen also helps during feeding time when the fish are using up a lot of energy. The hungry fish almost go into a frenzy of activity.

Water temperature is important for the fish's growth. The optimum temperature for growth is 55 to 58 degrees Fahrenheit.

"An 11- or 11½ -inch fish can be



Renee Swank, vice president of operations, displays a mature trout. Adults are kept for processing or for stocking the firm's on-site fishing stream.

raised in 13 months or 16 months," stated Swank. "The warmer it is the faster they grow. Our water temperatures fluctuate between 42 and 63 degrees because we get it straight from the lake."

## Fish shipped out of state

The fish are shipped to New York, New Jersey, Virginia, and throughout Pennsylvania. Limestone Springs does most of the trucking because they will only guarantee those they have shipped. The trucks have individual tanks into which up to 250 pounds of fish are loaded. Oxygen is pumped into the tanks to keep the fish alive. The trucks carry a 16-hour oxygen supply.

Some people question whether the stocking fish, kept in near-ideal conditions, will live in their new homes. "It takes a day at the most for the fish to reacclimate," Swank said. "The hemoglobins go through a change that allows the

fish to live in water containing fewer parts per million of oxygen."

The farm has been experimenting lately with other varieties of fish. Presently they have some coho salmon, which fetches a higher price per pound than trout. In addition, Limestone Springs is looking for a location in the area with a good water flow so that they can expand their operation. The new location may be used for egg producing or to raise salmon.

The fish that are sold to stores and distributors are processed in a former Hershey creamery in Myerstown. The fish are gutted, bled and filleted soon after being killed. Hours later the fish, packed in ice, are trucked to stores, distributors, and restaurants. Because consumers are concerned with nitrate levels and other pollutant, Limestone Springs advertises their fish as farm produced.



About 385,000 pounds of fish are processed by the firm. Within hours of being killed, the trout are on their way to area restaurants and markets. Here workers debone and fillet trout. During off season the work is done by hand rather than by machines.

# Homestead Notes



In order to eat, fish in raceways pull on a string suspended from a plastic feeder, which causes several pellets at a time to fall. The feeders are filled in the morning and a "feeding frenzy" occurs causing the water to ripple as fish jump to the surface.