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Kentucky Fried Chicken

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Eggs, Incubator Ready for Spaceflight

HOUSTON -- Thirty-two chicken eggs, cradled in a special incubator that will carry a like number of eggs into space in late January, have survived a simulated space shuttle launch without a crack or a scramble.

"All the eggs were in perfect condition," reports John Vellinger, the Purdue University student whose project in a NASA science student competition has earned it a berth on a six-day Challenger mission. "This tells us that we won't have to worry about scrambling our embryos when the actual eggs go up."

The incubator was put on NASA's shaker table at Johnson Space Center here, simulating the vibrations of a 6.0G shuttle liftoff.

Protecting the eggs is vital to the success of the experiment, which will study the embryos during and after the mission, and the chickens themselves when they hatch.

The student experiment is funded by Kentucky Fried Chicken Corporation.

Vellinger, the 1983 winner of Shuttle Student Involvement Program sponsored by the National Science Teachers Association and NASA, has been working as an intern at KFC's headquarters in Louisville, Ky., since May refining his experiment.

"We hope this will give us valuable data about embryo development under zero-gravity conditions," explains Vellinger. "This can help us determine if other animals, and even humans, can reproduce in a weightless environment."

Chicken eggs were selected for the experiment because of their relatively rapid development which is well-suited to the length of the shuttle mission.

Vellinger, a mechanical engineering student, began his project five years ago as a ninth-grader, winning NASA's regional competition three times before becoming the national winner.

The incubator he has designed to fit into one of the shuttle's lockers has a system of springs and shock absorbers as well as temperature and humidity controls to protect the embryos from the vibrations and other effects of the shuttle's journey through space.

When the Challenger returns to earth, the eggs will be analyzed and compared to a control group of eggs that will be incubated under identical conditions -- except for the fact that they will be in a gravity environment -- on the ground. The chicks from space will be compared to those on earth.

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During the mission, Vellinger will be turning the earthbound eggs to simulate the movement of the hen in the nest. The hen's movement corrects the effect of gravity, which causes the yolk to settle to the bottom of the egg.

"In space, since there's no gravity, the yolk will be suspended inside the egg," he notes, "which may make a difference in the way that the chick develops.

"My hypothesis is that without gravity dragging the yolk down, the embryo will develop more efficiently, producing a better chicken."

Vellinger adds, "It takes 21 days for an egg to hatch. But the embryo's main development occurs in the first 11 days. If differences occur, it's going to be during that time."

Everything has to be carefully documented, he notes. The Challenger crew, including NASA's first teacher in space, Christa McAuliffe, will be monitoring the eggs and recording temperature and humidity inside the incubator at designated periods during the mission.

"There's a good chance we may learn something extremely valuable from this project," Vellinger says. "In case we do, we're going to have it well-documented."

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