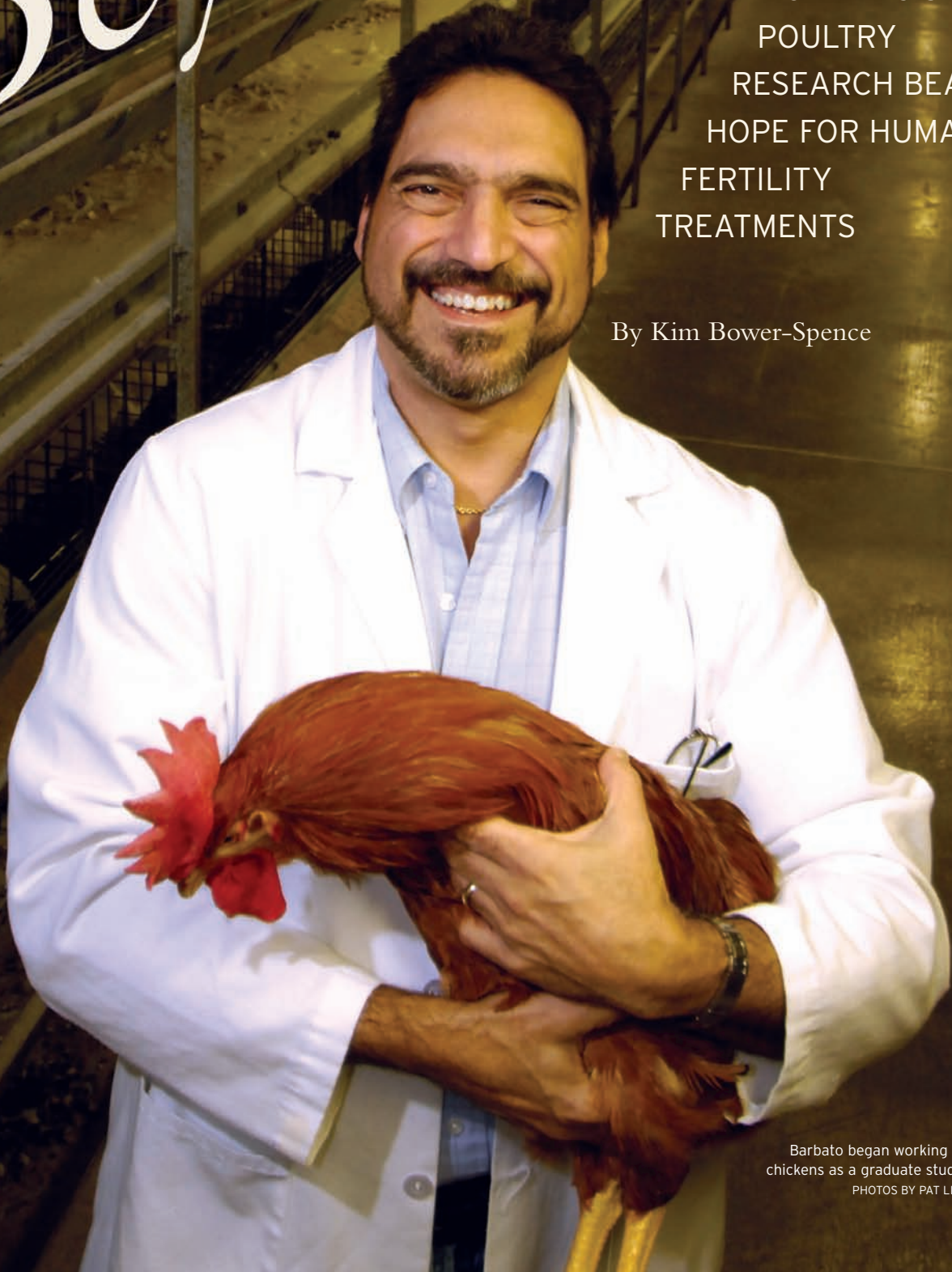


Beyond Chicken Sex

GENETICIST'S
POULTRY
RESEARCH BEARS
HOPE FOR HUMAN
FERTILITY
TREATMENTS

By Kim Bower-Spence



Barbato began working with chickens as a graduate student.
PHOTOS BY PAT LITTLE

GUY BARBATO'S CAREER VERY quickly went to the birds.

It started when the Wilkes biology major challenged a scientist at a seminar. The speaker, biologist Martin Schein, mentioned that Japanese quail couldn't nest. If humans didn't gather the eggs for incubation, the birds would no longer exist.

"I said, 'That's impossible. You can't lose a fitness trait,'" Barbato '77 remembers. He ended up back at biologist Lou Rigley's house until 2 a.m. arguing his point over pizza.

The discussion hatched the Newark, N.J., native's career in poultry genetics. From Wilkes, Barbato's interest in feeding behaviors led to a master's degree in nutrition, where his work happened to be in chickens, followed by a Ph.D. in genetics. Both advanced degrees came from Virginia Tech.

Then came two years at chicken producer Holly Farms, in Wilkesboro, N.C., where he helped develop leaner birds for consumers. He left Holly for post-doctoral fellowships in human nutrition, neurochemistry and protein chemistry.

One day he noticed an ad for a poultry scientist that seemed to be written for him: Penn State sought a geneticist and physiologist with nutrition experience; industry experience a plus. "How many people like that can there be?" he wondered. Soon he, wife Aileen and their young children, Guy and Brittany, moved to State College, Pa. He's been a poultry science professor there since 1987.



His spends 25 percent of his time teaching poultry management and genetics to undergraduate and graduate students; 75 percent is devoted to researching the genetics of poultry growth and reproduction. It's more than chicken sex.

His recent research focuses on the biochemistry of genes influencing whether sperm and egg "stick together"—the first event before fertilization. "A lot of the things that we're discovering along the way can be used in other species," including humans, Barbato notes.

He holds five patents, including one for an assay that can determine whether a male produces sperm capable of fertilizing an egg. It's currently being tested in humans, dairy cattle and other domestic animals.

For now, practical application comes in the form of pest contraceptives, marketed by Innolytics LLC. Barbato and colleagues have been researching a method of nonhormonal, nontoxic birth-control that prevents pigeons and resident Canadian geese from laying eggs. "It's a very green procedure, meaning that it doesn't pollute the environment," he says.

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And it doesn't harm non-target species. "It's only the animals that eat it that lose reproductive capacity." In fact, it won a "Best Bird-Friendly Innovation" award from People for the Ethical Treatment of Animals. Barbato thinks that they can extend the same procedure to rats and mice. Eventually, the method might even find use in humans.

In 2007, Barbato and two colleagues launched a new company, Gallimed Sciences, to license intellectual property he develops at Penn State into human and other uses. He serves as Gallimed's president.

"I've had great experiences with teachers and mentors and professors over the years who've been very generous with their time and knowledge," he explains. Barbato tries to do the same for his students.

"The students really like him," says Robert Elkin, head of the Poultry Science Department at Penn State. "He's very engaging."

Barbato credits Wilkes professors Lester Turoczi and Lou Rigley with introducing him to genetics, with courses like gene expression, sociobiology and the evolution of behavior. "The idea that genes could influence behavior was extremely powerful. It just changed my life," he says.

Turoczi recalls how as an undergraduate Barbato requested to take a graduate course in advanced genetics. "He brought an energy and a vitality to that course that was stimulating," he says, noting Barbato's ability to ask probing questions without putting people on the offensive.

For all Barbato's research in poultry over the years, the question that started it all still eludes him. He hasn't quite found the answer to what happened to nesting behavior in Japanese quail — yet.

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Guy Barbato, State College, Pa.
B.S., Biology 1977

Career: Associate professor of poultry science at Penn State University

Notable: Holds five patents and launched a new company, Gallimed Sciences Inc., to bring to market contraceptive products resulting from his research.