

# New technique speeds maturity in chickens

COLLEGE PARK, Md — A relatively painless surgical operation on the brain of baby cockerels appears to speed up the onset of sexual development in the birds and promises to have an impact on the poultry industry, according to a University of Maryland Agricultural Experiment Station poultry science professor.

For reasons that are still unclear, the surgery procedure causes

enlargement of the testes to about nine times their normal size by the ninth week after hatching. At that point, the young chickens are capable of producing sperm, a development that usually takes place about 20 to 24 weeks of age.

"We're decreasing the generation time," says Wayne Kuenzel, the poultry science professor who, with a graduate student, Heidi Mass, made the discovery. Presently, scientists seeking

to breed traits such as increased size and egg-laying ability in chickens are restricted by the length of time it takes the birds to reach maturity. If it is possible to reduce the time it takes the chickens to reach maturity, then the desired traits will show up faster.

Kuenzel has earned a Fulbright Fellowship to pursue further study at the poultry science center in Edinburgh, Scotland, a federally funded institution

devoted to study of the nutrition and physiology of fowl. There, he will spend one year studying appetite control in fowl by examining brain function.

Kuenzel and Ms. Mass made the discovery while studying appetite in chickens, specifically "what do we do to the chicken's brain to increase appetite and get them to market in less than seven weeks?" Kuenzel said. He was also trying to

suppress the appetite in those chickens selected to be breeding stock in order to keep the birds from becoming too large and obese. Size itself has become a major poultry industry problem, Kuenzel says, because the young roosters bred to have large, meaty breasts are having difficulty "mounting" hens during the breeding process.

During the appetite studies, the two researchers literally needed a map in order to investigate the brain to determine how it could be manipulated to alter appetite. To make the map, they had to remove the brain from the chicken and freeze it, make very thin slices of the brain, photograph those and then make drawings from the photos. The drawings, taken together, form a virtual "Atlas" of the chicken's brain.

Because there are no pain receptors in the brain—either of chickens or humans—there is minimal pain to the

chicken during surgery. The operation is done by making lateral cuts in the hypothalamus, an area of the brain that controls appetite. Ms. Mass performed all of the surgical operations on the birds, which show no ill effects from the operation.

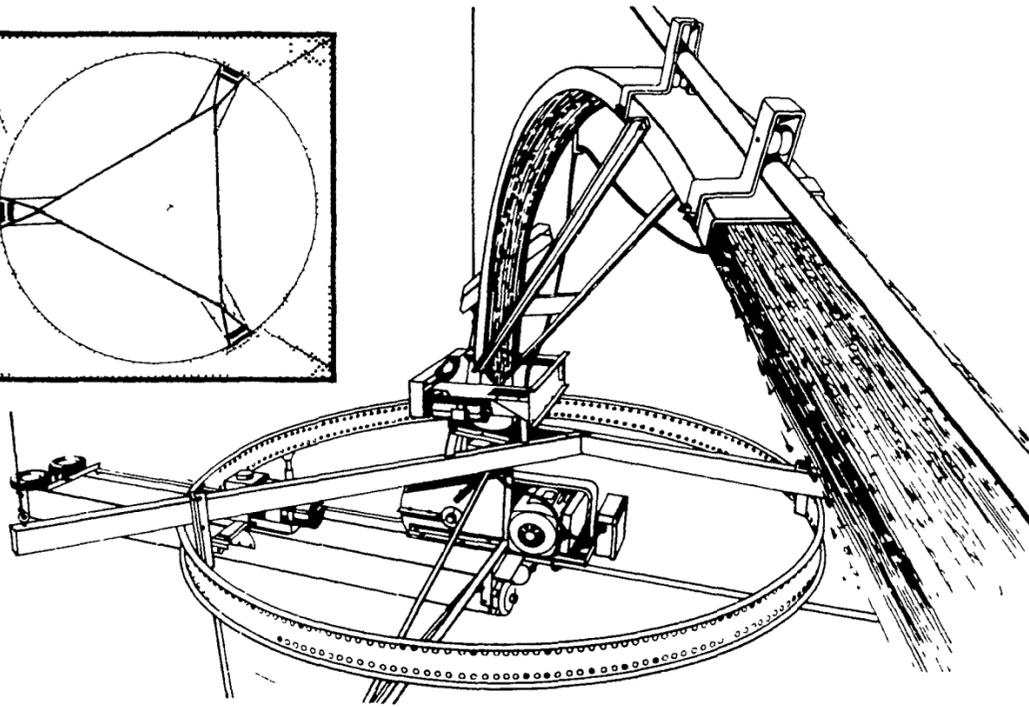
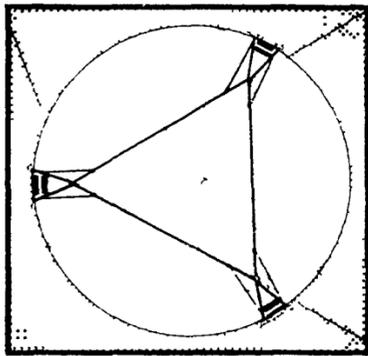
Ms. Mass made the incisions in the medial hypothalamus with some expectation that she would observe an increased appetite by manipulating that structure. In rats, for example, if the medial hypothalamus is cut, then the growth rate increases.

In the case of chickens, however, "we did not get a significantly greater growth rate," Kuenzel said. "Instead, body growth was suppressed."

However, the large red comb that normally tops the heads of mature roosters developed "much earlier than normal," Kuenzel said. "Yes, it was a 'red flag' for us. It indicated that perhaps

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