

Electric fields used for chick growth

UNIVERSITY PARK, Pa. - A tendency of strong electric fields to accelerate the growth of male chicks for a few weeks after birth was reported by a Penn State professor today to the first International Symposium on Environmental Concerns in Rights-of-Way Management, held at Mississippi State University.

Dr. H. B. Graves, associate professor of poultry science, reported his findings on chick growth during a presentation in which he was joined by Dr. Guy McKee, also of Penn State and Westinghouse electrical engineer John Bankoske.

The three were members of a session which included H. A. Kornberg, of the Electric Power Research Institute, Palo Alto, Calif., and Louise B. Young, of Winnetka, Ill., author of "Power over people."

"Our findings are the result of less than a year's work," says Graves, "and

must be regarded as simply the opening steps in what is projected as an intensive investigation into other effects, if any, of exposure to electric fields and of the neuroendocrine of other mechanisms by which those effects may occur."

The Penn State researchers are using fields from five to ten times stronger than those found near high-voltage lines currently in operation in the U.S.

Aside from the accelerated growth and a tendency of exposed chicks to be less active than controls, Graves has found no other evidence of either benign or destructive effects on the animals.

Dr. McKee reported similarly negative findings in preliminary experiments on mice.

Dr. McKee told the symposium of slight amounts of tip damage he observed in certain plants (alfalfa, bluegrass and corn) exposed to strong fields.

"Tip damage," he cautioned, "is not uncommon in nature, in plants that cannot muster sufficient moisture to nourish their extremities."

Electrically "irradiated" plants, McKee said, do exhibit a corona effect; their tips light up like bulbs on a Christmas tree when photographed in total darkness.

McKee speculates that excessive heat generated by the coronal discharge kills certain cells near the tip of the plant.

"We are now preparing to test this hypothesis," he said, "by looking for the presence or absence, after exposure to high electric fields, of ATP, the 'powerhouse' of the cell."

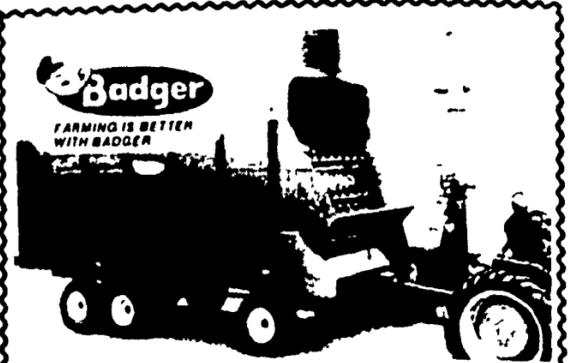
Graves found that chicks exposed to 40 and 80 KV (per meter) for four days (24 hours a day) exhibited a ten per cent increase in gross weight; the increase was seen in males only, not in females.

"We are speculating," he said, "that the force field either operates by stimulating the male neuroendocrine system and that the enhanced growth response is a result of that stimulation or that reduced activity of the exposed chicks shunts energy into growth rather than into body maintenance."

"But in those animals the effect was permanent. With the present animals, exposure to a strong electric field appeared to accelerate growth for about five weeks only. After that, the control animals began to catch up with the experimental animals. We suspect that a hormonal mechanism is at work, but at this point we cannot demonstrate that exposure to force fields is either healthy or unhealthy for small animals."

Graves intends to look at brain wave activity, hatching, feeding and reproductive behavior as the experiments progress.

Graves and McKee are working under a grant from the Electric Power Research Institute.



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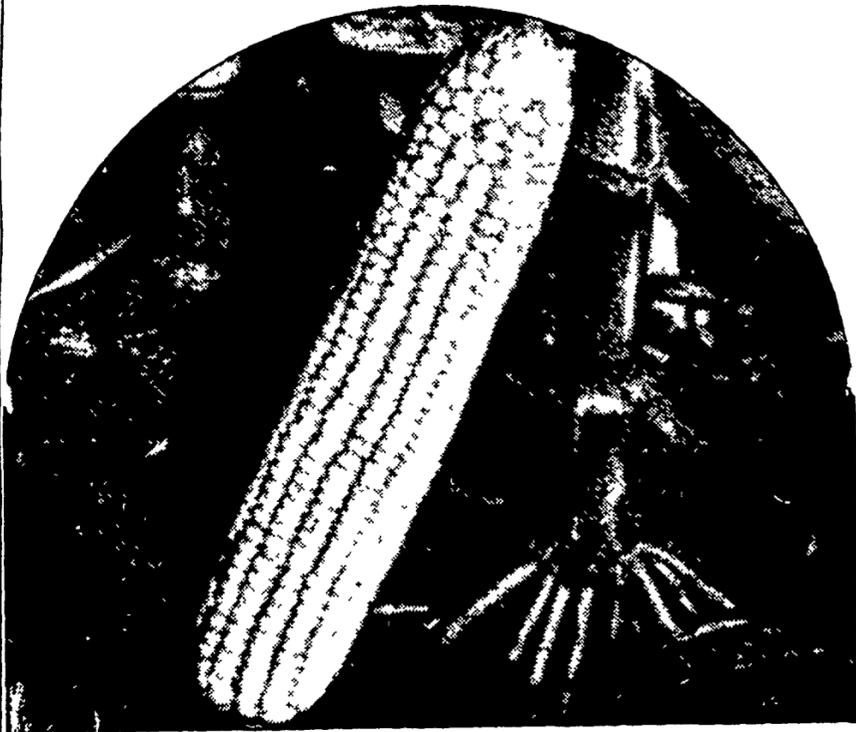
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