

Cannibalism in Poultry

causes of problems complex and probably
involve nutrition, genetics and management

Wilbor O. Wilson

Chickens and turkeys normally feed on grains, vegetation and meat but under certain conditions they may become meat eaters to the extent of being cannibalistic.

In baby chicks, toe-picking is the first symptom; feather picking comes later. The soft quills which are filled with blood are especially appetizing to the cannibals. Small feathers on the back and wings are most easily accessible for picking. Feather picking also occurs around the vent and tail. Once blood has been drawn from a bird, its pen mates literally see red and they go to work picking blood and meat from the victim. Unless the picked bird is removed or treated the bird will be picked to death, as will others, for cannibalism once started is a vicious habit. Cannibalism is not confined to chickens. Pheasants and game birds raised in captivity are notorious feather pickers. Turkeys and ducks may also become cannibalistic.

The prevalence of cannibalism varies from flock to flock and season to season. In some extreme cases mortality as high as 40% has been reported. Even in cases where the mortality is kept at a low level, losses in market value may occur. The increase in the number of bare-backed and blue-backed birds in the case of colored turkeys results from cannibalism. Bruises and torn skin and scabs in picked areas also result from this vice.

The causes of cannibalism are uncertain and very complex, and probably involve the nutrition of the bird, its genetic background and its management.

Nutritional Factors

It is likely that a deficiency of any one of several nutrients may cause the bird to have a depraved appetite and may lead to cannibalism.

It is also possible that there exist specific factors which are needed to prevent cannibalism and other factors whose presence in a ration is conducive to the vice.

The reported prevalence of cannibalism on high corn-containing feeds indicates that corn is deficient in a factor necessary for the prevention of cannibalism or contains a factor which promotes it.

Fiber has repeatedly been reported as playing a role, more especially the fiber of oat hulls. The recent reported success

of raising broilers on high corn and low fiber rations does not necessarily cast doubt on the previous reports of the effects of corn and fiber on cannibalism, but it certainly adds confusion to the problem and emphasizes its complexity.

Mineral supplements such as sodium chloride, calcium chloride and manganese seem also to play uncertain roles. Certain protein supplements may in some instances be a limiting factor.

It will be impossible to do reliable research until cannibalism can be produced experimentally at will. A good example of the difficulties involved is that experienced at the Poultry Division of the University of California.

A severe outbreak of cannibalism occurred in chicks from breeder hens on an experimental diet composed largely of polished rice and fishmeal. Preliminary studies indicated that corn aggravated and oats prevented the condition. A crucial experiment was then set up with sufficient numbers to prove or disprove these preliminary observations. Precisely at this time the chicks ceased to be cannibalistic although there was no change in the feed, the management, or the birds. The whole investigation yielded nothing definite in the way of results. It is not known why cannibalism started nor why it ended.

Management Factors

Many management factors have been alleged to play important roles in cannibalism—among them, overcrowding, insufficient feeding and watering facilities, and keeping the birds on wire floors. Yet, when all managemental factors alleged to promote cannibalism are combined in an effort to produce cannibalism, failure frequently results, rendering uncertain the role that is played by management of the birds.

Genetic Factors

It has been observed that lots of birds from different hatcheries on the same feed and under the same management may all be free from cannibalism except perhaps for one pen. This points to the involvement of a genetic factor in cannibalism. The ration of the breeder hens may play a role here and the problem may still be

nutritional. Breed and strain differences allegedly exist. It is not certain whether the tendency is to cannibalize or to be a ready victim.

Nutritional Preventatives

The most logical nutritional preventative measure which has been suggested is the feeding of the most complete diet that is possible, so that if there are nutritional factors required to prevent cannibalism it would make their chance inclusion most possible.

There are more specific nutritional recommendations; among them the feeding of manganese; extra salt; fresh greens; and various types of fiber such as those of wheat bran, dehydrated alfalfa and oat hulls. None of these nutritional measures has yielded consistent results in entirely eliminating cannibalism.

Managemental Preventatives

Among the managemental recommendations for combating cannibalism are:

- 1, Prevention of overcrowding;
- 2, Provision of adequate feeding and watering facilities;
- 3, Devices to keep birds busy;
- 4, Ruby colored lights so that birds will not see bloody parts of picked birds;
- 5, Antipick salves which taste unpleasant to the birds.

Mechanical Antipick Devices

Many mechanical devices for the prevention of picking have been recommended. Some prevent the bird from picking, except downward. Others are blinders which prevent birds from seeing straight ahead. Red plastic blinders have been developed which make everything in front of the bird appear red, but the objects to the side are unaffected. These mechanical devices have been used more or less successfully in various places.

Debeaking

This is the surest means of controlling cannibalism. The procedure is to remove a portion—about one half—of the upper beak by means of a heated knife or iron which cauterizes the tissue and prevents bleeding. When about one half of the

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ALFALFA

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Tests have shown that the wilt resistance has been maintained, and the desirable characteristics of California Common have been combined with it.

This exact breeding procedure has been tested thoroughly with such self-pollinated crops as wheat and barley. The results obtained with alfalfa to date show that the procedure is equally applicable to cross-fertilized crops.

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POULTRY

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upper beak is removed—according to general observations—it takes about six months to grow back. The rate of debeaking varies with operators and their experience. A crew of two men can debeak about 300 birds per hour.

Future Research

The most certain information on cannibalism is its uncertainty and complexity. This is not surprising since inheritance, management and nutrition may all be involved in its expression. Reports on studies of cannibalism are numerous, which is a measure of how little accurate and reliable information is available on the subject.

Until such a time as cannibalism can be produced at will, there will be little hope for a successful attack on the problem.

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The above progress report is based in part on Research Project No. 677D3.

CORN

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The selective action of 2,4-D is a relative matter depending on several factors: amount of 2,4-D used, weed species present, age of sweet corn, growth conditions such as temperature and rainfall previous to application, and rainfall and irrigation following application of 2,4-D. A disregard of these factors involved can bring about injury to the crop plants or a poor kill of the weeds, or both.

No pre-emergence spraying or cultivation was used in the plots of this experiment previous to the use of 2,4-D. The weeds were purposely allowed to attain considerable size and were therefore hard to kill.

Effect in Weeds

Water grass was not killed at all by the 2,4-D. Rough pigweed and tumbling pigweed required three pounds per acre of 2,4-D for a satisfactory kill. All the other weeds present were killed satisfactorily by the one- or two-pound applications.

It would seem as though a pre-emergence treatment with a fortified oil emulsion, or one early shallow cultivation, followed by a one pound per acre application of 2,4-D sprayed at the base of the plants when they are a foot high would be an effective procedure for weed control in sweet corn.

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NEW PUBLICATIONS



A copy of the publications listed here may be obtained without charge from the local office of the Farm Advisor or by addressing a request to Publications Office, College of Agriculture, University of California, Berkeley 4, California.

FERTILIZERS, SOIL ANALYSIS, AND PLANT NUTRITION, 1949, by D. R. Hoagland, Cir. 367, Revised April, 1949.

This circular explains in nontechnical terms how plants, soils, and fertilizers are related. It does not give specific recommendations for fertilizing a particular soil or crop; but gives farmers a basis for choosing their fertilizer program wisely. It lists the "plant foods" crops need and discusses certain soil conditions that sometimes make it difficult for plants to get some of them from the soil. It explains the limitations of soil analysis in solving fertilizer problems, and describes the use of plant analysis for studying what "plant foods" a crop lacks.

DONATIONS FOR AGRICULTURAL RESEARCH

Gifts to the University of California for research by the College of Agriculture accepted in April, 1949

BERKELEY

General Chemical Division, Allied Chemical & Dye Corporation	48 lbs. Geniton S-50, 48 lbs. Astr. Lead Arsenate
	Division of Entomology & Parasitology
American Cyanamid Co.	10 lbs. Parathion
	Division of Entomology & Parasitology
Beet Sugar Development Foundation	\$1,500.00
	Division of Plant Nutrition
California Olive Association	\$250.00
	Division of Food Technology
California Spray Chemical Corp.	1 drum Tanatox
	Division of Entomology & Parasitology
Chipman Chemical Company	1 gallon can Toxaphene 60% liquid
	Division of Entomology & Parasitology
Corn Industries Research Foundation	\$7,000.00
	Division of Plant Nutrition
E. I. DuPont de Nemours	50 lbs. Copper A Compound
	Division of Plant Pathology
Lederle Laboratories Division, American Cyanamid Co.	1000 micrograms of Vitamin B-12, 1 bottle 15 unit liver preparation
	Division of Poultry Husbandry
Dr. D. F. Green, Merck & Co., Inc.	2 10-gram ampules Neopyrithiamine hydrobrom
	Division of Poultry Husbandry
Dr. L. I. Pechuman	14 species—16 specimens of Talanidae for insect collection
	Division of Entomology & Parasitology
Sherwin-Williams Co.	1 gallon "Dimite"
	Division of Entomology & Parasitology

DAVIS

Anderson's Hatchery, Rio Linda	150 Cockerels
	Division of Poultry Husbandry
Mrs. Belle Benchley	A pair of ocellated turkeys
	Division of Poultry Husbandry
E. I. DuPont de Nemours	250 grams D(-) Lysine Monohydrochloride, 250 grams L(+) Lysine Monohydrochloride
	Division of Poultry Husbandry

Essick Manufacturing Co.
Model 530-S Essick Air-Power Sprayer with Mechanical Agitation, Serial #490159
Division of Botany

Julius Hyman & Co. \$1,250.00
Division of Entomology

W. A. Stine and Jack Farnham 1—Model 7 Webster—Chicago Wire recorder with foot control, 6 assorted spools of recording wire. 1—Worthington centrifugal pump for sprinkler irrigation
Division of Pomology

U. S. Rubber Company 10 lbs. Spurgon Seed Protectant
Division of Agronomy

RIVERSIDE

California Fruit Growers Exchange \$545.00
Division of Plant Physiology