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A SURVEILLANCE OF THE CAUSES OF MORTALITY  
IN THREE SOUTH DAKOTA LAYER FLOCKS

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A surveillance program was conducted during June 1968 through June 1969 to determine the important causes of mortality in certain South Dakota layer flocks that experienced reasonably normal mortality.

Two of the flocks selected were commercial units that were cooperating in the South Dakota Cooperative Extension Service Laying Flock Record Program, the third flock belonged to South Dakota State University.

A necropsy was performed on a high percent of the mortality from the flocks. Dead birds were collected from each flock each day and held in plastic bags for two to ten days in the cooler. The birds were then taken to the University Veterinary Science Diagnostic Laboratory for necropsy. A total of 2,339 birds were necropsied and the causes of death determined. Mortality and egg production were about what we expect from good flocks. The flock mortality ranged from 1% to 1.5% per month. Two of the flocks averaged about 70% production while on test.

Months On Test, Flock Size, And % Of Mortality Necropsied

| Flock | Prod. Months       | Flock Size     | House Type    | No. Birds Necropsied | % Mortality Necropsied |
|-------|--------------------|----------------|---------------|----------------------|------------------------|
| 1     | 3-14 $\frac{1}{2}$ | 10,000         | Cage          | 889                  | 74%                    |
| 2     | 1-12               | 6,000          | Cage & Floor  | 1,086                | 100% (Est.)            |
| 3     | 6-11               | 7,251<br>1,870 | Cage<br>Floor | 364                  | 50%                    |
|       |                    |                |               | <hr/> 2,339          | <hr/> 78%              |

Thirteen Disease Conditions Causing Death in Three South Dakota  
Laying Flocks Ranked by Percent of Birds Necropsied

| <u>Rank</u> | <u>Disease</u>            | <u>Percent</u> | <u>Rank</u> | <u>Disease</u>   | <u>Percent</u> |
|-------------|---------------------------|----------------|-------------|------------------|----------------|
| 1.          | Leucosis                  | 30.6           | 7.          | Impacted Oviduct | 4.2            |
|             | Fatty Liver               | 11.4           | 8.          | Septicemia       | 1.9            |
| 2.          | Fatty Liver & Hemorrhage  | 4.9            | 9.          | Hepatic Necrosis | 1.8            |
|             | Fatty Liver & Cannibalism | 10.8           | 10.         | Impacted Crop    | .6             |
| 3.          | Cannibalism               | 7.7            | 11.         | C. R. D.         | .6             |
| 4.          | Nephrosis                 | 7.9            | 12.         | Anemia           | .3             |
| 5.          | Peritonitis               | 6.8            | 13.         | Internal Layers  | .1             |
| 6.          | Gout                      | 4.7            |             | No Gross Lesions | 5.6            |

The five most prevalent disease conditions in order of their importance were leucosis, fatty liver condition (fatty liver, fatty liver and hemorrhage, and fatty liver and cannibalism), cannibalism, nephrosis, and peritonitis.

Leucosis caused highest mortality during the 10th and 12th month of lay in flock #1, 3rd and 4th month in flock #2, and 10th month in flock #3.

Fatty liver condition was strongest in flock #1 during the 9th month, #2 during the 12th month, and #3 during the 11th month.

Cannibalism problems varied also by flock. Flock #1 had highest mortality during the 7th month, #2 during the 3rd month, and #3 during the 7th month.

Fatty liver cannibalism and cannibalism did not occur at the same time. In flock #1, fatty liver and cannibalism was most prominent during the 9th month with cannibalism high during the 7th month. Flock #2 showed strong fatty liver and cannibalism during the 7th and 8th months with cannibalism strong during the 4th month. Flock #3 had highest fatty liver and cannibalism during the 10th month and cannibalism in the 7th month.

Conclusions: (1.) Acceptable mortality of one percent or more in a laying flock is probably caused by several disease conditions. (2.) Leucosis, fatty liver condition, and cannibalism were the most prevalent causes of mortality. (3.) Specific diseases do not always follow a definite pattern through the laying year. (4.) The fatty liver and cannibalism combination is probably due to the fatty liver rather than an outbreak of cannibalism in the flock. (5.) More work needs to be done in the area of controlling the fatty liver conditions. (6.) A necropsy of one or two birds from a flock provides a very inadequate picture of a disease problem that exists in a flock.