Bulletin No. 162 - A Quick Method of Obtaining Accurate Individual Egg Records Without the Trap Nest

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By

BYRON ALDER AND A. D. EGBERT

BULLETIN NO. 162

Utah Agricultural College

EXPERIMENT STATION

Logan, Utah

April, 1918
UTAH AGRICULTURAL EXPERIMENT STATION

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QUICK METHOD OF OBTAINING ACCURATE INDIVIDUAL EGG RECORDS WITHOUT THE TRAP NEST

By

BYRON ALDER AND A. D. EGBERT

The power or ability of a hen to lay a large number of eggs or the lack of that power or ability resulting in few or no eggs is not confined to the individuals of any one breed or flock. Feeding, housing, and general care of the fowls are not the only causes of low production in certain individuals. It is often in the make-up of the hen herself; she could not be a heavy layer under any condition. High and low producers are found in every flock.

An accurate method of obtaining the daily individual records of each bird is the only sure way to pick out the naturally poor layer. Only the very best hens should be used as breeders, whereas the poor layers should be sent to market as soon as they can be found. Thousands of fowls that do not lay enough eggs to pay for their feed are kept each year in Utah.

The trap nest and the keeping of daily individual records is the only sure method now in common use to weed out the boarders. The time required to keep trap nest records and the expensive equipment necessary make this method impractical in most farm or commercial flocks. Looking after the trap nest is very trying work, especially during the spring of the year when egg production is at its height. Because spring is also the busy season in nearly all other farm work, this practically eliminates the trap nest as a part of the equipment of the farm poultry house. The present average of about six dozen eggs a year for each hen could be considerably increased if there were a few flocks in each locality of which careful records were kept and an effort made to furnish the farmers in that section good breeding stock from heavy laying hens, at reasonable prices.

Thomas H. Taylor, Jr.,* gives the results of a test of several different makes of trap nests for a short period in which they obtained the individual record of only about 60 per cent of the eggs laid. Some of the nests gave results as low as 15 per cent, but one gave 100 per cent. His conclusions were that trap nests were not practical as labor in caring for them outweighs their worth. Since this was an early test of the trap nest, some

of these nests were no doubt faulty in construction. They have been much improved since that time, as shown at the Maine Station.

Pearl* reports the results of their trap records for the years 1908 to 1911. The error during this period averaged 1.92 per cent and varied from 4.01 per cent to 1.03 per cent, which is about as good as can be expected with trap nests.

THE UTAH STATION TEST

For a number of years at the Utah Experiment Station, the daily individual egg record has been obtained by testing the fowls each morning. During the first few years trap nests were used as a check on the test until it was conclusively proved that the daily individual egg record could be kept more accurately by this test, in much less time, and at less expense than by the use of the trap nests.

Lillie† states that in the development of the egg it remains in the uterus from twelve to twenty-four hours for the formation of the shell egg.

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of the shell and laying. In other words, if a hen is to lay on a
given day, the egg is in the uterus early that morning with the
shell almost if not entirely formed, for the large majority of
fowls lay before noon rather than after that time. In actual
practice it has been found that if a hen is to lay at any time
during a given day, the egg could be easily felt early that morn­
ing by a slight pressure with the finger on the side of the
abdomen just below and nearly to the end of the pelvis bone.
This pressure should be very light and should come from the
face of the last two joints of the first finger rather than from
the end, so as not to injure the hen or the egg. The relative size
and position of the egg early in the morning on the day of laying
as compared with other parts of the hen's body are shown in
Figure 1.

The test is so simple that it can be applied accurately by
almost any one after a few trials. The big problem, however,
appears to be in catching the hens each morning in order to be
able to make the test. This, however, soon becomes a matter
of routine to the hen and after the first ten days or two weeks
there is no trouble whatever if it is done in a quiet, systematic
way.

By this method each hen gets credit for the eggs she lays
whether she lays them in the nest, on the floor, or in a stolen
nest in the yard. This fact, supplemented by checking with the
number of eggs at the time of gathering, has made it possible to
tell when a hen has stolen her nest, and has been the means of
finding many stolen nests during the spring and summer. When
it is found that one or more eggs are short from day to day a
search is made and the nest often found. Moreover, the nest
nearly always contains the exact number of eggs that had been
recorded as short or missing.

It is not the purpose or intention to offer this method of
obtaining the daily individual record as a substitute for the trap
nest under all conditions, for like the trap nest it has its limita­
tions. It cannot be used under all conditions with the best
results. But under the conditions to which it is adapted, it is
more efficient in several respects than is the trap nest. In addi­
tion to being more accurate, perhaps its greatest advantage is
in the fact that it takes only a few minutes' time in the early
morning to get the complete daily egg record, leaving the re­
mainder of the day free for other work.
HOW THE TEST IS MADE

The test is made each morning shortly after daylight, usually by two men working together, one testing the hens and calling out the number of those that are to lay; meanwhile the other gives these hens the proper credit on the monthly egg sheet. He also gently crowds them up to the one who does the testing.

The two men go into each house together. One takes the monthly egg sheet and goes to the east end of the building (position "B", Fig. 2) in order to drive all the fowls into the west end. The other kneels down (position "A", Fig. 2) facing the west close to the well just to the east of the small exit as shown in Fig. 3, which is in the south side of the building near the southwest corner. A left-handed person would test in the opposite end of the building (position "E", Fig. 2). The fowls are all straight across from this exit and as soon as they see it open, first one and then another runs out. The general position of the fowls and of the one doing the testing is shown in the illustration on the cover and in Fig. 3. As the hens get near the opening, the person doing the testing quickly puts his left hand in front of the fowl, at the same time bringing his right hand up from behind so that both hands catch her at about the same time. As soon as a firm hold is obtained on the hen with the left hand, the right is dropped down to the abdomen from behind with the thumb on the left side, and the fingers on the right side of the fowl's body, the second joint of the first finger touching the end of the pubis, or pin bone, as shown in Fig. 4. A gentle pressure in and upward behind this bone with the first finger enables the egg to be readily felt if one is there. While the test is being made and the number on the legband found, the hen is not raised from the floor, but is held in or near the opening to prevent the other hens from getting out. The fowls soon become so accustomed to this method that it is not unusual for them to
run up and stop just in front of the opening, two or three at a time, awaiting their turn.

After the fowls have become accustomed to the test, that is, trained so well that they will come up to the exit as soon as it is opened by the one doing the testing, one man can test and record small flocks of from ten to fifteen hens in the small colony houses almost as rapidly as two, but in larger flocks it is better for two to work together as described above.

**TRAINING THE HENS**

In training the fowls to run up to be tested, considerable patience is required on the part of those doing the training. The fowls must be handled as quietly and carefully as possible, and an effort should be made to handle them in the same way each morning. By using a light movable panel, made of 1 inch by 3 inch boards for a frame and covered with either cloth or wire in the house, as shown by the line "CD" Fig. 2, considerable time and trouble can be saved during the training period.

One of the chief advantages of this method is in the time saved. In a trial for time, two men working together went through 30 pens in a long house and through 16 colony houses, testing over 500 hens in 37 minutes. When the testing was done
they were free for other work until time to gather the eggs in the afternoon. In running trap nests on the same fowls, it took one man more than one-half his time of a ten-hour day to look after the nest, record the eggs, and free the fowls.

Where only the individual egg record is desired and no pedigree breeding is to be done, this method of obtaining the record saves the expense of equipping the houses with trap nests. It also lessens the labor required in caring for the fowls and gives a more complete individual record than the trap nests now in common use.

By keeping a careful record of the number of eggs tested and gathered with a note on the difference as a check it was possible to reduce the number of unrecorded eggs to one-half of one percent. During the year 1915 the test showed 42,886 eggs. The sum of the eggs short at the time of gathering was 110 and the sum of those in excess of the test was 128. The error will be greater than this unless the work is carefully done soon after daylight. Since some hens lay shortly after leaving the perch, it is necessary to make the test early enough to catch these early layers.

The eggs short may have been lost, stolen, or broken and eaten by the hens, whereas the eggs over may have come from a hen laying two eggs in one day, which we find during the trap nest season occasionally happens, or from hens that laid very early in the morning before the test was made. It is not likely that any of these eggs are a duplicate because if the record showed one or more eggs short one day and the same number in excess the next the two were cancelled. If a stolen nest was found the eggs in the nest were checked off from the egg sheet where they had been recorded as so many short.
THE TEST VS. THE TRAP NEST

Figs. 5 and 6 show the comparative value of the test and trap nest in obtaining the daily egg record of one of the pens for April and May—two of the months of heavy production. The error of the trap nest is always greatest during the spring. Due to the pleasant weather conditions, heavy egg production and the natural season for hatching, more eggs are laid on the floor, out in the yard, or in stolen nests than at any other time; hence this

error cannot be considered an average for the other months. The trap nest record is represented by the straight mark "I" and the test by "O". Where the "O" appears without the "I" the egg was tested and the hen given credit, but the egg was not laid in the trap nest. Three eggs were laid in the trap nests during the two months that were not recorded by the test. These eggs may have been laid before the test was made in the morning, the hen may have slipped through the exit without being caught by the tester, or the egg may have been missed—not felt—when the

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**Table:**

| Hen | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Test Total |
|     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 332 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 20.17 |
| 334 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 22.1 |
| 337 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 19.0 |
| 339 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 20.1 |
| 562 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 19.0 |
| 564 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 18.1 |
| 573 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 15.0 |
| 575 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 16.0 |
| 576 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 16.0 |
| 577 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 15.0 |
| 578 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 17.0 |
| 580 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 17.0 |
| 705 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 17.0 |
| 707 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 17.0 |
| 712 | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 22.27 |

**Legend:**

- **Pen No. C3**
- **Male No.**
- **Experiment**
- **U.A.C. POULTRY DEPARTMENT**
- **For Month of April 1916**
- **Fig. 5.** (See legend under Fig. 6.)
test was made. This last would happen but seldom with a careful tester.

At the bottom of each table is given for each day, (1) the total number of eggs tested, (2) the total number gathered, and (3) the eggs that were gathered out of the trap nest. There is only one day when the error of the test was great. May 30 the test gave ten eggs, while only six were gathered. An error as

<table>
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<th>Pen No.</th>
<th>C 3</th>
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<tbody>
<tr>
<td>Male No.</td>
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<td>For Month of May 1916</td>
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</table>

<table>
<thead>
<tr>
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<th>Test</th>
<th>Trap nest</th>
<th>Total</th>
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</thead>
<tbody>
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<tr>
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<td>816</td>
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</table>

Fig. 6.—Figures 5 and 6 show the comparative results of the Utah Station test and the trap nest in obtaining the daily individual egg record of a pen of S. C. W. Leghorns for April and May. The eggs laid in the trap nests are recorded with a straight mark “T”. The test record is indicated by “O”.

large as this is very unusual. The explanation of those in charge was that some one must have visited the nest and taken the eggs without recording them. During the month there were only eight eggs short of the number tested including the four on the thirtieth. During the month of April there were only two eggs short and one in excess of the test, or an error of three out of 307 eggs gathered, while the trap nest gave only 288, or an error of 19.

As there is no way by which the eggs of a certain hen can be
identified, individual pedigree breeding cannot be carried on by this method. For this reason the trap nest must be used during the breeding or hatching season, in breeding experiments requiring an individual pedigree. In laying contests or where group selection for breeding is practised, that is, the grouping of hens

with a record above or below certain limits, the trap nest has no particular advantage over this test. At the Utah Station, since nearly all the houses are equipped with trap nests, they are available for the pedigree breeding work during the hatching season. As soon, however, as this time is past the trap is tied down and the record kept by testing. The fowls are tested every morning during the year, whether the trap nests are working or not.

SUMMARY

This bulletin describes the method used at the Utah Experiment Station to obtain an accurate individual egg record of each
hen without the use of the trap nest.

The test can be used and an accurate record kept with but little extra time and with practically no extra equipment.

The test should be made early in the morning and may therefore be done on the general farm as one of the morning chores, since it requires no time during the day when other work is pressing.

The fowls are not interfered with and are not worried by being locked in a hot and often poorly-ventilated trap nest from one to three hours.

The poor layers can be weeded out with little trouble and the best hens kept for breeders.

All the hens in the state could by careful culling, better methods of breeding, and a little better care in housing and feeding be made to produce as many eggs as the average in the Experiment Station flock during the past nine years. This would increase the egg production in the state 2,203,383 dozens, which at 40c a dozen—a fair average for the past year—would bring an additional $881,353.20 without any increase in the number of fowls, and little, if any, increase in the amount of feed consumed.