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MEASURING **PIN BONE SPACING**

AVIAGEN MANAGEMENT ESSENTIALS

Aviagen®

WHY MEASURE PIN BONE SPACING?

Routine measurement of the spacing between the pin (pelvic) bones allows:

- Correct determination of female sexual maturity and when lay is about to begin.
- Correct timing / age of light stimulation to the flock.

THE PROCEDURE FOR MEASURING PIN BONE SPACING

BIRD HANDLING

Birds must be handled in a calm and correct way by people who have been appropriately trained. Bird welfare must be a priority at all times.

EQUIPMENT

None – This is a physical measurement using your fingers.
Ideally the same person should measure pin bone spacing from week to week.
Note - The term 'finger' is relative to the operator's hand size and so will vary from person to person.

PROCEDURE

Pin bone spacing should be measured regularly from 15 to 16 weeks (105 to 112 days) of age, up to point of lay.

Pin bone spacing should ideally be measured every time the house is 'walked', but at a minimum, pin bone spacing should be measured once a week.

Step 1 Slowly and carefully walk through the females and randomly select a bird.
Step 2 Hold the bird by the top of the legs, the right way up.
Step 3 Gently press your finger(s) between the pin bones of the bird.
Step 4 Record how many fingers comfortably fit in the space between the pin bones.
Step 5 Release the bird back onto the floor of the poultry house.
Step 6 Repeat this operation as you slowly walk through the house, recording each time, the number of fingers that comfortably fit between the pin bones.
Step 7 A minimum of 20-30 birds per house should be measured each time.
Step 8 Calculate the percentage of birds in each pin bone spacing category; 0, 1, 2 or 3 fingers.

Step 3

EXAMPLE CALCULATION AND RESULTS 10 DAYS BEFORE FIRST EGG

Number of birds sampled = 30

Number of birds with pin bone spacing of 2 fingers = 24

Percentage of birds with pin bone spacing

$$\frac{\text{Number of birds with pin bone spacing of 2 fingers}}{\text{Total number of birds sampled}} \times 100$$

$$= \frac{24}{30} \times 100 = 80\%$$

NUMBER OF FINGERS BETWEEN PIN BONES	NUMBER OF BIRDS	%
0	1	3
1	2	7
2	24	80
3	3	10

INTERPRETING RESULTS

Changes in pin bone spacing with age.

AGE	PIN BONE SPACING	APPROXIMATE DISTANCE BETWEEN PIN BONES
84 - 91 Days	Closed	-
119 Days	1 Finger	1.9 - 2.5 cm
21 Days before first egg	1 1/2 Fingers	
10 Days before first egg	2 - 2 1/2 Fingers	3.8 - 4.2 cm
Point of lay	3 Fingers	5 - 6 cm

At any given age, at least 80-85% of the flock should exhibit the same level of pin bone spacing. At 10 days prior to first egg, 80-85% of the flock should have a pin bone spacing of between 2 and 2½ fingers.

If, at the specified age, less than 80-85% of the flock have the same pin bone spacing, or if pin bone spacing is not as expected, then further investigation is needed.

PIN BONE SPACING AT **1 FINGER.** BIRDS AT 119 TO 147 DAYS OF AGE.

PIN BONE SPACING AT **2 FINGERS.** BIRDS AT 10 DAYS BEFORE FIRST EGG.

PIN BONE SPACING AT **3 FINGERS.** BIRDS AT POINT OF LAY.

The use of a ruler in the examples above is to illustrate the width of normal pin bone spacing with age. The main measurement and interpretation should be based on finger fit rather than actual measured width.

Possible observations and solutions related to pin bone spacing.

OBSERVATION	SOLUTION
Variation in pin bone spacing between birds of the same age (less than 70% of the flock have the same level of pin bone spacing).	Delay light stimulation until at least 80-85% of the birds have the same pin bone spacing or until 154 days at the latest. This allows the flock more time to reach the same level of pin bone spacing naturally. Revisit grading techniques during the rearing period to improve uniformity of the flock. A flock CV% of <10 will display a less variable pin bone spacing.
Pin bones are closer together than that expected for age. (Birds are less sexually mature than expected for age).	Check body weight for age; adjust feed amounts if body weight is less than recommendations, gradually bring birds back to standard by point of lay and before light stimulation. Delay light stimulation until birds are at correct pin bone spacing for age.
Pin bone spacing is wider than expected for age. (Birds are more sexually mature than expected for age).	Stimulate birds as recommended; persistency may be affected in this case. Check body weight for age, control body weight closer to standard for the next flock. Check house is adequately light proofed (no light leakage) during the rearing period.

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