

Technical News

Volume 1, Number 2

Spring 1993

Fine-Tuning The Breeder Male

There has been more evidence of hatchability problems in the broiler industry in the last twelve to sixteen months, than since the advent of separate male feeding systems. A review of the data in Table 1 (to the right) shows a difference in hatchability of 8.4% from the Leading Company to the Trailing Company.

Many people in the broiler industry would point the finger at a particular male breed in use. However, as Table 2 (below) explains, the various male breeds showed little variation in hatchability during the same time frame.

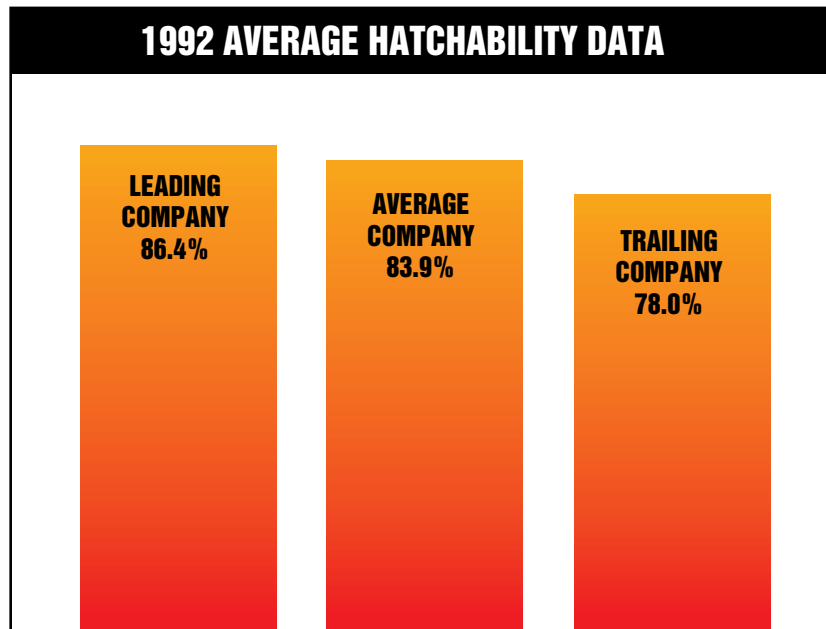


Table 1

Figures courtesy of a 1992 year survey.

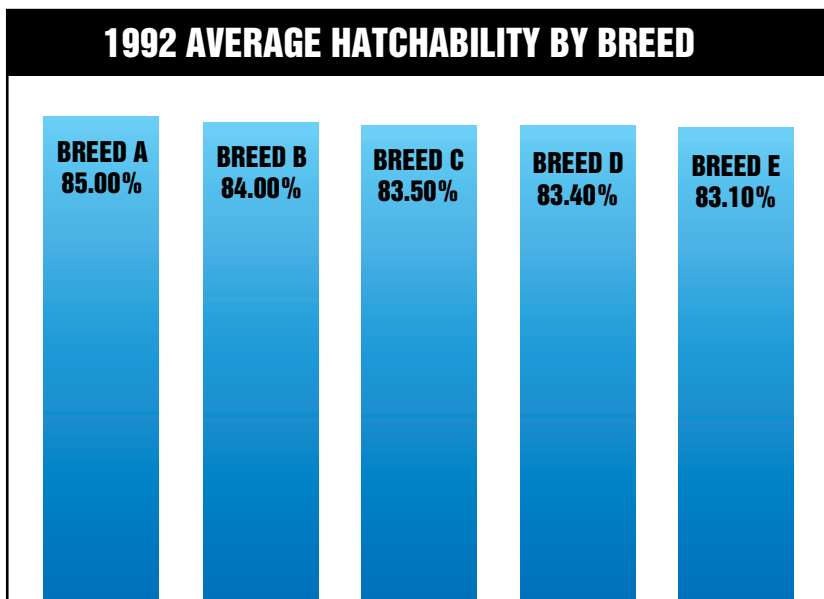


Table 2 Figures based on 23,965,165 hens sold from 1,966 flocks. Figures courtesy of a 1992 year survey.

Based on this evidence, the male breed being used should certainly not prevent a company from achieving average hatchability.

Why are there such differences in hatchability? Disease or toxin problems would obviously have an impact that is beyond the Breeder Manager's control. However, it is highly probable that there are sections of the male rearing program that are not functioning properly. The remainder of this article addresses the key areas which are necessary to ensure a successful male rearing program.



Starting Period - Development of Frame Size 0 - 4 Weeks

The first four weeks of the male's life is the most important time. The first month will position the male's frame for the remainder of his life. Without adequate frame size, the male will have difficulty in mating, and in carrying the necessary body weight in the latter stages of his life.

The development of the male's frame is dependent upon feed and/or protein consumption. The male needs to start on a Starter Feed with at least 18% protein. He should be fed this feed for at least 28 days and should weigh 1.40 lbs. (640 gms). The following table is the rearing body weight and feed requirement for the Cobb 500 male from 0-4 weeks:

Age		Body Weight		Feed/Day		Feed
Days	Weeks	Grams	lbs.	Grams/bird	lbs./100 birds	
7	0-1			Full feed	Full feed	Chick Starter: 18% Protein 0.93% Lysine 0.43% Methionine ME: 1325 Kcal/lb 2915 Kcal/k
14	1-2			Full feed	Full feed	
21	2-3			Full feed	Full feed	
28	3-4	640	1.40	57	25.2 Skip	

A feed with less protein, or a starter feed used for a lesser time period, will make it extremely difficult to attain this recommended target weight. It is important to remember that it is advisable to be overweight rather than underweight at 4 weeks.

In the industry, it is still a common practice to rear males together with females. Are the males and females mixed together for the crew's convenience, or are they mixed when the males achieve the adequate 4-week body weight? Once the males are mixed with the pullets it will be difficult to maintain the required feed intake.

Companies that start and grow males separate from day 1, have a decisive advantage in this early period. However, do companies know that their males are being fed enough in this early rearing phase? Are the grower's lights and feeders being operated in a manner that promotes maximum feed intake?

Field evidence indicates that the male target body weight at four weeks is an absolute number. It should never be managed as a percentage of the female body weight.

Body Weight - Sexual Maturity 4 - 20 Weeks

Once the male has surpassed six weeks of age, it is nearly

impossible to recover frame size. It is important to clarify the difference between frame size and body weight. Frame size is different from body weight, in that, if frame size is deficient in the early growing period, it can not be "increased" unlike body weight.

Once the male has the correct early frame size, the next goal is to bring him into sexual maturity on schedule with the female. This can be achieved by giving modest feed increases during the rearing stage. It is important that the male be kept lean through this period. To facilitate this, feed should be changed after six weeks to a lower protein grower-type diet. It is of paramount importance to monitor the male during this time because breast fleshing must be kept to a minimum. If the male were to develop too much fleshing it may interfere with its ability to mate efficiently.

It should not be difficult to develop a management program, incorporating proper nutrition (such as the one recommended by Cobb-Vantress below) that will develop a good male prior to its sexual maturity and transfer to the hen house.

Age		Body Weight		Feed/Day		Feed
Days	Weeks	Grams	lbs.	Grams/bird	lbs./100 birds	
35	4-5	795	1.75	60	26.4 Skip	Grower: 15% Protein 0.65% Lysine 0.26% Methionine ME: 1325 Kcal/lb 2915 Kcal/kg
42	5-6	950	2.10	62	27.6 Skip	
49	6-7	1090	2.40	65	28.8 Skip	
56	7-8	1225	2.70	68	30.0 Skip	
63	8-9	1360	3.00	70	31.0 Skip	
70	9-10	1500	3.30	73	32.0 Skip	
77	10-11	1635	3.60	74	32.8 Skip	
84	11-12	1770	3.90	76	33.6 Skip	
91	12-13	1910	4.20	78	34.4 Skip	
98	13-14	2040	4.50	80	35.2 Skip	
105	14-15	2135	4.70	82	36.0 Skip	
112	15-16	2270	5.00	84	36.8 Skip	
119	16-17	2385	5.25	85	37.6 Skip	
126	17-18	2500	5.50	87	38.4 Skip	
133	18-19	2610	5.75	89	39.2 Skip	
140	19-20	2725	6.00	91	40.0 Skip	

Housing 20 - 25 Weeks

The target weight at housing is 6.00 lbs. (2.72 kilos). Management of the male at housing is still important. Male numbers should be at a ratio of ten per one hundred females. Overstocking of the males causes stress and mortality problems in the flock. It is also advantageous to move the males into the laying house before the females. However, when moved early or at the same time as the females, the males should be fed on the male feed system from the onset. Feeding males from the hen feeder instead of the male feeder is to the grower's benefit - *not the male's*. Pre-lighting males to ten hours at eighteen weeks may offer some advantages; however, field observations show that if the male is reared correctly, pre-lighting is not necessary.

Feed should be increased as needed to meet the body weight target. At twenty-five weeks, the body weight should be 7.7 lbs. (3.5 kilos). This weight will ensure adequate sexual maturity for the male.



Optimal Reproductive Performance 25 Weeks to Depletion

Peak male feed should be fed at about 25 weeks. For most males, peak feed should be 350 Kcals per day. This feed should also be a low protein feed such as Grower or a male Breeder Feed. The use of hen feed will promote breast fleshing of the male, which could ultimately cause mating problems later. It is important not to decrease daily male feed consumption, unless adjusting for mortality. Numerous studies have shown that reduced consumption will lead to a reduction in mating ability; and, consequently, fertility.

Typically, in the industry, male fertility problems have been linked to overweight males. An obvious response to this has been to minimize feed intake of the male in the hen house. Some people will under-feed the male with the idea that he will not get too heavy. Never the less, in many instances, the males are fed too little to mate correctly, and when the male loses its mating activity, he will gain weight. Therefore, it is hard to judge whether poor fertility is due to the males being overweight by feed, or overweight due to sexual inactivity.

In summary, the key to a successful male program is found in the early rearing period. Companies that do an excellent job of building frame size, invariably find that they have very good hatchability. Proper frame size and daily feed amounts that allow for maturity and normal mating activity throughout the flock's life put the company in an excellent position to attain optimum hatchability.



About the Author:

Jerry Moye, Director of Technical Services for Cobb-Vantress since 1993, is responsible for providing technical assistance to all CVI customers both domestically and abroad. His goal is to provide technical assistance in all areas of the industry so the customer's flock will reach the maximum Cobb 500 potential.

To reach this goal, CVI has been developing a comprehensive technical support team, covering all disciplines of the business. This team includes a growing number of specialized personnel, as well as a worldwide network of consultants.

Prior to joining CVI in 1991, Jerry was with Showell Farms from 1975-1987, where he started in Feed Ingredient Purchasing and worked his way up to Vice President of Live Production. He was responsible for the supervision over live production, which included breeders, hatchery, broiler and feed mills.

In 1987 he joined Zacky Farms of California where he was Director of Live Productions, until joining CVI in 1991. From 1991-1993, Jerry served as CVI's Technical Service Representative in the South East region of the U.S.

Jerry is married with two children and lives in Arkansas.

TECHNICALLY SPEAKING



Time to Watch for Things that Grow.

Right now, the nights are cool and the days are warm—ideal conditions for the onset of mold and fungus. Pay particular attention to the evaporative coolers, especially on start up. Any growth or bacteria that is in the water will go directly onto the pads and into the hatchery.

Try combining all the evaporative cooler supply water lines into one system, putting a common

medicator on that line. This allows you to control your disinfectant levels at one central point. It's a simple and effective way to keep the growth under control.

— *Jiggs Kilgore,*
Director of Hatcheries

Research on Ascities.

CVI's research and development has completed three years of ascities research in broilers. Our goal was to determine to what extent ascities incidence varied among our pure lines and broiler crosses to determine the relationship between growth rate,

breast meat and ascities. In addition, our geneticists studied the degree to which ascities is inherited, and developed methods for uniformly and reliably inducing this condition in pedigree lines. Some of our findings were unexpected, but CVI's research has lead to the development of practical methods of selecting for reduced incidence of ascities in our pure lines of chickens. Our research in this area will be the subject of a future technical news.

— *Dr. John Hardiman,*
Director of Research
and Development



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