



# Pullets: Alternative Methods to Delay Onset of Lay

D. M. Karcher  
Michigan State University

K. W. Koelkebeck  
University of Illinois

K. E. Anderson  
North Carolina State University

## Introduction

The commercial table egg industry has access to genetic strains of laying hens that mature early and will produce eggs efficiently with a long persistence of lay. The table egg industry rotates egg-producing hens in the business to ensure a constant egg production level to meet egg contracts and maintain the business. Occasionally, disease issues arise that can delay the movement of pullets into the layer house, but egg producers have been able to respond to these minor incidences. Currently, highly pathogenic avian influenza (HPAI) is afflicting the commercial turkey and table egg industry, decimating entire farms. As a result, the replacement pullets being grown may not be allowed to move into the hen housing system until depopulating, cleaning, and disinfection has occurred. This creates an issue, as pullets will have to be maintained within pullet housing until producers find a suitable solution, such as selling them to another company or euthanizing them. Therefore, some alternatives must be explored as an avenue to delay the onset of lay. The following provides suggestions based on pullet age that can assist a producer in delaying the onset of lay.

## Pullet Age: Greater Than 14 Weeks

Pullets that are ready or nearly ready to move into the hen house will likely be the hardest ones to delay, as the pullets are approaching sexual maturity. Therefore, producers should begin by stepping down the lighting program to a total of 6 to 8 hours of light. The hens should remain on a 1 to 1.5% calcium diet. Next, increasing the fiber component of the diet and reducing protein will curb feed consumption while providing the necessary satiety to the pullets. Going

into the summer months, house temperatures will increase, which will assist in reducing the pullets' feed consumption. In the winter months (late fall to early spring), one can increase house temperature to get the same effect. It will become imperative to continue to monitor body weights to ensure pullets don't fall below the body weight recommendations by the breeding company. As a result of this approach, the pullets can be stalled for a period of time, likely 3 to 4 weeks, before they will start to lay. At that point, producers would then need to follow typical management procedures to bring them into production.

Another approach that was explored in the early 1990s utilized feed withdrawal to control egg size early in the production cycle. Strong (1992) evaluated a fast prior to production at 22 weeks of age in three different Leghorn flocks. In all three instances, a 5-day fast resulted in decreased body weight, which was recovered by 25 weeks to non-fasted control weights when the flocks were placed back on feed. Additionally, different strains of White Leghorns were used with similar results suggesting that hen-day egg production was similar between the fasted and full-fed control birds. Koelkebeck et al. (1993) followed this work looking at three treatments (control, 4-day withdrawal, and 7-day withdrawal) across two seasons. The results were very similar with body weights being 13 to 14% less than control for 4-day withdrawal and 20% for 7-day withdrawal. However, this smaller body weight persisted for at least four weeks after returning to full feed with molted birds being 4 to 23 grams less in the winter and up to 32 grams heavier in the summer. The hen-day production was 2 to 3% lower than control birds with the withdrawal programs and egg weight was not significantly impacted by the early molt in either the Strong (1992) or Koelkebeck et al. (1993) studies.

Therefore, the current recommendation would be to follow a non-feed withdrawal molt program including a molt-type diet and day length reduced to 6 hours per day, then begin to feed a normal developer diet once 20% body weight loss has been achieved. This should provide 6 to 8 weeks of delay before bringing the pullets into production.

## Pullet Age: Placement to 14 Weeks

A company that can predict an issue with pullet placement can approach pullet growth from a different perspective. Feeding pullets differently from the beginning can delay the onset of lay. Maurice et al. (1982) evaluated feeding a reverse protein diet. In this program, a low protein diet (12%) was fed for the first 9 weeks followed by a step up to 16% protein concluding with a shift to 18% protein at 18 weeks of age. Further research conducted by Anderson et al. (1995) and Anderson (2010) evaluated various aspects of the reverse protein approach evaluating high energy in the 12% protein starter (Anderson et al., 1995) and or the length of feeding the starter (9 vs. 12 weeks; Anderson, 2010). Body weights were slightly depressed (100 g; Anderson et al., 1995; 2010) compared to control fed pullets but by the end of the production period no significant differences were observed. The days to 50% production and peak production were shifted by a day or two in the reverse protein fed pullets in all three studies.

Therefore, taking an approach of reverse protein feeding can serve as an approach to slow down the growth rate of the pullet, gaining additional days to production.

## Conclusions

The current situation faced by the commercial table egg industry requires nontraditional approaches to delay pullet rearing and the onset of production. The age of the pullets can dictate the approach taken by a company to lengthen the growth period while ensuring suitable production during the laying phase. While feed withdrawal methods are no longer endorsed due to animal well-being, a non-feed withdrawal approach with light restrictions can be considered. Any changes to pullet nutrition or management needs to be critically evaluated to determine which method(s) may work the best for an individual company.

## References

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