

Minimizing Downgrades and Condemnations with Optimal Broiler Management

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Introduction

Whether you're an independent contract grower or an internal farm manager, reducing the incidence of broiler downgrades or condemnation at the factory/processing plant should be a priority. This is not only for the financial benefit of the company or grower but goes hand-in-hand with maintaining a high level of bird welfare. Growers have a number of management concerns to control on a daily basis and as you will see, if implemented correctly many of these coincide with reducing production related factory losses. In this article, we will explore some of the most common broiler processing downgrade and condemnation categories and how we as broiler farmers can help reduce their occurrence through continued and improved management techniques as well as good stockmanship.

The most common reasons for plant downgrades and condemnations are scratches, bruising and cellulitis. There are a number of causes for this, however, stocking density plays a major role. Always follow local legislation and breed guidelines for housing type and environmental control. It is critical to provide enough feeder and drinker space to prevent competition. We recommend 50 to 70 birds per 33cm diameter pan or 2.5 to 4 cm per bird if using chain feeders and 12 birds per nipple for high flow drinker systems or 10 birds per nipple on low flow systems. For lighting, avoid single blocks of darkness that are more than 6 hours. If possible, implement “dusk to dawn” increase/decrease of light intensity (i.e. dimming) when lights turn on and off. This will help stagger early broiler feeding and minimize feeder and drinker competition during periods of peak consumption and bird flightiness. Gradually reducing the amount of dark hours in the days leading up to thinning and final clearing, especially if daytime catching is practiced, will also help reduce bird flightiness and scratching. When performing daily house checks and duties, move through the house in a slow, steady and quiet manner. This is simply a part of being a good stockman and will also help reduce bird flightiness.

Catching during thinning and final clearing is a stressful time for the birds which can lead to high factory downgrades and condemnations. As stockman, we should be present during this period to ensure catching procedures are followed correctly. Prior to the commencement of catching, all feeder, drinker, enrichment and weighing equipment should be lifted or removed from the house. Dimming the lights or using red/blue/green catching lights as well as migration fences will help reduce flightiness and overcrowding. Proper bird handling may vary by country, region, national poultry guidelines and legislative regulations, however, birds should never be handled by the head, neck, drum or wings and minimize the number of times the birds are handled. Catching birds by their body (back) although limited to two birds at a time can be beneficial in reducing downgrades due to wing and leg damages. Care should also be taken when placing birds into the catching containers or crates. These should never be overstocked according to the equipment specifications and outside environmental conditions. Automatic catching machines are a viable means to catching birds. Correct operation and maintenance of the machinery and transfer belt according to manufacturer's guidelines will help prevent any bird injuries.

When it comes to carcass contamination and shrinkage, best practices show that a feed withdrawal period of 8 to 12 hours can empty the intestinal tract while the intestines retain strength and integrity. Maintaining intestinal integrity is critical to minimize tears and breaks during processing thus reducing the risk of carcass contamination during evisceration. Shrinkage is the natural weight loss (up to 0.25% per hour) that will occur after birds no longer have access to feed and water. A good feed withdrawal program along with proper transport and holding of birds at the plant will help reduce any losses. Ensure birds have full access to water for a minimum of 2 hours after feed is withdrawn. Best practice is to provide free access to water until the arrival of the catching crew at the house. Good communication with the processing plant will promote a successful feed withdrawal program. If there are any major delays during catching, provide water to the birds. If catching (processing) cannot resume within 12 hours, feed equipment (with feed present) should be lowered to allow the birds to resume eating.

There are a number of different breast myopathies (BM) which can cause downgrades at the processing plant. The two most common myopathies observed in broilers today are white striping and wooden breast. Although the exact causes of the myopathies are not yet fully understood, there are some management practices we can implement on farm to help reduce their incidence. Brooding is a key focus area. We want to stimulate the activity of the satellite cells and increase the number of muscle cells at a young age. Provide early access to feed and water and achieving a minimum first week growth ratio of 4.6. Thereafter, the growth rate should remain close to the breed standard and care should be taken to prevent acute periods of rapid growth for the rest of the cycle. Sufficient minimum ventilation should be provided throughout the cycle to keep carbon dioxide levels below 3000 ppm. Temperature management is also critical. Prevent conditions that lead to birds panting as this can result in oxidative stress as well as alter blood pH levels, increasing the risk of BM. Hotter birds also tend to lie down more thus putting pressure on the breast muscles, restricting blood flow and reducing oxygen supply, which also increases the risk of BM. Follow our breed guidelines (Tables 1 and 2) for temperature, making slight adjustments according to bird comfort. Adjusting lighting programs to manipulate growth rates may not have the desired effect. It is important to create a rearing environment that promotes broiler movement and minimizes long resting periods where the broilers are lying on their breasts. One lighting program will not work everywhere, however following breed guidelines is a good starting point.

A major indicator of bird welfare at the farm is the percentage of downgrades and condemnations due to pododermatitis, hock burns and breast blisters. The correct ventilation rate (air exchange rate) and air distribution are keys to maintaining house relative humidity levels below 70% and keeping litter dry throughout the cycle. The use of circulation fans can also greatly assist with maintaining dry litter. Correct drinker line management (i.e. pressures, flow rates and heights) should be adjusted with bird age to prevent unnecessary water spillage. The use of drip cups will help, especially towards the later part of the cycle. Monitor litter beneath drinker lines, if wet, check drinker systems for any leaks or adjust pressures and heights accordingly. Once corrected, remove wet litter and replace with fresh or dry litter. The type of bedding material used also plays a role. There are several options available, each with specific characteristics as well as minimum depth requirements so be sure to consult guidelines regarding which litter material you use.

Successful genetic selection has significantly reduced the incidence of ascites syndrome, however it still remains an area of condemnation at the plant. The brooding period again plays a major role here, with temperature and ventilation management being key focus areas. Ensuring birds remain in their thermal comfort zone by having sufficient house heating capacity (minimum of 0.075-0.10 kW/m³) to maintain set-point temperatures and achieve minimum litter and floor temperature of 30-32°C and 28-30°C, respectively. Good air quality also needs to be maintained throughout the cycle by maintaining carbon dioxide levels below 3000 ppm allowing sufficient oxygen availability to the birds.

With good stockmanship and correct on farm management the incidences of farm related factory downgrades and condemnations can be significantly reduced. Outlined in this article are some key areas of focus for broiler farmers. If required, further detailed information on each key management practice can be found in our Broiler Management Guide: <https://www.cobb-vantress.com/resource/management-guides>.

Table 1. Temperature guidelines during brooding based on relative humidity.

Temperature Curve Based on Relative Humidity					
	Relative humidity				
Age (Days)*	30%	40%	50%	60%	70%
0	34°C	33°C	32°C	31°C	30°C
7	32°C	31°C	30°C	29°C	28°C
14	29°C	28°C	27°C	26°C	25°C
28kg/m² (stocking density)	25°C	24°C	23°C	22°C	21°C

*Always observe bird behaviour and measure internal body temperature before adjusting house set point temperature.

Table 2. Temperature guidelines based on stocking density.

Temperature Guide Based on Stocking Density		
Density kg/m ²	Target Temperature Range (°C)	Target Temperature Range (°F)
28	22 to 24	72 to 75
30	21 to 23	70 to 73
32	20 to 22	68 to 72
34	19 to 21	66 to 70
36	18 to 20	64 to 68
38	17 to 19	63 to 66
40	16 to 18	61 to 64
42	15 to 17	59 to 63
42+	14 to 16	57 to 61



Photo caption: Prior to catching, raise all feeders but leave water lines available to the birds until the catching crew arrives.