Revista Brasileira de Ciência Avícola
ISSN: 1516-635X
revista@facta.org.br
Fundação APINCO de Ciência e Tecnologia Avícolas
Brasil

Pilecco, M; Almeida Paz, ICL; Tabaldi, LA; Nääs, IA; Garcia, RG; Caldara, FR; Francisco, NS
Training of Catching Teams and Reduction of Back Scratches in Broilers
Revista Brasileira de Ciência Avícola, vol. 15, núm. 3, julio-septiembre, 2013, pp. 283-286
Fundação APINCO de Ciência e Tecnologia Avícolas
Campinas, SP, Brasil

Brazilian Journal of Poultry Science
Revista Brasileira de Ciência Avícola
ISSN 1516-635X Jul - Sept 2013 / v.15 / n.3 / 169-286

Training of Catching Teams and Reduction of Back Scratches in Broilers

Technical Note

■**Author(s)**

Pilecco M[1*]
Almeida Paz ICL[2]
Tabaldi LA[3]
Nääs IA[2]
Garcia RG[2]
Caldara FR[2]
Francisco NS[1]

[1] M.Sc. student of the Post-Graduation Program in Animal Science, – Mestrado em Zootecnia, Faculdade de Ciências Agrárias, Universidade Federal da Grande Dourados, Dourados, MS, Brasil.
[2] Professor(a), Faculdade de Ciências Agrárias, Universidade Federal da Grande Dourados, Dourados, MS, Brasil.
[3] Bolsista DCR, Faculdade de Ciências Agrárias, Universidade Federal da Grande Dourados, Dourados, MS, Brasil.

■**Mail Adress**

* Corresponding author e-mail address
Márcio Pilecco
Rua Clóvis Bevilaqua N°105, Dourados, MS, Brasil. CEP: 79835-014.
E-mail: mpilecco@yahoo.com.br

■**Keywords**

Processing, catching, broiler production, carcass downgrading.

Submitted: July/2012
Approved: July/2013

ABSTRACT

This study evaluated the efficacy of training of catching teams and reduction of back scratches in broilers. The study was carried out in a large broiler company between January and October of 2010, in the region of Dourados, Brazil. During that period, 80 samplings were performed in 80 broiler houses in the micro-regions covered by the company. When broilers were 43 days old, when 5% of the birds in each house were evaluated immediately after catching, when birds were already inside the plastic crates, ready to be transported to the processing plant. Out of a total number of 1,177,600 total, 58,880 broilers were evaluated. Four catching teams (A, B, C, and D), with 24 people each, were trained for four consecutive weeks. By the end of the training course, it was observed that average age of the team members and time of catching affected the incidence of back scratches. Training had a positive effect, reducing in 33.13% the incidence if back scratches caused by the catching team due to incorrect catching procedures. Therefore, continuous training is required, particularly when the catching teams are composed of young and inexperienced workers.

INTRODUCTION

Total quality programs implemented in broiler companies require that farms to achieve the best performance indexes, while maintaining birds' physical integrity. This means that, in addition of not having diseases, birds should present good feathering, no bruises, scratches, or broken bones (Cony, 2000)

Broiler catching, loading, and transport conditions affect final product yield and quality. However, these conditions are often overlooked, and the lack of care may result in significant processing losses. Catching method, transport time, lair age time, crate type, stocking density, time of catching, bird age and sex, and environmental temperature are some of the parameters that may influence the incidence of carcass lesions (Farsie *et al*., 1983).The most frequent causes of bruising are inadequate rearing management, catching, transport, and unloading at the processing plant. According to Reali (1994), catching accounts for 11.0%, 32.8% and 38.2% of breast, leg and wing bruises, respectively.

Despite catching broilers by the back is the most common method used in Brazil, catching by the neck has been employed in some companies (Leandro *et al*., 2001). Back catching, also called the Japanese method, takes into account bird welfare and results in lower carcass bruising rates; however, it increases costs and loading time. Nevertheless, it is still the best alternative in terms of carcass quality and final chicken cost (Leandro *et al*., 2001). In the United States and in many European countries, broiler catching is automated. Lacy & Cazrick (1998) showed that mechanical catching produces lower

downgrading rates compared with manual catching. Mechanical catching is still not used in Brazil, which suggests further studies under local conditions. One downside is that mechanical catching reduces employment rates. On the other hand, losses due to bruises may be reduced by improving catching and transport management, as well as adapting slaughter equipment. This demonstrates the importance of the daily inspection of the equipment used and the constant follow-up and training of workers involved in poultry production (Santana *et al*., 2008).

Considering the lack of literature data on the training of broiler catching teams, the objective of the present study was to estimate the effect of training of catching teams on the incidence of back scratches in broilers.

MATERIALS AND METHODS

Location and birds

The study was carried out between January and March of 2010 in a large integrated company located in the region of Dourados, Brazil, located at 22°32'10"S to 22°16'32"S latitude and 55°43'32"W to 54°09'54"W longitude.

Broiler houses were 100 to 150-m long, 12-m wide, and 3.5-m high. Houses were equipped with automatic or manual feeders and drinkers and with ventilation systems (positive or negative pressure). All houses were made of bricks, were covered whitewashed fiber cement tiles, and were equipped with yellow polypropylene side-curtains, curtain protection, and dropped ceiling. Brooding was made by wood-stoves. Minimum ventilation systems were used, as well as foggers. There were trees around the house for shade, and rice hulls were used as litter material.

Two drinking systems were used: one bell drinker for every 100 birds or one nipple drinker for every 15 birds. Feeder spaces adopted were one tube feeder for every 35 birds or one automatic dish for every 25 birds.

This study was considered a meta-analysis due to the number of observations and the scope of the analysis, which included 80 samplings in 80 different broiler houses located in all micro-regions of the company.

Sampling

When broilers were 43 days old, when 5% of the birds in each house were evaluated immediately after catching, when birds were already inside the plastic crates, ready to be transported to the processing plant. Out of a total of 1,177,600 broilers, 58,880 were analyzed.

Four catching teams (A, B, C, and D), with 24 people each, were trained for four consecutive weeks. Each catching team presented specific characteristics, such as shift and average age. Teams C and D worked more time during periods with less sunlight (Table 1). Considering the season and the region, the period with more sunlight was between 06:30 and 20:00 hours. All teams were weekly evaluated within 24 hours after the training course. The weekly training consisted in on site advice as to how to catch the broilers by the back and to avoid attitudes that may startle the birds (Cony, 2000). In addition, the teams were advised to catch the birds with the ventilation system on, opened side curtains (particularly where the truck was parked, and minimum luminosity (about 10 lux).Birds were rounded up by transport crates and divided in groups of approximately 2000 birds to prevent crowding. All the above-mentioned advice was given on site, in order to numerically evaluate the efficacy of training, until all workers confirmed they understood the methodology. In total, 20 catching sessions divided into four evaluations (five houses per team per evaluation) after four weekly trainings per team were evaluated, according to the training frequency suggested by Pilecco *et al*. (2012).

Table 1 – Catching team composition, average age, and shift

Team	Workers under 21 (%)	Average team age	Shift
A	21	26	08:00-16:00
B	13	28	16:00-00:00
C	0	31	00:00 -08:00
D	0	33	00:00 -08:00

The catching procedures were performed during 24 hours, because most processing plants work in three daily shifts in a continuous 20-h schedule.

Training consisted in demonstrating how to correctly catch the broilers, according to the following steps: 1. closing the curtains; 2. placing the corral for rounding up the birds with the crates where birds where; 3. working calmly and quietly, not shouting or talking loudly; 4. calmly catching the birds by the back and properly placing them inside the crates; 5. sliding the crates on the trails, not making sudden movements. Trainings took 30 to 40 minutes daily.

The plastic crates used for transport were 870mm long x 600mm wide x 281mm high. Each crate carried seven to ten broilers, depending on the logistics of available trucks and average broiler weight.

A form with a list of items to be evaluated at the time of catching was developed. It contains the main mistakes of the catching team, such as catching by any method other than by the back, sudden movements, bird crowding, startled birds, excessive number of broilers per crate, curtains down at the time the truck arrived, and loading excessively fast.

In order to validate the data collected in the broiler houses, they were transformed in percentages and compared with the lesion rates found at the processing plant.

Four teams (treatments) were evaluated in 20 broiler houses each (replicates). Data were submitted to analysis of variance and means were compared at 5% probability level with the aid of SOC (Software Científico: NTIA/EMBRAPA) statistical package.

RESULTS AND DISCUSSION

The percentage of scratches at the time of catching reduced during the evaluation period (Figure 1). The average scratch percentage was reduced in 33.13% for all teams at the end of the training period, demonstrating the importance and efficacy of this approach.

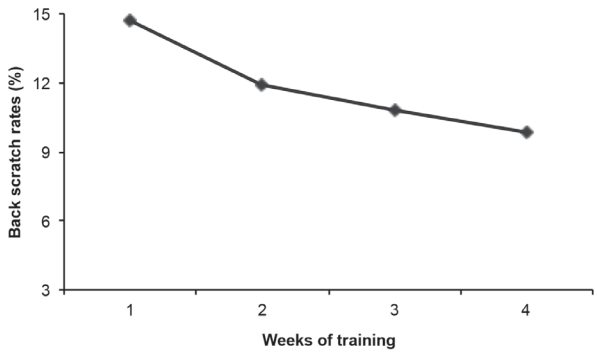

Figure 1 – Back scratch rates of broilers along the weeks of training of the catching teams.

At the end of the training period, team A obtained higher scratching rates ($p<0.05$) than teams D and C, but was not different from team B (Table 2). This may be related to the average age of the team members and time of catching, because team A was younger than the other teams.

Young workers tended to catch the birds faster and to make sudden movements that startled the birds, which jump on the others, scratching their backs with their toenails. In addition, younger workers seem to take longer to assimilate new techniques, requiring longer training periods to achieve the same results as older teams (Table 3).

Table 2 – Back scratch rates (%) of broilers according to catching team per week of training.

Weeks	1	2	3	4
Team A	14.84 ± 2.43	12.35 ± 1.53 a	11.08 ± 1.88 a	10.09 ± 1.52 a
Team B	14.91 ± 1.22	12.21 ± 2.51 a	11.03 ± 2.36 a	9.93 ± 1.23 ab
Team C	14.88 ± 2.21	12.29 ± 2.74 a	10.90 ± 1.59 ab	9.65 ± 1.77 b
Team D	14.05 ± 1.61	10.91 ± 1.72 b	10.11 ± 2.40 b	9.57 ± 1.69 b

Means followed by the same letter in the same column are not statistically different by the test of Tukey ($p<0.05$)

In a study on the relationship between professional satisfaction and work quality, Alencar *et al*. (2007) reported that workers' training has a beneficial effect on flock productivity. Several authors report that continuous training has an essential role in the development process of companies, groups, and individuals, and therefore, the importance of training workers and human resources in general has been the focus of most development programs (Mulder, 2004; Karbasion *et al*., 2005; Alencar *et al*., 2006; Alencar *et al*., 2007).

Table 3 – Total training time required for the teams to catch the broilers by the back in an organized fashion, maintaining bird welfare.

Team	Total training time
A	20 hours
B	14 hours
C	12 hours
D	12 hours

Another fact that influenced scratching rate was work shift. It was observed that broilers were startled easier as sunlight intensity increased. Team A, which had the largest percentage of workers younger than 21, worked during the day and required longer training time to perform catching properly. The influence of age and shift is clearly shown when teams A and B were compared. These teams were not different in terms of scratching rates at the end of the four weeks of training. The percentage of workers younger than 21 was higher in team B than in teams D and C, and their shift partially included daytime. Team D responded

faster to training than the other teams, and in the second week already achieved low scratch rates. These results reinforce the hypothesis of higher scratch rates when workers are younger than 21, as demonstrated by the lower rate obtained by team D.

Older workers are more experienced and have greater knowledge about their tasks, which may improve their performance compared with younger workers (Mulder, 2004). However, it was observed that all teams applied outdated practices when catching the birds. Therefore, the experience acquired by older teams may have hindered the assimilation of new techniques, as it has been suggested that older workers may be more reluctant to change their practices than younger ones. However, in the present study, teams which workers presented older average age assimilated training easier, possibly because they paid more attention and were more committed.

In a study on rural worker age and their work skills, Karbasion *et al*. (2005) reported that training, albeit informal, improves worker performance. Alencar *et al*. (2006) said that the better the work relationship between workers and their supervisors or trainers, the better the training results.

In addition, older workers were probably trained before or became aware of new techniques through reading, which becomes more frequent as workers age. In another study, Alencar *et al*. (2007) found that training results are better when workers are experienced. On the other hand, young workers are usually more motivated and tend to perform their tasks, particularly those involving intense physical activity, faster. This suggests that it is more efficient to train more experienced workers, and the motivation and swiftness of younger workers increase scratch rates at catching.

There were no differences ($p > 0.05$) when average scratch rates obtained on the farms were compared with those determined at the processing plant (Table 4), thereby validating the results obtained in the present study.

Table 4 – Comparison of back scratch rates between samplings immediately after catching and the processing plant.

Team	Processing plant	Farm
A	12.20% ± 1.56	12.09% ± 1.84
B	12.10% ± 2.28	12.02% ± 1.83
C	11.80% ± 2.21	11.93% ± 2.07
D	11.30% ± 2.16	11.16% ± 1.85

Test of Tukey ($p > 0.05$).

CONCLUSIONS

Training reduced back scratch rates caused by the catching teams as a result of incorrect techniques. Therefore, continuous training is required, particularly when the catching teams are composed of young and inexperienced workers.

ACKNOWLEDGEMENTS

The authors thank BRF - Brasil Foods S.A for making this study possible.

REFERENCES

Alencar MCB, Nääs IA, Gontijo LA, Salgado DA. Effects of labor motivation in poultry production. Revista Brasileira de Ciência Avícola 2007;9(4):249-53.

Alencar MCB, Nääs IA, Salgado DA,Gontijo LA. Broiler mortality and human behavior at work. Scientia Agricola 2006,63(6):529-33.

Cony AV. Manejo do carregamento, abate e processamento. Como evitar perdas? Anais da Conferência Apinco de Ciência e Tecnologia Avícola; 2000; Campinas, São Paulo. Brasil. p.203-12.

Embrapa. Ambiente de software NTIA, versão 4.2.2: manual do usuário. Campinas: Centro Nacional de Pesquisa Tecnológica em Informática para a Agricultura; 1997. 258p.

Farsie A, Carr LE, Wabeck CJ. Mechanical harvest of broilers. Transactions of the ASABE 1983; 26:1650-1653.

Goldstein IL. Training in work organizations. Annual Reviews Psychological 1980;31:229-72.

Karbasioun M, Mirzaei S, Mulder M. Informal Technical and Vocational Training Programs and Farming in the Province of Isfahan, Iran. Journal of International Agricultural and Extension Education 2005;12(2):43-53.

Lacy MP, Cazrick M. Mechanical harvesting of broilers. Poultry Science 1998;77(1):1794-7.

Leandro NSM, Rocha PT, Stringhini JH. Efeito do tipo de captura dos frangos de corte sobre a qualidade de carcaça. Ciência Animal Brasileira 2001;2(2):97-100.

Mulder, M. Education, competence and performance. On training and development in the agrifood complex, Inaugural address. Wageningen: Wageningen University; 2004. 267p.

Pilecco M, Almeida Paz ICL, Tabaldi LA, Francisco NS, Caldara FR, Garcia RG. Treinamentos de boas práticas de fabricação de rações: qual a frequência ideal? Agrarian 2012;5(17):295-302,

Reali EH. Retirada do lote: Fatores que afetam o rendimento e a qualidade da carcaça. Manejo de Frango. Campinas: FACTA; 1994. p.103-8.

Santana AP, Murata LS, Freitas CG, Delphino MK, Pimentel CM. Causes of condemnation of carcasses from poultry in slaughterhouses located in State of Goiás, Brazil. Ciência Rural 2008;38(9):2587-92.