Reuse of litter in poultry production: a food safety and avian health approach - Silva V.S.[1*], Voss-Rech D.[1], Trevisol I.M.[1], Kramer B.[1], Esteves P.A.[1], Jaenisch F.R.F.[1], Klein T.[1], Vaz C.S.L.[1], Caron L.[1], Schiochet M.F.[1], Pandolfi J.R.[1], Coldebella A.[1], Morés M.[1]

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Reuse of litter is a common practice in Brazilian broiler production. As it can transfer pathogens (bacterial, viral, parasitic and fungal) between broiler flocks, litter must be treated before rearing a new broiler batch. According to GlobalGAP, the litter treatment procedures must be tested and demonstrated for trade purposes. Our aim was 1) to evaluate three management methods of broiler litter applied in the Brazilian poultry industry for *Enterobacteriacea* reduction, 2) to evaluate the effects of these methods in the inactivation of *Salmonella* Enteritidis, 3) to evaluate the residual contamination from reused and treated litter on the broilers health. Our results showed that 1) all litter managements evaluated reduced *Enterobacteriacea* burden in broiler litter, 2) after the third flock of chickens the, litter bacterial burden was stabilized at low levels, below those of new materials, 3) broiler litter was not a favorable environment for *Salmonella* and *Campylobacter* sp. maintenance, and 4) the shallow fermentation of litter, a typical Brazilian treatment method, was more efficient to reduce *Enterobacteriacea* and inactivate *Salmonella*. Specific Pathogen Free chicks housed for 35 days in reused commercial broiler litter showed lesions compatible with coccidiosis and antibodies against infectious bursal disease virus, Adenovirus type I and Marek's disease virus, indicating maintenance of these agents in treated litter, which was negative for several other agents analyzed. The contamination of litter and other vectors (*Alphitobius diaperinus*) by avian pathogens is going to be study in new projects.

Key-words: poultry litter, reuse, pathogens, food safety

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