

# The Effects of Guar Meal on Production Performances in Broiler Chicken

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## Abstract

Research carried out by the Chemical SRL Company in partnership with the University of Milan on broiler chicken, regarding the replacement of soybean meal with guar meal (Guar 60PF and Guar 70 PFR) highlighted a higher body mass for the groups that received Guar 70 PFR and Guar 60 PF, the control group showing smaller body mass values. Regarding the average daily gain, the higher values were recorded in the experimental groups, the highest value being recorded in Guar 70 PFR group, followed by the Guar 60 PF group, and the control group. The food conversion ratio was lower for the Guar 70 PFR and Guar 60 PF groups. Other authors reported that guar meal administered in low doses (2.5% and 5%) in feeds had no negative effects on the growth performances of broiler chickens, whereas higher doses (7.5 and 10%) negatively influenced both growth performances and broiler chickens' health. After partially replacing the soybean meal with guar meal in broiler chicken feeds, no negative effects on body mass evolution, weight gain, feed conversion and carcass quality in broiler chicken were reported.

**Keywords:** *guar, broiler chicken, productive performances*

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## INTRODUCTION

Guar (*Cyamopsis tetragonoloba*) is an annual pulse from the dry tropical regions of Asia. Guar 60PF and Guar 70PFR can be used in broiler chicken nutrition in lower doses, partially replacing the soybean meal in the structure of combined fodder.

**The use of guar meal in broiler chicken nutrition.** Research carried out by Chemical SRL Company in cooperation with the University of Milan on broiler chicken, regarding the replacement of soybean meal with 5% guar meal (Guar 60PF and Guar 70 PFR) or 10% (Guar 60 PFR) recorded higher body masses for the group that received 5% Guar 70 PF (1966,38 g), followed by the group that received 5% Guar 60 PF (1845,68 g), the control group having the lowest body mass values (1827,37 g). Higher values of average daily gain were recorded in both experimental groups, the 5% Guar 70 PFR group showing a daily gain of 44,59 g/day, followed by the 5% Guar 60 PF group (41,72 g/day) and the control group (41,34

g/day). The food conversion ratio was lower for the 5% Guar 70 PFR group (1.68:1), followed by the 5% Guar 60 PF group (1,72:1) and the control group (1,76:1). (tab. 1):

Similar results were also reported by Lee *et al.* (2003). They reported that guar meal, administered in doses of 2.5% and 5% in feeds, had no negative effects on the growth performances of broiler chickens, whereas higher doses (7.5 and 10%) negatively influenced both growth performances and broiler chicken health. Gheisari *et al.* (2011), after replacing the soybean meal in broiler chicken feeds in doses of 3-18%, in the 3 growth stages, reported an improvement of the growth performances and carcass parameters for the lower doses (3-9%) and a decrease of the same parameters for doses of 12-18%.

Mishra *et al.* (2013), after partially replacing the soybean meal with guar meal in broiler chicken feeds, reported that the gradual replacement (2% in the 1<sup>st</sup> phase and 5% in the 2<sup>nd</sup> and 3<sup>rd</sup> growth

**Tab.1.** The effects of guar meal on production and consumption parameters in broiler chicken (Chemical SRL Milano)

Issue	UM	Control	Group 1 60PF (5%)	Group 2 70PFR (5%)	Group 3 60 PF (10%)
Body mass	g	1827.37 <sup>A</sup>	1845.68 <sup>A</sup>	1966.38 <sup>C</sup>	1729.31 <sup>B</sup>
Weight gain	g/bird/day	41.34 <sup>Ba</sup>	41.72 <sup>Ba</sup>	44.59 <sup>A</sup>	39.10 <sup>Bb</sup>
Feed consumption	g/bird/day	75.36 <sup>a</sup>	75.34 <sup>a</sup>	77.31 <sup>A</sup>	72.87 <sup>Bb</sup>
Feed conversion ratio (FCR)	kg of feed/ kg gain	1.76	1.72	1.68	1.81

<sup>Aa, Bb, C-</sup> represent different thresholds of statistical significance

**Tab.2.** The effects of guar meal in different doses, on production and consumption parameters in broiler chicken (Kamran cited by Hussain *et al.*, 2012)

issue	UM	Control (0% guar meal)	Group1 (5% guar meal)	Group 2 (10% guar meal)	Group 3 (15% guar meal)
Weight gain	g/bird	1796.10 <sup>a</sup>	1723.90 <sup>a</sup>	1538.44 <sup>b</sup>	1265.90 <sup>c</sup>
Feed consumption	g/bird/day	3664.33 <sup>ac</sup>	3736.20 <sup>ba</sup>	3604.93 <sup>c</sup>	3254.83 <sup>d</sup>
Feed conversion ratio (FCR)	kg feeds/ kg gain	1.99 <sup>a</sup>	2.14 <sup>a</sup>	2.33 <sup>b</sup>	2.56 <sup>c</sup>
Mortality	%	3.33	0	3.33	6.66

<sup>a, b, c, d-</sup> represent different thresholds of statistical significance

phases) had no negative effects on body mass evolution, weight gain, feed conversion and carcass quality in broiler chicken, also recording high production indices throughout the experimental period; in addition, carcass quality was not deprecated after replacing the soybean meal with guar meal.

Kamran cited by Hussain *et al.*, (2012), after administering guar meal in doses of 5%, 10% and 15%, reported a reduction of the weight gain proportional with the increase in the administered dose of guar, also positively correlated with an increase in the feed conversion ratio of the broiler chicken. The survival rate was also influenced by the different inclusion ratios, the group that received 5% guar meal showing the lowest survival rates compared to the other experimental groups and also to the control group; mortality rates rose with the increasing dose (being 6.66% in the 15% guar meal group) (Table 2).

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