EFFECT OF YEAST (CANDIDA UTILIS) ON THE COMMERCIALLAYER HEN'S LIVE WEIGHT AND EGG PRODUCTION

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ABSTRACT

In order to investigate the effect of a yeast on laying hens performance and live weight, one hundred Rodonit-3 breed laying hens (75 week of age), were selected and randomly allocated to 25 pens containing 4 laying hens each with 6 replicates and assigned to receive one of 4 dietary treatments (1. Control, 2.Yeast 2%, 3.Yeast 4%, 4.Yeast 6%). The results showed that egg production and egg weight not significantly different, live weight and feed intakesignificant differences.

KEY WORDS: Yeast, egg production, laying hens, live weight, feed intake

INTRODUCTION

Among the alternative or non-conventional feeds, there are the microorganisms, belonging to the different groups of yeasts, bacteria, fungi and algae, which are important sources of protein, vitamins, minerals and factors that enhance the growth (Miyada 1990). Out of them, yeasts are considered the most favorable for their use in animal feeding.

Most of the yeast species are spread in different media. The chemical composition of the yeasts may vary according to different factors: substrate, concentration of salts, degree of aeration, number of successive washes to remove impurities and drying technology (Miyada 1990). Thus, the substrate is considered the most determinant factor in the variation of the chemical composition of the yeasts (Alvarez and Valdivie 1980). The objective of this work was to determine effect of the yeast on poultry production.

MATERIALS AND METHODS

Preparation of yeast (*Candida Utilis)*: The yeast (*Candida Utilis)* was obtained through a process of aerobic fermentation. Pure strain of *Candida Utilis*was sub-cultured into 100 ml nutrient solution of Suslo-agar and then allowed to ferment for 110 h. The product obtained was subsequently dried at room temperature. Diets composition with different levels of yeast (%DM) is shown in the table1.

Experimental periods: The study was conducted with Rodonit-3 hens, aged 80 to 86 weeks, kept in 3 layered battery cages with wire floor by "TSAT" LLC. One hundred hens at 80 weeks of age were selected and randomly allocated to 25 pens containing 4 laying hens each with 6 replicates and assigned to receive one of 4 dietary treatments. Hens were kept in confinement housing under semi controlled environmental conditions. The experiment consisted of 4 diets (0, 2, 4, 6% yeast in diet). In experimental period live weight (g), egg production, egg weight (g), feed intake (g) was measured weekly.

Table 1

Diets ingredients (%DM) of laying hen, containing different levels of yeast

Ingredients	Diets[1] T1	T2	T3	T4
Wheat	40	40	40	40
Wheat bran	15	15	15	15
Alfalfa	5	2.5	2.5	2.5
Barley	25	29.5	29.5	28.5
Pea	7.5	3.5	1.5	0.5
Yeast (*Candida*	0	2	4	6
Utilis)	7.5	7.5	7.5	7.5
Bone and meat meal	0.69	0.68	0.68	0.68
Salt (NaCl)	9.56	9.54	9.53	9.56
Limestone	0.5	0.5	0.5	0.5
Mineral premix[2]				
Chemical composition, %				
ME, MJ/kg	12	12.2	12.3	12.3
Crude protein	15.6	15.7	16.2	16.7
Crude fiber	4.7	4.38	4.27	4.17
Lysine	0.53	0.59	0.62	0.66
Methionine + cystine	0.39	0.42	0.43	0.45
Calcium	4.16	4.15	4.15	4.15
Phosphorus	1.08	1.14	1.15	1.18

[1]T1: 0% yeast, T2: 2% yeast, T3: 4% yeast, T4: 6% yeast

Statistical analysis: All of the data were subjected to one-way analysis of ANOVA. Statistical significance among treatment means were determined by the method of new multiple range test of Duncan (1995) when the F value was significant at $p<0.05$

RESULTS

The effect of yeast (*Candida Utilis*) utilization on the commercial layer hen's live weight and egg production is shown in Table 2.

Table 2

The effect of yeast (*Candida Utilis*) on the live weight and egg production of layer hen

Criteria	Diets[1] T1	T2	T3	T4	SEM
Live weight, g[2]					
Initial	1809.2^{b}	1859.6^{c}	1862.4^{b}	1825.0^{a}	8.0
Final	1750.0^{b}	1740.5^{c}	1770.8^{b}	1770.2^{a}	8.0
Egg production, %	44.04^{c}	51.50^{b}	55.75^{a}	44.64^{b}	0.04
Egg weight, g	66.6^{a}	67.8^{b}	70.1^{b}	66.9a^{b}	0.24
Feed intake, kg/10 eggs	2.72	2.35	2.18	2.72	0.16

[1]T1: 0% yeast, T2: 2% yeast, T3: 4% yeast, T4: 6% yeast

[2]Original means in parenthesis, [abc]Means with different letters in the row differ at $P<0.05$ (Duncan, 1995)

From the table 2 it is seen that live weight of hens was decreased for T2 and T3 groups, but higher than control in 26 and 56 g. However for group T4, live weight was decreased in 12g lower than control.

There wasn't any significant difference between groups in egg production, but for groups 2 and 3 there were 7 and 11% higher than control group. Also there was observed an increase of egg weight in 1.2, 3.5 and 0.3 g for T2, T3 and T4 groups than control.

Meanwhile feed intakewas decreased for groups T2 and T3 in 0.35 and 0.54 kg per 10 eggs. However, for group T4 it was similar to the control.

CONCLUSION

Proposed diet with yeast (*Candida Utilis*) 4 to 6% can be used in layer hen feeding, affecting their productive performance.

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