

LIGHTING FOR ANIMALS

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**Project for light
stimulation of
chickens from the
breed DUC**

Annotation

On 06.06.2012, we started a project for light stimulation for the breeding of broilers form the strain DUC at the broiler fattening farm of the company AGRICO LTD.

LED lighting fixtures **IR AL 111 LED BG** were used for the lighting of the chickens.

The lighting program was repeated in the same shed from 08.09.2012 and lighting fixtures PL11W were used for the lighting.

Nature and purpose of the lighting program

A lighting system developed by the company IRA-D LTD. was installed in the shed. The lighting system consists of LED lighting fixtures **IR AL 111 LED BG** and a block **BM AL IR111 LED BG** for automatic control of the regimes of lighting.

The used program consists of a sequence of light regimes. This sequence is consistent with the age of the chickens and exerts its influence through the three main light factors:

1. Wave length: Two wave lengths of the light spectrum are used. Their purpose is to develop the immune system of poultry, build up the bones and muscles, stimulate the growth and production of protein and muscle mass.
2. Intensity of light: The alternating intensity of the light affects the increase of the BW of the chickens, reduction of the stress and aggression of the chickens.
3. Intermittent period of lighting: Improve the metabolism and the more efficient digestion of forage, decrease of leg disease rate, reduction of mortality.



Achieved results

To analyze the achieved results, the information from shed № 6 from the flock set on 06.06.12 and lighted by LED lighting fixtures **IR AL 111 LED BG** and a flock set on 08.09.12 and lighted with luminescent lamps PL11W. During the experiment, the same regime of breeding was kept in all sheds: food program, water, moisture, temperature, veterinary medical care, etc. The achieved results are specified in *table №1*.

Table №1 Percentage expression of the results obtained with LED lighting fixtures IR AL 1101 LED BG and luminescent lamps PL11W .

Number of shed		PL 11W	IR AL 111LED BG	
		08.09.2012	06.06.2012	% of increase
Duration of the breeding of the flock	days	43.10	42.5	
Average body weight of a broiler (live weight)	Kg/ broiler	1.8	2.1	↑ 7.22% ↑
Average weight of a broiler (carcass)	Kg/ broiler	1.24	1.385	↑ 11.69% ↑
Forage conversion	Kg forage/ broiler	3.80	3.294	↓ 13.31% ↓
Food efficiency (conversion)	Kg forage /Kg broiler	1.863	1.707	↓ 9.14% ↓
Yield (weight of the carcass divided by the live weight)	%	68.90	71.28	
Mortality rate	%	1.54	1.41	↓ 9.22% ↓
Growth index FCE		252	262	
Electricity for lighting one chicken	Wh / broiler*	47	15.7	↓ 66.60% ↓

***Electricity for lighting one chicken throughout the whole period of breeding.** The use of LED lighting has decreased up to 3 times the consumption of electricity compared to the luminescent light bulbs PL 11W.

Picture 1 : Picture of the beginning of the program.



Acknowledgement

The company IRA-D LTD. expresses special gratitude to the management of the company AGRICO LTD. for giving us the chance to realize the project.

We express special gratitude to Mr. Tsvetan Petrov – Executive Director of the company for fattening broilers for the thorough cooperation during the project implementation and the provided results.