The Impact of Dietary Supplementation with an *Aspergillus oryzae*-Derived Postbiotic on Productive Performance of Laying Hens Under Commercial Conditions from 19 to 40 Weeks of Age.

Validation Trial East-Central Mexico
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- **AO-Biotics® EQE improved the egg mass**
- **AO-Biotics® EQE improved egg production**
- **AO-Biotics® EQE increased number of sellable eggs**

SUMMARY

DOSE OF AO-BIOTICS® EQE USED
50 g/metric ton of feed

Supplementation with **AO-Biotics® EQE** improved layer performance and egg quality of the flocks.

VALUE

The inclusion of **AO-Biotics® EQE** in the nutritional program for laying hens contributes to increasing egg quality, improving the productivity of the flock and the profitability of the enterprise.

PROTOCOL

Location:

- Puebla, Mexico (East-Central Mexico)

Duration:

- The impact of **AO-Biotics® EQE** was evaluated for 22 weeks, beginning the evaluation at week 19 of age.

Animals:

- Approximately 50,000 laying hens were distributed in two barns (25,000 birds per barn)
- White Bovans

Treatments:

- Control group without **AO-Biotics® EQE**
- Treatment group with the same diet as Control but supplemented with **AO-Biotics® EQE** at 50 g/ton of feed.

Trial Design:

- Laying hens were fed the same diet. One barn received the control diet, whereas the other barn received the control diet supplemented with 50 g of **AO-Biotics® EQE**/ metric ton of feed.

Data Collection:

Hen production:

- Laying rate (egg production)
- Egg weight and egg mass
- Feed intake
- Feed conversion rate

Egg quality:

- Cumulative laid eggs per hen

RESULTS

The Inclusion of **AO-Biotics® EQE** in the diet from 19 to 40 weeks of age improved layer performance and egg quality of the flocks.

AO-Biotics® EQE increased egg production by 5% (*Table 1*).

- Major advantage can be observed during the pre-production phase, highlighting the importance of starting with the inclusion of **AO-Biotics® EQE** as soon as the producer receives the pullets into the production barns. (*Figure 1*)

AO-Biotics® EQE increased feed intake and improved FCR by 3% (*Table 1*).

The laying hens fed **AO-Biotics® EQE** produced eggs with 7% higher mass than the control counterparts.

Improvements observed with the inclusion of **AO-Biotics® EQE** resulted in 6 eggs more laid per hen during the validation period 19-40 weeks of age resulting in an economic advantage (ROI of 13:1; *Figure 2*; *Table 2*)

Table 1. **Mean performance and egg quality of hens fed control or AO-Biotics® EQE treated diet from 19 to 40 weeks of age[1].**

19-40 weeks of age	EQE[2]	Control
Cumulative mortality, %	3.10	2.78
Egg production, %	85.9±19.5	81.5±23.9
Egg weight, g	58.3±4.21	57.5±4.27
Egg mass, g	50.1±13.2	46.9±15.4
Feed intake, g/d	99.2±9.82	96.0±11.0
Feed conversion ratio, g:g	1.98	2.05
Cumulative laid eggs per hen, n	126	120
Sellable eggs, Million eggs[3]	2.16	2.05

[1] Data are means and standard deviations for weeks 19 to 40.

[2] Control diet supplemented with AO-Biotics® EQE at 50 g/metric ton.

[3] Data standardized at 20,000 hens/group and 18 weeks under production.

RESULTS (CONTINUED)

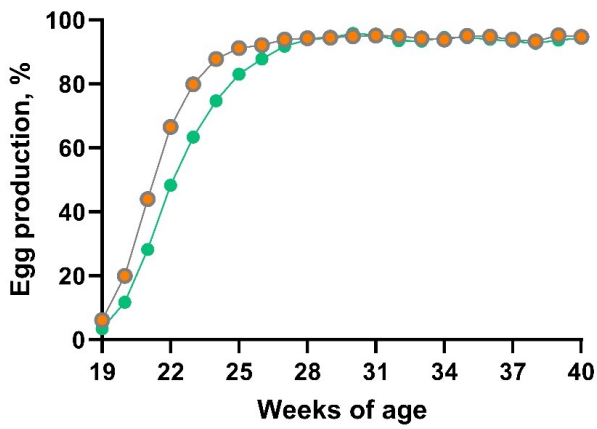

Figure 1. Impact of **AO-Biotics® EQE** at 50 g/ton of feed on the laying rate of hens from 19 to 40 weeks of age.

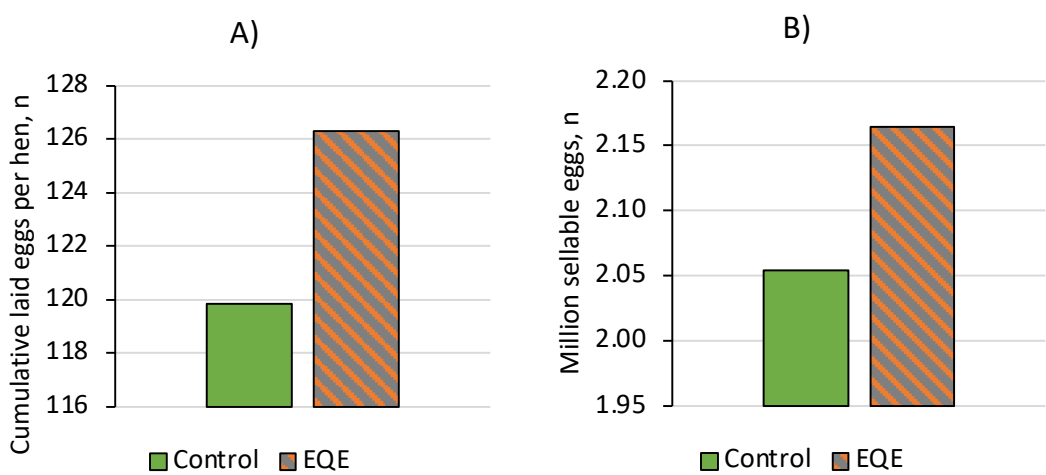

Figure 2. Impact of **AO-Biotics® EQE** at 50 g/ton of feed on the egg quality traits of hens from 19 to 40 weeks of age.

A) Cumulative number of eggs laid per hen from 19 to 40 weeks of age.

B) Million sellable eggs assuming 20 thousand hens in 18 weeks of production.

RESULTS (CONTINUED)

Table 2. **An economic evaluation of the ROI when including AO-Biotics® EQE in the diet of hens from 15 to 75 weeks of age.1**

Mexican Values in Mexican Pesos	**Values Used**	
Number of laying hens in the operation, **n of laying hens**	20000	
Pullet price, **$**	$100.00	
Weeks of age of pullets when entering into production, **week of age**	19	
Total weeks of age at the end of the laying cycle, **weeks of age**	40	
Mortality of the flock, **%**	2.78%	
Feed price, **$/MT**	$8,000.00	
Inclusion price of EQE (price to end user), **$/50 g of EQE**	$35.00	
ADFI, **kg/d**	0.096	
Rate of production, **average %**	81.5%	
Number of eggs laid per hen on production cycle, **n of eggs**	120	
Average egg weight, **g**	57.5	
Egg price, **$/kg**	$26.00	
Economical Evaluation (General)	**Control**	**AO-Biotics® EQE**
B- Income from kg of sold eggs on the production cycle, $	$3,488,433.00	$3,716,861.05
Investment costs, $		
C- Pullet price, **$**	$2,000,000.00	$2,000,000.00
D- Feed, **$**	$2,257,920.00	$2,343,391.68
E- Cost due to mortality (pullet price), **$**	$55,500.00	$61,900.00
F- Total investment cost, **$**	$4,313,420.00	$4,405,291.68
EQE Economical Evaluation		
Recommended dose of EQE, **g/MT of feed**	50	
Inclusion price of EQE (price to end user), **$/50 g of EQE**	$35.00	
EQE Cost in Production		
EQE per production cycle, **kg need**	15	
Inclusion cost of EQE per production cycle, **$**	$10,207.68	
EQE Marginal income total sold eggs on the production cycle, **$**	$0.00	
EQE Marginal income kg of sold eggs on the production cycle, **$**	$228,428.05	
EQE Marginal cost, **$ (difference in F)**	$91,871.68	
EQE Return, kg of eggs sold, **$**	$136,556.37	
EQE Investment, **$**	$10,207.68	
EQE ROI (kg of eggs sold)	13	

[1] Evaluation was done utilizing BioZyme's Economic Return Calculator and local market values (Mexico in Mexican Pesos).

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