



THE EFFECT OF ALGAL BIOMASS SUPPLEMENTATION ON THE PERFORMANCE AND WELFARE OF RABIT DOES AND KITS

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INTRODUCTION

- One of challenges confronting rabbit production is mortality of rabbit kits most especially at birth



- Several efforts have been made to increase the survival rate of young livestock most especially prolific animals such as pig and rabbit.

- One of the efforts made is the supplementation of maternal diets with polyunsaturated fatty acid DHA.

- Studies have reported algal biomass (DHA) has been able to improve the survivability of young livestock animals (Egbeyale et al., 2016)

- Edwards (2002) revealed that long chain fatty acid (DHA) had been crucial to the survival of neonates through the development of brain, eye and neural tissue function

- Adeleye (2012) also reported that the dietary inclusion of algal biomass (DHA) increased farrowing duration and also improved vitality of piglets.

- However, there is dearth of information on the influence of supplementation of rabbit feed with algal biomass rich in (DHA gold) on survivability of rabbit kits.

- Hence, this research aimed to investigate the effects of algal biomass supplementation on the performance and welfare of rabbit does and kit survival



RESULTS

Table 1 : Effects of algal biomass supplemented diets on Reproductive performance of rabbit does

Level (%) of algal biomass						
Parameters	0	0.5	1.0	1.5	SEM	P-Value
Initial weight(Kg)	2.01	1.97	2.03	2.01	0.92	0.99
Conception (%)	46.67	60.00	70.00	80.00	9.07	0.64
Gestation Period (days)	31.33	33.00	31.33	31.33	0.43	0.47
Litter size	5.67 ^{ab}	5.33 ^{ab}	5.00 ^b	7.33 ^a	0.34	0.04
Kit Weight (g)	45.63 ^b	37.33 ^c	45.33 ^b	50.59 ^a	1.60	0.04
Daily Feed intake (g)	89.08	94.39	115.64	102.84	5.95	0.47
Kindling Period (s)	9.00	9.00	9.33	11.67	0.58	0.32
Survivability (%)	40.95	43.33	50.00	61.31	9.92	0.92

Table 2 : Effects of algal biomass supplemented diets on Haematological of rabbit does

Level (%) of algal biomass						
Parameters	0	0.5	1.0	1.5	SEM	P-Value
Pack Cell Volume (%)	26.67	33.33	35.33	29.67	1.73	1.38
White Blood Cell($\times 10^9/\text{mm}^3$)	4.30	10.83	5.55	9.50	1.45	1.22
Red Blood Cell ($\times 10^9/\text{mm}^3$)	3.13	3.63	4.03	5.90	0.58	1.13
Lymphocytes(%)	54.33	41.33	44.67	41.00	3.31	0.85
Neutrophil(%)	34.67	51.33	44.67	51.33	3.68	1.21
Monocytes(%)	7.67	5.33	5.67	3.67	0.74	1.33
Basophil(%)	3.67	2.00	1.67	4.00	0.52	1.41
Haemoglobin (g/dl)	9.33	10.00	11.67	9.67	0.61340	0.64
MCV(fl)	85.00	87.00	85.67	81.67	1.46	0.52
MCH (pg)	30.33	26.67	27.33	31.33	0.86	2.34
MCHC(g/dl)	31.67	31.67	32.67	30.67	0.63	0.34

Table 3 : Effects of algal biomass supplemented diets on Serum biochemical parameters of rabbit does

Level (%) of algal biomass						
Parameters	0	0.5	1.0	1.5	SEM	P-Value
Total Protein (g/l)	6.37	5.40	7.53	5.90	0.41	1.32
Albumin (g/l)	3.70	3.97	5.17	4.17	0.35	0.81
Globulin (g/l)	2.67	1.43	2.37	1.73	0.22	2.06
Alanine aminotransferase (U/l)	45.00	34.00	37.00	45.33	6.48	0.15
Aspartate aminotransferase (U/l)	54.33	35.33	62.33	57.00	8.43	0.41
Glucose (mg/dl)	70.00	52.33	64.00	42.33	4.76	2.24
Urea (mg/dl)	26.00	26.67	27.00	29.33	2.15	0.09
Creatinine (mg/dl)	0.87	1.00	1.33	1.00	0.19	0.20
Platelets ($10^9/\text{ml}$)	1.89	1.44	1.38	1.94	0.34	0.14

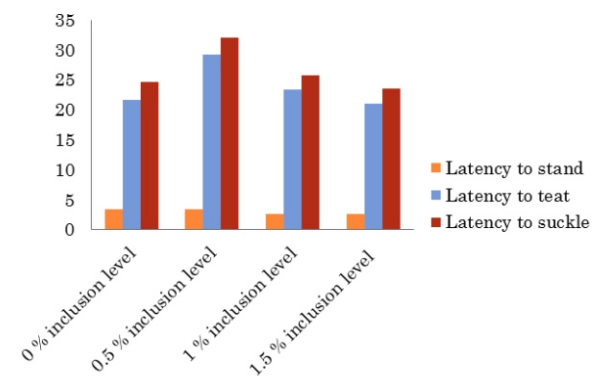
Table 4: Effects of algal biomass supplemented diets on birth interval, and vitality of kits of rabbit does

Level (%) of algal biomass						
Parameters	0	0.5	1.0	1.5	SEM	P-Value
Avg Number of kits	4.000	3.923	3.000	5.4000	0.741	0.791
Birth Interval	1.571	1.846	1.400	1.800	0.256	0.622
Latency to Stand(min)	3.429	3.462	2.600	2.700	0.424	0.313
Latency to Teat(min)	21.710 ^b	29.154 ^a	23.400 ^b	21.000 ^b	1.048	0.000
Latency to Suckle(min)	34.57 ^a	32.076 ^b	25.800 ^{bc}	23.500 ^c	1.048	0.000

Table 5: Effects of Algal biomass supplemented diets on behavior of Rabbit does

Level of algal biomass (%)						
Parameters	0	0.5	1.0	1.5	SEM	P-Value
(Frequency of occurrence)						
Feeding	66.71 ^{bc}	67.64 ^b	61.29 ^c	77.00 ^a	1.65	0.000
Drinking	62.71 ^{ab}	60.07 ^b	60.79 ^b	67.64 ^a	1.55	0.005
Lying position LR	52.45 ^a	45.36 ^b	34.45 ^a	39.86 ^c	1.17	0.000
Lying position LL	63.29 ^a	42.79 ^b	45.57 ^b	39.00 ^c	2.13	0.000
Belly Sitting	72.21	68.50	71.21	67.50	2.34	0.446
Grooming	59.71 ^c	64.93 ^b	76.36 ^a	75.07 ^a	1.13	0.000
Pulling of Fur	46.14	52.57	45.93	61.57	7.03	0.360
Ear Scratching	21.14	17.93	23.00	31.64	0.70	0.345

Graph showing the effect of algal biomass supplementation on vitality of kits of rabbit does



CONCLUSION

- Results revealed that rabbit does supplemented with 1.5% algal biomass exhibited significantly higher kit weight, higher litter size and vital kits.
- These findings suggest that algal biomass supplementation positively impact both performance and welfare of rabbit does including the kits survival



METHODOLOGY

- Experimental site : Rabbitary unit of the College of Animal Science and Livestock Production, Federal University of Agriculture, Abeokuta, Nigeria

- Test ingredient: Algal biomass docosahexaenoic acid (DHA gold).



- Sample size: Twenty does mixed breed (Chinchilia , new zealand white) with an average weight of 1.8kg.



- Hand mating (1 buck : 5 does).

- The Does were randomly divided into four treatments and five replicates

Treatment	Level of inclusion
1	0 %
2	0.5 %
3	1 %
4	1.5 %

- A commercial rabbit concentrate feed (Grower mash) from a known feed company was fed to the rabbits.



- The Experiment lasted (8) eight weeks (Four weeks of gestation to four weeks after parturition).

- Growth, reproductive and behavioural parameters were monitored .

- Haematological parameters , serum biochemical profiles were assessed

- Data collected was analyzed using one way analysis of variance . Tukey test was used to separate the means. (SAS, 2002)

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