

Evaluating the effects of feed form, with and without a nutritional water supplement, on the performance of piglets raised in a commercial research facility without feed grade antibiotics

F.B. Sandberg, K.T. Soltwedel, S.J. England, and M.R. Bible
Furst-McNess Company, Freeport, IL

PSIV-1

ABSTRACT

The objective of this experiment was to determine whether feed form and water supplementation could jointly affect performance of newly weaned piglets. A total of 1319 PIC 359 piglets were randomly allocated to 2 dietary treatments and 2 water treatments in a 2 x 2 factorial design. The diet was either a crumbled pellet (COMPLETE), or a diet formulated using the same crumbled pellet as 70% of the diet together with other ingredients, in meal form, to make an isonitrogenous ration (PARTIAL). No feed grade antibiotics were used and from d 21 all pigs received a common diet. Water treatments were straight water (WATER) or a probiotic nutritional supplement (Furst Water Boost, FWB) that was administered at 16 oz per gallon of stock solution for the first 2 and ½ days post-arrival, metered at 1:128. Pigs were allocated by environment, sex and BW with 33 pigs per pen and 10 replications per treatment. Pens of pigs were weighed and feed disappearance was recorded on d 0, 21, 41, and 54, and used to calculate ADG, ADFI, and G:F. Dead (% mortality) and pulled (% morbidity) pigs were recorded. All data were analyzed using the MIXED procedure of SAS with a randomized complete block design of 2x2 factorial arrangement. Pen served as the experimental unit. There were no diet by water interactions for any measurement. COMPLETE x FWB had the numerically highest ADG and 54-d BW. Overall COMPLETE increased BW, ADG and G:F (P<0.01) and FWB tended (P<0.10) to increase BW and increased ADG (P<0.05) with no effect on G:F. From d 21-41 COMPLETE improved ADG (P=0.0021) and FWB tended to improve ADG (P=0.067). In conclusion, effects on piglet performance by diet form and water supplementation were found to be additive, with no interactions.

BACKGROUND

Today, there is a consumer demand for antibiotic-free production in the swine industry. Also, due to the VFD regulations, there are more producers looking for feed grade antibiotic alternatives. Thus, there is a need for a product that works quickly and effectively. Furst Water Boost™ is a nutritional water supplement that is can support piglets on placement in the nursery and support piglets during scours.

Nutritional Water Supplement (Furst Water Boost™):

- Three strains of probiotic bacteria
- Unique combination of essential oils and organic acids
- Supportive vegetable fat
- Other key botanical extracts

OBJECTIVE

The objective of this experiment was to determine whether feed form and water supplementation could jointly affect performance of newly weaned piglets in a commercial research facility.

TREATMENTS

- Feed Treatments (No antibiotics; common N3)
 - COMPLETE – crumbled pellet
 - PARTIAL – crumbled pellet as 70% of the diet with other ingredients (meal form) to make an isonitrogenous diet
- Water Treatments
 - WATER – water
 - FWB – Furst Water Boost™ for 2 ½ days post-arrival

DIETS

Table 1: Composition of Phase 1 (5.9-7.7 kg)

Ingredient	COMPLETE	PARTIAL
Complete Fuel Crumble	100.00	70.00
Corn	-	16.31
Soybean Meal	-	13.01
Limestone	-	0.13
Monocalcium Phosphate	-	0.22
Salt	-	0.18
L-Lysine HCl	-	0.07
L-Threonine	-	0.04
DL-Methionine	-	0.03
TOTAL	100.00	100.00

MATERIALS & METHODS

- 1,319 PIC359 commercial nursery pigs (avg. 5.1 kg & 21 d of age)
- Blocked by BW, sex, and environment
- Housed in a commercial wean to finish barn
- 54-d study
- 4 treatments (8 reps/trt)
- FANCOM feeding system
- Diets met or exceeded 2012 NRC requirements

Performance

- Pens of pigs weighed on d 0, 21, 41, and 54
- Feed disappearance measured
- ADG, ADFI, and GF calculated

Water Treatment

- Metered at 1:128
- 16 oz per gallon of stock solution
- Duration of 2 ½ days post-arrival

Morbidity, Mortality, & Treatments

- Medical treatments recorded daily
- Pigs unresponsive to injectable treatments
- Tagged & moved to sick pens
- Morbidity – tagged pigs that remained as viable pigs
- Mortality – pigs that died

Statistical Analysis

- RCBD (2x2 Factorial Arrangement)
- SAS MIXED procedure
- Experimental Unit = pen
- Means reported as LS Means

Table 2: Composition of Phase 2 (7.7-11.3 kg)

Ingredient	COMPLETE	PARTIAL
Complete Fuel Crumble	30.00	20.00
Corn	41.10	50.18
Soybean Meal	25.00	25.00
Choice White Grease	1.70	1.92
Monocalcium Phosphate	0.58	0.73
Limestone	0.43	0.47
Salt	0.35	0.42
L-Lysine HCl	0.27	0.43
DL-Methionine	0.15	0.21
L-Threonine	0.11	0.19
L-Valine	0.03	0.11
L-Tryptophan	0.02	0.05
VTM	0.10	0.12
McNess Core	0.15	0.17
TOTAL	100.00	100.00

RESULTS

Table 3: Summary of Growth Performance and Health Status for d 0-54

Feed	Treatments				SEM	P-value		
	COMPLETE		PARTIAL			Diet	FWB	DxFWB
Water	WATER	FWB	WATER	FWB				
BW, kg								
d 0	5.1	5.1	5.1	5.1	0.05	0.527	0.874	1.000
d 54	32.2	32.8	31.2	31.5	0.32	0.0001	0.068	0.617
Growth Performance								
ADG, g	496	509	479	487	6	0.0005	0.044	0.577
ADFI, g	762	777	751	767	11	0.287	0.138	0.989
G:F	0.650	0.654	0.638	0.635	0.004	0.001	0.849	0.461
Health Status								
Morbidity, %	0.30	0.61	0.91	0.00	0.41	1.000	0.466	0.151
Mortality, %	2.42	1.82	2.42	1.83	0.90	0.996	0.512	0.996

CONCLUSION

- Pigs fed the COMPLETE diet with Furst Water Boost™ had the highest ADG and ending BW.
- COMPLETE diet increased BW, ADG, and G:F by 4%, 4%, and 2%, respectively, compared to the PARTIAL diet.
- Furst Water Boost™ tended to increase BW by 1% and increased ADG by 2%.
- Diet form and water supplementation were found to have additive effect on performance of pigs fed no antibiotics.



FURST-MCNESS COMPANY

800.435.5100 EXT 425

swine@mcness.com

www.mcness.com/swine