

THE EFFECT OF SUGAR DOUGH AS ENERGY SUPPLEMENT ON THE PERFORMANCE OF FINISHER PIGS

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Forty Large White Yorkshire piglets (aged 60 days) were randomly divided into equal groups and fed with rations containing sugar dough at 0 (T₁), 25 (T₂), 50 (T₃), 75 (T₄) and 100 (T₅) per cent level as replacement of maize for 180 days. It was observed that, the body weight at 180th day were 55.46 ± 0.99, 58.59 ± 0.53, 61.56 ± 0.73, 63.39 ± 0.72 and 54.06 ± 0.83 kg respectively which varied highly significant among groups. Group fed with T₄ ration recorded the maximum weight gain but did not significantly differ with T₃ fed ration. Highly significance (P d" 0.01) difference was noticed between T₄ fed ration and T₁, T₂ and T₅ fed rations. The cost of the rations in T₁, T₂, T₃, T₄ and T₅ ration calculated to be Rupees 8.82 /-, 8.16 /-, 7.51 /-, 7.48 /- and 6.82 /- respectively. It could be concluded that sugar dough can replace maize at 50 and 75 per cent levels without any adverse effect on growth performance and thereby reduce the feed cost and cost of production.

Key words: Sugar dough, feeding trial, growth performance

In commercial piggery units, swine feeding accounts about 80 per cent of the cost of rearing pigs. It is not the feed conversion efficiency but the cost effective nutritionally balanced feed rations, which ensure the profitability. Increase in pig production, necessitated by growing demand has to result increasingly from unconventional feed stuffs and by-products for which competition is less. The feeding of food waste or garbage to swine and other livestock animals is a common practice throughout the world and is often concentrated around metropolitan centres. Food plate waste (formerly referred to as garbage) has most often been used as a source of feed for swine. High disposal costs encourage the feeding of food/plate waste. Food waste can be defined as any edible material or byproduct that is generated

in the production, processing, transportation, distribution, or consumption of food. The primary waste products fed to swine are plate and kitchen waste, bakery waste, and food products from grocery stores. Quality of ingredients used in swine diets can have a larger effect on the performance. Stale bread and bakery crumbs are high carbohydrate products and high-energy feeds. In India, a better use of unconventional feed would be beneficial for producing cost effective and balanced feed. With this view a feeding trial was conducted using sugar dough, a confectionery waste, as energy supplement replacing maize to assess the growth performance of Large White Yorkshire (LWY) finisher pigs (NRC, 1983)

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Forty Large White Yorkshire (LWY) piglets were selected randomly at two month of age, distributed into five groups of eight each. Five finisher rations were formulated by incorporating sugar dough replacing maize at 0 per cent ((T₁), control), 25 per cent (T₂), 50 per cent (T₃), 75 per cent (T₄) and 100 per cent (T₅) levels (Table -1) and were fed adlibitum. The amount of feed offered and left over was recorded daily and their growth performances were recorded fortnightly up to 180 days of age. The data collected were statistically analyzed as per Snedecor and Cochran (1985).

The ingredients and the chemical composition of the feed on dry matter basis used in the trial were provided in Table 1. The growth performances

of LWY pigs were provided in table 2. There was no significant difference in body weight at 60 days of age. The body weight at 180 days fed with different rations viz, T₁, T₂, T₃, T₄ and T₅ were 55.46 ± 0.99, 58.59 ± 0.53, 61.56 ± 0.73, 63.39 ± 0.72 and 54.06 ± 0.83 kg respectively which varied highly significant among groups. Group fed with T₄ ration recorded the maximum weight gain but did not differ significantly with T₃ fed ration. Highly significance (P d' 0.01) was noticed between T₄ fed ration and T₁, T₂ and T₅ fed rations. Maximum average daily weight gain was recorded in T₄ ration with 406.01 ± 7.34 g and minimum weight gain in T₁ ration (control) with 385.08 ± 11.32 g. This finding is in agreement with Ronald *et al.*, (2004). Reduced feed consumption was noticed in T₅ fed ration, which could be attributed to excessive sweetness of the feed making it non-palatable.

Table 1

Ingredient composition of experimental rations

Ingredient	Ration				
	T ₁ (Control)	T ₂	T ₃	T ₄	T ₅
Maize	35	26.25	17.5	8.75	0
Chocolate waste	0	8.75	17.5	26.25	35
GNC	15	16	20	21	25
Wheat bran	16	16	16	16	16
DORB	31	30	26	25	21
Salt	1	1	1	1	1
Mineral Mixture	2	2	2	2	2
Cost of ration / kg (Rs.)	8.82	8.16	7.51	7.48	6.82
Chemical Composition (on % DMB)					
Crude protein	15.86	15.40	15.94	15.48	16.01
Digestible energy Kcal/Kg	2653	2677	2701	2725	2748

Table 2
Growth performance of Large White Yorkshire fed with experimental rations

Particulars	T ₁	T ₂	T ₃	T ₄	T ₅
Body weight at 60 days of age (kg)	12.3 ± 0.23	12.1 ± 0.26	12.3 ± 0.15	12.3 ± 0.16	12.0 ± 0.29
Body weight at 180 days of age (kg)	56.46 ± 0.99 ^a	58.59 ± 0.53 ^a	61.56 ± 0.73 ^{bc}	63.39 ± 0.72 ^c	54.06 ± 0.83 ^a
Average daily weight gain (g)	385.08 ± 11.32 ^a	387.18 ± 3.95 ^a	398.48 ± 0.42 ^{bc}	406.01 ± 7.34 ^c	391.66 ± 10.98 ^b
Average feed consumption (kg)	1.63	1.60	1.62	1.61	1.51
Feed cost / kg weight gain (Rs)	39.25	33.54	29.74	28.12	29.33
Feed per kg gain (kg)	4.5	4.11	3.96	3.76	4.3

a, b,c Values bearing different superscripts in a row differ significantly ;

* P ≤ 0.05, ** P < 0.01

Less reduction in weight gain recorded in T₅ ration was due to continuous gastric disturbances with pasty diarrhea and vomiting through out the trial. The highest feed conversion efficiency was recorded in T₄ fed ration and lowest in T₁ control ration. This could be due to the high-energy content in sugar dough. The cost of the rations in T₁, T₂, T₃, T₄ and T₅ ration calculated to be Rupees 8.82 /-, 8.16 /-, 7.51 /-, 7.48 /- and 6.82 /- respectively. The feed cost for 1Kg weight gain was the lowest in T4 group with approximately Rs.28. The sugar dough waste could be utilized without further processing as in case with other food waste products (Myer *et al.*, 1999). Roberta *et al.*, (2001) conducted a similar trial by replacing maize with residue of panificação and found that it is a viable alternative source for the feeding and reduction of the costs of creation of the steers. Hence it could be concluded that sugar dough can replace maize up to 75 per cent level without any adverse effect on the growth performance and thereby reduce the feed cost and cost of

production with better utilization of unconventional feedstuffs.

REFERENCES

- Myer, R. O., J. H. Brendemuhl, and D. D. Johnson. 1999. Evaluation of dehydrated restaurant food waste products as feedstuffs for finishing pigs. *J. Anim. Sci.* 77:685.
- NRC. 1983. Underutilized Resources as Animal Feedstuffs. National Academy Press. Washington D.C.
- Ronald, B.S.M., S.Senthilkumar, S.Jaishankar, H.Gopi and T.Sivakumar. (2004). Performance of Large White Yorkshire pigs with grower rations. *Cheiron*, 33 (3&4) : 103 – 104
- Snedecor, G.W and Cochran W.G. (1985). Statistical Methods, Oxford and IBH Publishing Co., New Delhi