



Feeding of Spinach and Finger millet in Growing Piglets to Control Piglet Anaemia

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ABSTRACT

The experiment was conducted in 120 piglets (T&D crossbred) in Garhwa district. The treatments included T1-farmer's practices to control piglets anaemia, T2-feeding of 100 g spinach leaves (*Spinacia oleracea* L.) daily for 3 m and T3- finger millet flour (*Eleusine coracana* L.) 100g daily for 3 m. Each treatment was given to 2 pigs each of 20 farmers and the data were recorded on mortality rate (%), morbidity rate (%), body weight gain (kg) and Hb level (g/100 ml of blood) of treated animals after four months. The results revealed that minimum mortality (2.5%) and morbidity rate (4%), maximum body weight gain (15.5kg) and Hemoglobin level 11g/100ml of blood were recorded in individuals treated with finger millet (T3) which were significantly higher than those treated with spinach leaves (10.5%, 22% and 11.8 kg and 9g/100ml of blood, respectively). The poor management for piglet anemia practiced by farmers exhibited highest mortality (38%), morbidity (46%), lowest gain in body weight (9kg) and Hb level 6g/ 100ml of blood. As such, feeding of finger millet 100 g daily was found quite beneficial followed by feeding of spinach leaves 100 g daily.

Key Words: Management, Piglet, Anemia, Spinach, Leaves, Finger millet.

INTRODUCTION

The piggery industry is a lucrative sector with high profits and requires minimal capital investments in terms of land and feeds. Pig rearing is gaining importance in the recent years for meat production as it satisfies the high protein demand (Prasath *et al*, 2014). It is an important occupation of rural society especially among the tribal masses. They rear pigs under nomadic system both as a source of income and a choice of meat consumption. Pig is widely distributed in all the eco- regions of the country. It is a fastest growing animal, better feed conversion ratio, short gestation period and furrow 8- 12 piglets at a time.

Spinach (*Spinacia oleracea*) is one of incredible green-leafy vegetable often recognized as one of the functional foods for its health benefiting nutritional, antioxidants and anti-cancer composition. It contains several vitamins (A, C, K, Folic acid etc.) and minerals, such as potassium, magnesium, calcium and iron (Tewani *et al*, 2016). Finger millet

(*Eleusine coracana*) is a cereal grass grown mostly for its grain. Finger millet is a robust, tufted, tillering annual grass, up to 170 cm high. It belongs to family Poaceae and is grown extensively in dry land region of India and Africa, constitutes as a staple food for a large segment of the population in these countries. It is also known as Ragi, Maruwa etc. They are nutri-cereals which are highly nutritious and are known to have high nutrient content which includes protein, essential fatty acids, dietary fibre, B-Vitamins, minerals such as calcium, iron, zinc, potassium and magnesium. Millet is known to be a drought-resistant crop, resistance to pests and diseases, short growing season as compared to other major cereals (Devi *et al*, 2011). In developing country, cereal-based foods have low bioavailability of minerals like iron, zinc initiate critical problem for infants and young children (Sarita and Singh, 2016). In India, it is sometimes used for feeding baby calves, growing animals, as well as sick and convalescing animals.

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Table 1. Effect of feeding spinach and finger millet in growing pigs.

Treatment	Mortality rate (%)	Morbidity rate (%)	Body wt. gain (kg)	Hb g/100 ml of blood
T1	38	46	9	6
T2	10.5	22	11.8	9
T3	2.5	4.0	15.5	11
CV%	11.25	7.54	3.05	
CD (0.05)	1.90	2.84	1.6	

*Note :- Spinach leaf (iron content) : 2.71mg/100g , Finger millet (iron content): 3.60 – 7.31mg/100g.

Garhwa district is a good custodian of meat animals. Farmers of Garhwa district rear pigs for meat purpose. A rough estimate of population of pig in Garhwa district is around 5 -6 lakh. Pig farmers recognize a tremendous loss in pigs rearing due to large number of death which occurs during the early growing period. The pig is born with a normal level of haemoglobin in the blood (12-13g/100ml) which rapidly drops down to 6-7g by 10 to 14 d of age. High mortality in piglets due to piglet anaemia is a major problem of pig farmers. Thus, this study was conducted to evaluate the effect of feeding spinach and finger millet on growing piglets to improve their growth and to check mortality.

MATERIALS AND METHODS

An experiment was conducted in 120 piglets of T & D breed of crossbred pigs of body wt ranging between 5kg to 8 kg in the randomized block. This experiment was conducted in participatory mode of twenty farmers of Garhwa district. The treatments were T1- Farmer's Practices (poor management to control piglet anaemia), T2- spinach leaves (*Spinacia oleracea*) 100g daily given for 3 m and T3- finger millet flour (*Eleusine coracana*) 100 g daily given for 3 m. Each farmer possessed 6 piglets having 2 piglets in each treatment and replicated to 20 farmers. Data were recorded on mortality rate (%), morbidity rate (%), body weight gain (kg) and Hb level (g/ 100ml of blood) of treated individuals and analyzed by randomized block design. Blood samples were collected after four months and were analyzed by the Department of Pathology, Ranchi Veterinary College, Birsa Agricultural University, Ranchi, Jharkhand.

RESULTS AND DISCUSSION

The values (Table 1) depicted that minimum mortality rate (2.5%), morbidity rate (4%), maximum body weight gain (15.5 kg) and approx normal hemoglobin level 11g/100ml of blood were recorded in individuals treated with finger millet which were significantly higher than those treated with spinach leaves (10.5%, 22% and 12.8 kg and 9g/100ml of blood, respectively). The poor management was practiced by farmers exhibited highest mortality (38%), morbidity (46%), lowest gain in body weight (9kg) and Hb level (6g/ 100ml of blood). As such, feeding with finger millet 100 g daily was found quit beneficial followed by feeding of spinach leaves 100 g daily. Tewani *et al* (2016) reported that spinach is bundled up with vitamins such as vitamin A, vitamin B, vitamin C and vitamin E and minerals like magnesium, manganese, iron, calcium and folic acid. Shashi *et al* (2007) reported that iron content ranged from 3.60 – 7.31mg/100g in different genotype of finger millet while Netravati *et al* (2018) found iron was present as 3.00 ± 0.08 mg/100g of finger millet. Rao *et al* (2017) observed that Ragi is a very good source of natural iron and its consumption helps in alleviating anaemia. It has been reported that the iron content of 16 finger millet varieties ranged from 3.61 mg/100g to 5.42 mg%, and is the richest source of calcium, iron, protein and essential amino acids. Iron plays major role as a constituent of hemoglobin, the red pigment in the erythrocytes and responsible for transport of oxygen around the body. Iron also form a constituent in myoglobin of the muscle (Prasath *et al*, 2014).

Feeding of Spinach and Finger Millet



Fig:-T2: Feeding of Spinach leaves 100g daily



Fig:-T3: Feeding of Finger millet flour 100g daily



Fig:- Results after treatment with Finger millet

The data (Table 1) showed that piglet anaemia was checked with marked reduced mortality and morbidity rate with increased body weight as well as achievement of normal blood level in growing piglets on proper feeding of iron rich finger millet.

CONCLUSION

The study showed that proper feeding of finger millet @100 g daily was appropriate for controlling the piglet anemia in growing piglets. This might be due to high content of iron in finger millet. Piglet anemia was checked with increased body weight and normal haemoglobin level in blood.

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