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EVALUATION OF HERBAL PRODUCT IN THE MANAGEMENT OF FARROWING STRESS IN SOWS AND IMPROVING LITTER WEIGHT

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ABSTRACT

This study examined the impact of herbal product in the management of farrowing stress in sows and improving litter weight. 20 sows which were in their late gestation period were randomly divided into two groups (n=10). Group T_0 sows served as no treatment control group and group T_1 sows were supplemented with herbal antistress product, Stresomix (*M/S Ayurvet Ltd., Baddi*) administered for 10 days prior to farrowing and & 6 weeks post farrowing. The analysis of result revealed that mean piglet weight improved in Stresomix supplemented group by 18.8%. Average litter size was also more in Stresomix supplemented group (8) than control group (7.7). A decrease in mortality was observed in Stresomix supplemented group at the time of birth and during preweaning period. In Stresomix supplemented group average milk yield post partum was 131.5 liters and in control group was 103.5 liters. Stresomix supplementation to the sows tended to have positive effect on productivity.

KEYWORDS: Farrowing stress, Mean piglet weight, Average mortality.

INTRODUCTION

Proper care of the sow during gestation and farrowing is essential for a large litter of healthy pigs at birth that will remain healthy and grow rapidly. The piglet is profoundly immunodeficient at birth and is highly dependent upon a supply of both specific and non-specific immune factors present in maternal colostrum and milk for immune protection, development and survival.[1] The farrowing period is the time of greatest risk and creates a unique management challenge.[2] In piglet production, the perinatal phase and the period

before birth up to the third day after farrowing, is a particularly sensitive phase.[3] The sows are stressed physiologically and also by behavioral restriction imposed by the farrowing crate system.[4] The sow must reach farrowing in the best nutritional and microbiological health for herself and for the expected litter. Pre-weaning piglet mortality varies between 10.7 % and 15.3 % depending on birth weight, litter size, gestation period, frequency and quality of human supervision, husbandry system, and nutrition of the sow.[5] Thus, it is important to minimize stress to sows during the periparturient period. Profitable pig farming is dependent on better piglet survival, faster growth rate and good breeding efficiency of the sows. Supplementation of herbal preparation may have role in higher piglet survival rate and higher number of pigs weaned per litter. Keeping these points in view; the present study was undertaken. In this study effects of herbal antistress product, Stresomix (M/S Ayurvet Limited, India) on survivability of piglets post farrowing and before weaning were evaluated.

MATERIAL AND METHODS

Experimental design

A field trial was carried out in Proddatur Mandal of Kadapa District of Andhra Pradesh. The experiment was conducted on a total of 20 sows which were in their late gestation period. The sows were randomly divided into two groups- T_0 & T_1. Group T_0 sows served as no treatment control group and group T1 sows were supplemented with Stresomix at 5 gm/day for 10 days prior to farrowing and & 6 weeks post farrowing. Individual piglet weight per sow per group, mean piglet weight per sow per group, average litter size per sow, mortality at the time of birth and still birth were recorded. In addition to these parameters mortality during pre-weaning period, survivability % at the time of weaning & milk yield post partum (Approx. for 2 months in liters) were also recorded.

RESULTS AND DISCUSSION

Mean piglet weight (Kg) and litter size per sow

Maternal stress during gestation and prenatal stress in the offspring influence the fetal or neonatal development.[6] Birth weight is an important trait in pig production.[7] Small piglets form a lower total number of skeletal muscle fibres during prenatal development compared with their larger littermates.[8] An increase in litter size often comes with an increasing number of small, low-birth-weight and vulnerable piglets.[9] Mean piglet weight per sow was 1.07 kg and mean litter size was 8 in Stresomix supplemented group whereas in control group the mean piglet weight was 0.90 kg and mean litter size was 7.70 (Table1). High body

weight and litter size in Stresomix supplemented group may be attributed to its ingredient herb viz *Withania somnifera* and *Ocimum sanctum* which might have elevated stress in sows and thus resulting in increased body weight and litter size.[10,11,12,13]

Table 1: Mean piglet weight (Kg) and litter size per sow in different treatment groups

Group T_0: Unsupplemented control											
Sow number / **Parameters**	**Sow 1**	**Sow 2**	**Sow 3**	**Sow 4**	**Sow 5**	**Sow 6**	**Sow 7**	**Sow 8**	**Sow 9**	**Sow 10**	**Mean**
Mean piglet weight/Sow/Group (Kg)	0.75	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75	0.90
Average litter size per sow	8	8	7	8	7	8	8	8	7	8	7.70

Group T1: Supplemented with Stresomix											
Mean piglet weight/Sow/Group (Kg)	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.25	1.00	1.25	1.07
Average litter size per sow	8	8	8	8	8	8	8	8	8	8	8

Average mortality and Survivability (%) at the time of weaning

Birth and weaning are two major stresses in the life of the pig.[14] The newborn piglet has a low energy reserve, approximately half that of lambs and calves.[15,16] Piglet survival depends on multiple factors, including individual vitality at the time of birth[17] which is affected in turn by piglet birth weight.[18] The stress of farrowing can affect the behavior of the sow and lead to restlessness and even to aggressiveness which increases the risk of piglet crushing and prevents suckling.[19] Preweaning piglet death is a major inefficiency in pork production and results in lost profit opportunities for producers. Increasing pigs-weaned-per-sow-per-year helps to maximize profits as it decreases production costs per pig by expanding the number of pigs to share fixed costs. In present study, in unsupplemented control group high mortality was observed at the time of birth (19.48%) as compared to Stresomix supplemented goup (10%). In Stresomix supplemented group low mortality during preweaning period (5.55%) was observed as compared to untreated control group (14.52%). Survivability percentage at the time of weaning in Stresomix supplemented group was found to be 85% (68 out of 80 born) and in untreated control group survivability percentage was 68.83% (53 out of 77 born). The improvement in survivability percentage in Stresomix supplemented group may be attributed to its ingredient herb viz *Ocimum sanctum*, *Phyllanthus emblica* & *Mangifera indica* which are reported to have immunomodulatory activity.[20,21,22,23]

Table 2: Average mortality and Survivability (%) at the time of weaning in different treatment groups

Group T_0: Unsupplemented control											
Sow number / Parameters	**Sow 1**	**Sow 2**	**Sow 3**	**Sow 4**	**Sow 5**	**Sow 6**	**Sow 7**	**Sow 8**	**Sow 9**	**Sow 10**	**Mean**
Mortality at the time of birth	1	1	1	1	1	2	2	2	2	2	15 out of 77 born= 19.48 %
Mortality during preweaning period	--	--	2	--	2	--	3	--	2	-	9 piglets out of 62 born= ***14.52 %***
Survivability % at the time of weaning	7	7	4	7	4	6	3	6	3	6	53 out of 77 born = 68.83%
Group T1: Supplemented with Stresomix											
Mortality at the time of birth	1	1	1	1	0	1	1	1	1	0	8 out of 80 born = 10%
Mortality during preweaning period	0	1	0	0	1	0	2	0	0	0	4 out of 72 piglets = 5.55 %
Survivability % at the time of weaning	7	6	7	7	7	7	5	7	7	8	68 out of 80 born = 85%

Milk production (liters)

The importance of the lactation of the sow in pig production is often neglected since the milk in itself is not the product that the farmer sells. However, sow milk is very important for the supply of nutrients to piglets that will later ensure a profitable meat product. A high intake of colostrum is an important factor for piglet survival during the first days of the nursing period.[24,25,26] The milk yield in both the groups was recorded upto 2 months post partum (Table 6). The average milk yield was found to be high in strexomix supplemented sows (131.5 liters) as compared to non supplemented control group (103.5 liters). High milk production in Stresomix supplemented group may be attributed to its ingredient herb viz *Withania somnifera* which was previously reported to improve the synthesis of milk in mammary gland by elevating the glucose level.[27,28]

Table 3: Average milk production in different treatment groups

Group T_0: Unsupplemented control											
Sow number / Parameters	**Sow 1**	**Sow 2**	**Sow 3**	**Sow 4**	**Sow 5**	**Sow 6**	**Sow 7**	**Sow 8**	**Sow 9**	**Sow 10**	**Mean**
Milk yield post partum(Approx. in lts. For 2 months)	100	100	110	110	105	100	105	100	100	105	103.5

Group T1: Supplemented with Stresomix											
Milk yield post partum(Approx. in lts. For 2 months)	130	130	130	135	135	130	130	130	135	130	131.5

CONCLUSION

Mean piglet weight and milk yield post partum were found to be high in stresomix supplemented group. Mortality at the time of birth and during preweaning was found to be low in Stresomix supplemented group. This suggests the role played by Stresomix in reducing the farrowing stress in sows and also in improving litter weight.

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