



Deutscher Tropentag - Bonn, 9-11 October 2001  
Conference on International Agricultural Research for  
Development

---

**Effect of breeding on different production parameters in wild pigs (*Sus scrofa*),  
crossbred pigs and Meishan pigs in Thailand**

N. Chongkasikit<sup>a</sup>, T. Vearasilp<sup>a</sup> and U. ter Meulen<sup>b</sup>

a Department of Animal Nutrition, Chiang Mai University, 50200 Chiang Mai, Thailand.  
Email: agismkch@chiangmai.ac.th

b Institute of Animal Physiology and Animal Nutrition, Department of Tropical Animal Nutrition,  
Georg-August-University, Kellnerweg 6, 37077 Göttingen, Germany.

**Abstract**

In Thailand a market for meat of wild pig (*Sus scrofa*) are developing. Simultaneously the number of *Sus scrofa* living in the wild are declining since the areas of natural habitat are reduced. On farm production of wild pigs is an alternative source for this meat and can serve as a genetic resource of wild pigs for future use. However, wild pig productivity expressed in terms of ADG, feed conversion rate (FCR), carcass quality and the number of piglets per litter is low as compared to Thai native pigs, European pig breeds and Meishan pigs though they are well adapted to the hot climate and probably resistant to some diseases in Thailand. In order to test if an increase in productive performance can be achieved by crossbreeding of wild pig with European pig breeds and Meishan pigs 15 wild boars were mated to 9 wild sows, 10 crossbred sows (75% wild pig: 25% Large White) and 5 Meishan sows. The litter size of Meishan pigs was with on average 8.8 piglets significantly ( $P<0.05$ ) higher than of wild pigs (5.56). Birth weight (1.205 and 1.094 kg) and weaning weight (6.43 and 5.84 kg) of male and female piglets from wild pigs x Meishan pigs was significantly ( $P<0.05$ ) higher than for wild pigs x crossbred pigs (0.98, 0.79, 5.50 and 5.14 kg respectively) and wild pigs x wild pigs (0.70, 0.64, 3.85 and 4.29 kg respectively). Body weight at 17 weeks of male and female piglets from wild pigs x Meishan pigs was with 29,0 kg and 21.5 kg significantly ( $P<0.05$ ) higher than that of wild pigs x crossbred pig (16.10 and 15.48 kg). Pre weaning average daily gain (ADG) of male piglets from wild pigs x Meishan pigs and wild pigs x crossbred pigs was also significantly ( $P<0.05$ ) higher than for wild pigs x wild pigs. The trial showed that a suitable crossbreeding programme can improve the productivity of the wild pigs.

**Introduction**

In Thailand pork meat is very important for the supply of protein for human nutrition. Large pig farms with European pig breeds such as Large White, Landrace and Duroc are common, while in rural areas pigs of Thai native breeds with black skin such as Kwai, Raad or their crossbreeds are still grown (Suwat, 1994). Thai native pigs have low average daily gain (ADG) and feed conversion ratio (FCR). Carcass quality is not good but they are well adapted to the hot climate and probably resistant to some diseases in Thailand. Recently, some farmers have began to raise wild pigs (*Sus scrofa*).

These pigs live native in several forests throughout Thailand, however, their number are rapidly declining since the areas of natural habitat are decreasing and wild boar is also becoming a popular dish in restaurants. On farm production of wild pigs could be an alternative source for this meat and serve as a genetic resource of wild pigs for future use. However, producers of wild pigs have to know the behaviour of this specie and less productivity expressed in terms of ADG, FCR, carcass quality and lower number of piglets per litter is to be expected as compared to Thai native pigs, commercial pigs and Meishan pigs (Watcharapong et al., 1997). In order to increase their productive performance cross breeding with different breeds at different levels were tested.

## Material and Method

15 wild boars were mated to 9 wild sows, 10 crossbred sows (75% wild pig: 25% Largewhite) and 5 Meishan sows. Litters were raised in 2x4 m<sup>2</sup> cages. Piglets were fed: banana tree, rice bran, commercial feed and fine rice bran in the ratio 3:1:1:1. Data was collected on birth weight, weaning weight, body weight at 17 weeks and average daily gain from 50 wild pigs, 52 crossbred pigs (87.5% wild pigs: 12.5 % Largewhite) and 55 crossbred pigs (50% wild pigs: 50% Meishan pigs).

## Results

The litter size of Meishan pigs was significantly ( $P < 0.05$ ) higher than of wild pigs (Table 1). Birth weight and weaning weight of male and female piglets from wild pigs x Meishan pigs was significantly ( $P < 0.05$ ) higher than for wild pigs x crossbred pigs and wild pigs x wild pigs. Body weight at 17 weeks of male and female piglets from wild pigs x Meishan pigs was significantly ( $P < 0.05$ ) higher than that of wild pigs x crossbred pig (Table 2). Average daily gain (ADG) of male piglets from wild pigs x Meishan pigs and wild pigs x crossbred pigs was significantly ( $P < 0.05$ ) higher than for wild pigs x wild pigs (Table 3).

**Table 1.** Number of female, male and total piglets per litter (Means  $\pm$  SE)

| Dam       | No. of female piglets | No. of male piglets | Total piglets                |
|-----------|-----------------------|---------------------|------------------------------|
| Wildpigs  | 3.22 $\pm$ 0.81       | 2.33 $\pm$ 0.44     | 5.56 $\pm$ 1.07 <sup>a</sup> |
| Crossbred | 3.10 $\pm$ 0.48       | 3.20 $\pm$ 0.49     | 6.30 $\pm$ 0.50 <sup>a</sup> |
| Meishan   | 5.00 $\pm$ 0.63       | 3.80 $\pm$ 0.58     | 8.80 $\pm$ 0.86 <sup>b</sup> |

<sup>a,b</sup> Means within a column with different superscripts differ Significantly ( $P < 0.05$ )

**Table 2.** Birth weight, weaning weight and body weight of piglets at 17 weeks (Means  $\pm$  SE)

| Type of Piglets   | Birth weight (kg)               |                                 | Weaning weight (kg)          |                              | Weight at 17 weeks (kg)       |                               |
|---|---------------------------------|---------------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|
|   | male                            | female                          | male                         | female                       | male                          | female                        |
| Wild Piglets  | 0.70 $\pm$ 0.0049 <sup>a</sup>  | 0.64 $\pm$ 0.0025 <sup>a</sup>  | 3.85 $\pm$ 0.21 <sup>a</sup> | 4.29 $\pm$ 0.26 <sup>a</sup> | -                             | -                             |
| Crossbred Piglets<br>(87.5% Wild Pigs:<br>12.5% Large White)* | 0.98 $\pm$ 0.0054 <sup>b</sup>  | 0.79 $\pm$ 0.0029 <sup>b</sup>  | 5.50 $\pm$ 0.20 <sup>b</sup> | 5.14 $\pm$ 0.20 <sup>b</sup> | 16.10 $\pm$ 2.00 <sup>a</sup> | 15.48 $\pm$ 1.67 <sup>a</sup> |
| Crossbred Piglets<br>(50% Wild Pigs:<br>50% Meishan Pigs)     | 1.205 $\pm$ 0.0030 <sup>c</sup> | 1.094 $\pm$ 0.0043 <sup>c</sup> | 6.43 $\pm$ 0.32 <sup>c</sup> | 5.84 $\pm$ 0.30 <sup>c</sup> | 29.00 $\pm$ 1.52 <sup>b</sup> | 21.50 $\pm$ 1.25 <sup>b</sup> |

<sup>a,b,c</sup> Means within a row with different superscripts differ significantly ( $P < 0.05$ )

\* Boar: Wild Pig and Dam: Crossbred Pigs (75% Wild Pigs:25% Large White)

**Table 3.** Preweaning average daily gain (ADG) of Piglets (Mean  $\pm$  SE)

| Type of Piglets  | Male (kg)                         | Female (kg)          |
|--|-----------------------------------|----------------------|
| Wild Piglets   | 0.0617 $\pm$ 0.00540              | 0.0760 $\pm$ 0.00608 |
| Crossbred Piglets<br>(87.5% Wild Pigs: 12.5% Large White)* | 0.0941 $\pm$ 0.00408 <sup>b</sup> | 0.0889 $\pm$ 0.00406 |
| Crossbred Piglets<br>(50% Wild Pigs : 50% Meishan Pigs)    | 0.1071 $\pm$ 0.00646 <sup>b</sup> | 0.0962 $\pm$ 0.00584 |

<sup>a,b</sup> Means within a column with difference superscripts differ significantly (P < 0.05)

\* Boar: Wild Pig and Dam: Crossbred Pigs (75% Wild Pigs:25% Large White)

## Discussion

In the present study, we found that litter size, birth weight, weaning weight and body weight at 7 weeks of Meishan pigs were significantly (P < 0.05) higher than of pure wild pig breed and of crossbred (25% Large white). Piglets per litter of wild pigs was  $5.56 \pm 1.07$  which is in the range of previous reports (Chaiya, 1989). Further more crossbred pigs had a higher productivity than all pure breeds although they got the same feed. This show the different genetic background in each of the breeds. However, the used of Meishan pig to improve the productive performance of wild pig should be concerned and also the good performance of wild pig regarding adaptation in hot climate which can be a valuable part of a suitable breeding program. Birth weight of male piglets of wild pigs was higher than of female piglets. This result was in agreement with previous results reported by Watcharapong et al. (1997), however, weaning weight of the male wild pigs measured in this experiment was lower than of female wild pigs which is different form the results found by Watcharapong et al. (1997) who reported that weaning weight of the males trended to be higher than of the females. By a comparison of preweaning average daily gain (ADG) in wild pigs and commercial pigs, we found that wild pigs have the lowest ADG. Our results were comparable to the ADG of 79 g/d recorded by Watcharapong et al. (1997).

## Conclusion

The litter size of Meishan pigs was bigger than of wild pigs. Birth weight and weaning weight at 7 weeks of male and female piglets from wild pigs x Meishan pigs was higher than that of wild pigs x crossbred pigs and wild pigs x wild pigs. Body weight at 17 weeks of male and female piglets from wild pigs x Meishan pigs was higher than wild pig x crossbred pigs and ADG of male piglets from wild pigs x Meishan pigs and wild pigs x crossbred pigs was higher than wild pigs x wild pigs.

## References

- Chaiya. O., 1989. Wildpigs. Lecture Notes. Chiang Mai University, Thailand.
- Watcharapong, W. 1997. Study on growth performance of wild pigs. In press. Personel communication.
- Falconer, D.S., 1989. Introduction To Quantitative Genetics. Third Edition.
- Legates, J.E. and Everett J. Warwick., 1990. Breeding and Improvement of Farm Animals. Eighth Edition. McGraw-Hill Publishing Company.
- Rice, V.A., F.N. Andrews and E.J. Warwick., 1951. Breeding and Improvement of Farm Animal. McGraw-Hill Book Copany.inc.
- Rattanonchart, S., 1994. Present Situation of Thai Native Pigs. In press. Personel communication.