

PERFORMANCE OF PAPUA NEW GUINEA NATIVE PIGS GIVEN IMPROVED MANAGEMENT CONDITIONS. (ORIGIONALE PEPA)

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ABSTRACT

Pig is an important traditional livestock species in PNG agriculture. Pigs are reared for various reasons such as prestige, bride prices, feasts, initiation ceremonies, for wedding events, for compensation payments, funeral activities, for food as protein source and quiet recently for some cash income. Despite the importance of pigs in this country, there is minimum report on the native pig. The Labu Research Centre bought some native pigs from the villages within the Huon Gulf, Nawae and Mumeng Districts of Morobe Province in 1992 for a study on the performance of native pigs given improved management conditions. The pigs were bred and raised in confinement sufficient for a five sow and one boar piggery under a modern cement galvanised iron roof building with nipple drinkers. The pigs were fed various feed resources depending on availability and funding situations. This paper reports in two parts; the reproductive (part 1) and productive (part 2) performances of the native pig given improved management for a 3 year period data.

Key: Native pigs, Reproductive performance, Productive performance, oestrus cycle, gestation period, litter size

INTRODUCTION

Pig is an important traditional livestock species in PNG agriculture. A large proportion of the rural population own pigs. ANZDEC, (1994) report estimated village pig population in PNG to be between 1.6 – 1.8 million at an estimated value of K68,400,000.00 and this amounts to 97% of total pig production. These pigs are reared for various reasons such as prestige, bride prices, feasts, initiation ceremonies, for wedding events, for compensation payments, funeral activities, for food as protein source and quiet recently for some cash income.

The Papua New Guinea (PNG) native pig is called *Sus scrofa papuensis*. This pig has a long snout, erect ears and strong hind legs for leaping. Most native pigs are brown, black or have stripes of brown-black colouring similar to the Philippines native pig (Penalba, et al: 1990). The indiscriminate breeding programme in the 1940's and 1970's has resulted in various coat colour combinations. Pure native pigs may be found in the fringes of the country in isolated regions such as the Star Mountains and the border areas along the West Irian Province of Indonesia. These pigs thrive under free-ranging management systems if reared, while their counterparts in the wild feed by rooting, grazing

and/or searching for wild nuts and fruits in abandoned old gardens close to human gardening activities.

Despite the importance of pigs in this country, there is minimum report on the native pig. Labu Research Centre had bought some native pigs from the villages within the Huon Gulf, Nawae and Mumeng Districts of Morobe Province in 1992. These pigs were bred and raised in confinement sufficient for a five sow and one boar piggery under a modern cement – galvanised iron roof building with nipple drinkers.

The piggery has two boar pens, five dry sow and five farrowing pens, three weaner and three fatterer pens. A tank and pump were installed to facilitate drinking and flushing floors. The pigs were fed various feed resources depending on availability and funding situations. The feed resources included commercial pig breeder and grower pellets, mill run-copra meal -village pig concentrate, staples (sweet potato/cassava) – village pig concentrate, wastes from Unitech mass, broken biscuits and fresh coconuts.

The sows were mated and their reproductive and productive data were collected and recorded over a three year time period (1992-1995).

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This paper reports in two parts, the reproductive (part 1) and productive (part 2) performance of the native pig given improved management for a 3 year period data.

Part 1: The reproductive performance of native pigs given improved management conditions.

Methodology

Five sows and one boar were introduced to Labu from Huon, Nawae and Mumeng districts of Morobe Province. The pigs were mated when heat was detected from swollen-reddish vulva and from riding test when the sows stood to pressure on the hump. Sows were brought to boar pens (4m square) for mating. During mating, inexperienced boars were assisted by inserting the penis into the vagina. The native boar had high libido, good and strong hind legs and was a docile animal. It was noted that sows were receptive for about forty eight hours.

After three weeks, sows were confirmed impregnated if they did not return to heat. The sows were feed and maintained in dry sow pens (1m²) until one or two weeks from farrowing when they were moved to the farrowing pens of 0.5m by 2m (1m²) that also had creep pens (0.5m square) on both sides. These pens were thoroughly washed and disinfected before sows were moved.

Farrowing times were detected from records, prolapse of stomach, general swelling and enlargement of vagina as well as squeezing of sows nipples to detect milk. At farrowing, sows were assisted in parturition by attendant and mesenteric coatings were removed from piglets. The piglets that died at birth and placenta were buried after parturition that usually took two hours.

After farrowing, wood chips were spread over the creep pens to provide brooder for warmth of piglets against chilling.

After three days from farrowing the piglets were given intra-muscular iron injection in the hip area with dexavin, while canine teeth were clipped with tooth clippers to prevent teat damage to sows during suckling. Piglet ears were also notched using a ear notcher indicating sow and piglet numbers for identification purposes.

Sows were replaced depending on reproductive ability while still maintaining the five sow status.

Piglets were weaned after 21 to 28 days from birth and sows were returned to dry sow pens for reconditioning and subsequent mating.

Data recorded include oestrus cycle, time on heat, gestation period, litter size at birth and weaning, piglet weight at 3 days from farrowing, mortalities, functional teats of weaners and weaning to service interval in sows.

Part 2: The productive performance of native pigs given improved management conditions

Methodology

The pigs were weaned by removing the piglets from the sows into weaner pens (2m square) after 3 to 4 weeks from farrowing. The weaner pigs were moved to larger grower/finisher pens (4m square) after one to two months from weaning.

Weaner pigs were dewormed with Nilverm Pig wormer at weaning and repeated after 3 to 4 months. Pigs were identified from ear-notches. Tactic Ec was used to spray for Sarcocystis mange infections while sulfamez was administered orally for *E.coli* infection that causes piglet diarrhoea.

Pigs were weighed weekly and their records were kept. When pigs reached about 35 to 40kg in 8 to 9 months they were sold to customers.

RESULTS

Part 1: Reproductive Performance.

Table 1: Reproductive Performance of Native Pigs*.

Performance	Sample size #	Mean
First sign of oestrus in gilts (months)	20	8
Oestrus cycle in gilts, sows (days)	23	21
Time on heat (hrs)	20	48
Gestation period in sows (days)	20	114
Litter size at birth in sows (3 days)	20	8
Piglet weight at birth in kg (3 days)	122	1.24
Litter size at weaning in sows (1 month)	20	6
Functional teats of weaner	144	11
Mortality in piglets/weaner (%)	20	21
Weight at weaning in kg (30 days)	132	4.6
Weaning to service interval in sows (days)	7	8

* About 75% Native and 25% Exotic. # number of observations.

Part 2: Productive Performance

Table 2: Mean Body Weight (kg) of Litters of Native Pigs from Birth to Market

Age (weeks) Birth	Sample Size	Mean Body Weight (kg)
3	16	1.2
6	16	3.6
9	17	6.3
12	15	8.00
15	17	10.40
18	17	15.00
21	15	19.00
24	17	22.00
27	14	33.60
30	8	34.50

Figure 1: Mean Body Weight(kg) of Native Pigs from Birth to Market

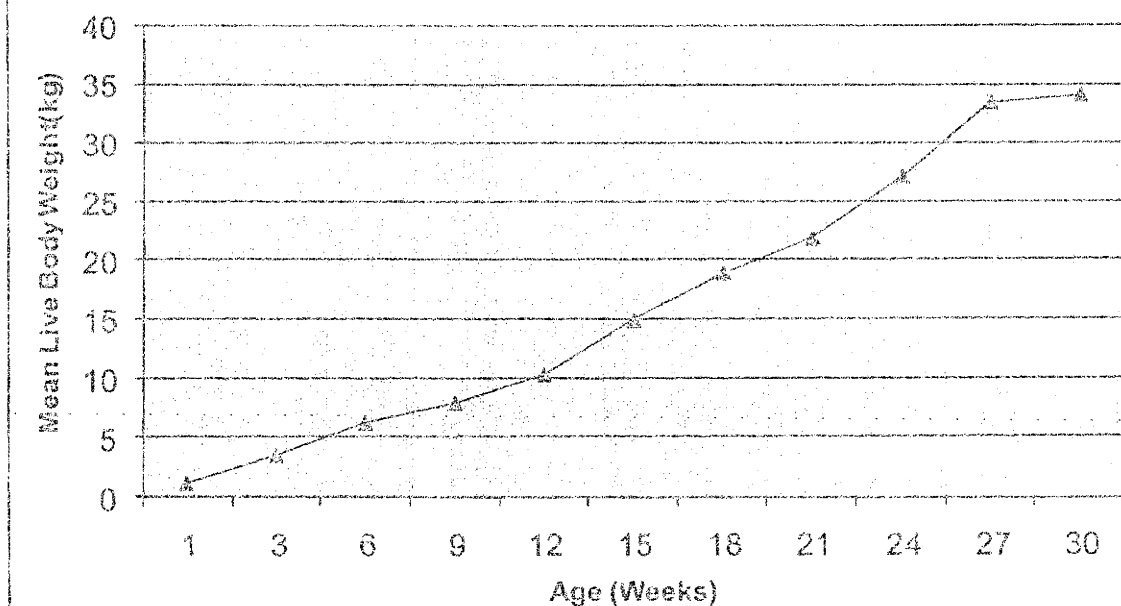
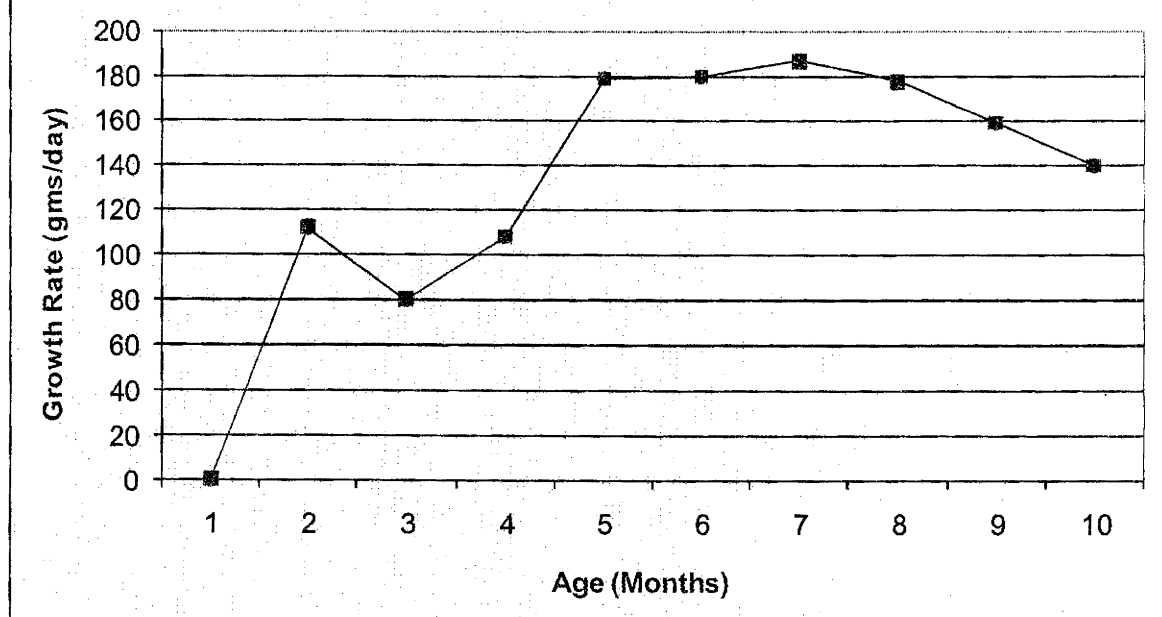


Figure 2: Growth Rate(gms/day) of Native Pigs From Birth to Market



DISCUSSION

The results presented here are weekly data over a 3 year time period. Table 1, gives the female reproductive performance while the productive performances are shown in tables 2.

The reproductive performance of the native pigs with various sample sizes or number of observations and their arithmetic means are given in table 1. The mean oestrus cycle, time on heat, gestation period and weaning to service intervals are similar to improved breeds. Low litter size is common in native pigs as reported elsewhere (Cheng, *etal*: 1990 & Penalba, *etal*: 1990) and subsequent weaning coupled with low birth and weaning weights including high mortalities may to some extent give the impression that native pigs are inferior to the improved pig breeds. However, large numbers of functional teats, may mean there is scope to improve litter size with good breeding while mortalities may be decreased given sound management.

The weight gaining performances of the litter is given in table 2 and also presented in figure 1 as a sigmoid growth curve. The graph shows that weight gains increase gradually from birth to 27 weeks of age at about 30kg and plateaus thereafter when most pigs were sold due to good taste and customers demand. The steep

growth region is between week 12 to 27. It should be remembered that native pigs can be improved by good breed and / or nutritional inputs. Dr. A. Quarterman remarked that Native pigs can make 70% improvement given good husbandry and nutrition (pers. com.).

The productive performances at post-weaning are low (table 2). The growth potential is relatively low only reaching 34kg in 9 months after birth (table 2). This is similar to the Taiwanese native pig that reaches 40-70kg in 1 year (Lee, *etal*: 1990). A decline in growth rate at 60 days is expected due to weaning time in 1 month (figure 2) and subsequent weaning stress. A quadratic response on growth is shown in figure 2 and this indicates that native pigs reach a maximum growth rate of 187 gms per day in the 6 month and thereafter the growth rate declines.

The native pig with such low growth potential could be breed related and Malynicz (1973) postulated this to be a fitness character. Work on native pigs in the Philippine (Penalba, *etal*: 1990) and Taiwan Native pig, Taoyuan, (Cheng, *etal*: 1990) also reported low growth potential.

CONCLUSION

Native pigs on the whole are reproductively similar to those of the exotic pig and if litter size is to be increased some crossbreeding pro-

grammes be initiated. Alternatively identify from the local pool of native pigs in country with large litter size and do crossbreeding to increase litter size.

The productive performance may be increased with good nutrition and sound management if low growth potential is fitness character that is breed related. However, native pig can be sold after 6 to 7 months of age at an average live weight of 30 kg as smaller carcasses. Furthermore, native pigs reach maximum growth rate of 187gms per day in 5 to 6 months and then drops.

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