

AN EVALUATION OF THE REPRODUCTION AND PRODUCTION POTENTIAL OF INDIGENOUS PIGS. PRELIMINARY RESULTS

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ABSTRACT

An evaluation study, on-station and on-farm, was initiated to determine the reproduction and production potential of indigenous pigs. Current results indicate that they are highly fertile; under conditions of improved management and nutrition, and weaning at 7-weeks of age, sows produce just over two litters per annum, compared to 2.5 litters per annum for commercial breeds under optimal conditions and weaning at 3-weeks of age. Litter size is smaller and growth rate lower than is the case with commercial breeds. This is to be expected, as these animals have never been selected for improved litter size and growth rate.

INTRODUCTION

Very little information, contrary to the commercial pig breeds, is currently available on indigenous pigs. Approximately half of the pig population in Namibia consists of indigenous pigs, owned by communal farmers. No scientific data concerning reproduction rate, production traits and disease resistance/tolerance, produced either on-station or on-farm, exist for these animals. It is thus difficult to assist farmers with related problems. Local farmers are under the impression that their pigs are inferior, and not producing as they had expected. Some raised the concern that, according to consultants who had worked in the area, these indigenous pigs were inferior, as they could not produce at the same level as commercial pig breeds.

With this in mind the Directorate of Agricultural Research and Training started a project to evaluate the reproduction rate and production potential of indigenous pigs on-station and on-farm. The on-station part of the project also serves as a multiplier of breeding material to farmers. The project started during January 1997 and is scheduled to continue until at least the end of the year 2000. By then enough reproduction and production data will have been collected to characterize the production and reproduction potential of the unimproved indigenous pigs.

OBJECTIVES

The main objectives of the project are:

- To determine the reproduction and production potential of indigenous pigs, both on-station and on-farm
- To determine sow productivity
- To determine age of first mating
- To determine possible slaughtering age
- To provide selected breeding material to farmers who wish to buy breeding material, and to provide breeding material

to farmers who wish to start farming with pigs

- The genetic conservation of indigenous pigs, and
- The characterization, both phenotypic and genetic, of indigenous pigs.

LOCATION

The on-station work is carried out at Mashare Research Station, while the on-farm work is done with farmers at Fumbe, Mile 20 and Kapupahedi.

MATERIALS AND METHODS

On-station, under conditions of improved nutrition and management, 8 sows and 2 boars are used for the evaluation of reproduction rate and production potential. The offspring are evaluated and selected for placement with farmers wishing to participate in the scheme, who receive either 3 pigs or the number that they require. These farmers then have to pay back in the form of piglet(s) over a period of two years. Those offspring not used for breeding purposes are sold to Meatco.

On-station piglets are weighed as soon as possible after birth and then weekly until the age of ± 6 months. This is to determine growth rate and to establish a growth curve for the breed under improved conditions. The pigs placed with the farmers participating in the scheme are monitored and weighed on a monthly basis, to determine their reproduction and production potential and growth rate under more stressful conditions.

RESULTS

On Station Results

The average age of gilts at time of first farrow is ± 576 (347-669) days. The average inter farrowing period (IFP) is ± 216 (173-388) days. This high age at time of first farrowing is due to the fact that the first gilts that entered the project were born to sows fed on a diet of scrap food. Thus, their weight gain and physiological development was very slow. Subsequent gilts were selected from litters born under improved management practices.

The growth rate of indigenous piglets from birth till weaning and from weaning till 6-months of age is much lower than those recorded for improved pig breeds (Anonymous, 1996). This is to be expected, as these animals have never been exposed to

any form of selection, other than that of survival of the fittest.

The data indicates that season of birth and year have significant influences on mass at different ages (Table 2). It further seems as if there is a tendency of seasonality in fertility, although this might be due to management (weaning at 7 weeks).

Significant weight differences occurred between sexes across years, between seasons. No reason can be given for the higher 6-month weights of the gilts.

Average daily gain (ADG) differed significantly between sexes and season, again emphasizing the influence of season of birth on growth. From Table 3 it is evident that from birth until weaning the piglets have a relatively slow growth rate, which increases drastically between weaning and 6-months of age. Towards the age of 12-months the growth rate slows down again.

On Farm Results

Farmers in two of the three communities involved are participating actively in the project.

The village known as Mile 20 is situated approximately 38km south of Rundu, on the main road between Rundu and Grootfontein. The average age of these gilts at time of first farrowing is ± 427 (315-473) days. Though the weight gains are very low, the survivability of the piglets is high, indicating that although the level of nutrition is low, the sows and piglets still obtain enough to eat.

The village of Kapupahedi is situated approximately 100 km east of Rundu, south of the main road to Divundu. The average age of these gilts at time of first farrowing is ± 553 (483-679) days. One farmer lost 6 piglets between birth and 6-months of

Table 1. Results of the pigs at Mashare Research Station

Birth					
Alive	Dead	Male		Female	
		no	kg	no	kg
1247.75	171.06	664.13	1.39	583.63	1.39
Weaning					
Alive	Dead	Male		Female	
		no	kg	no	kg
987.53	0.31	503.85	14.87	483.69	14.66
6-Months					
Alive	Dead	Male		Female	
		no	kg	no	kg
507.14		284.00	54.32	223.14	57.11

age due to poor nutrition. The results from the other sows indicate a higher level of management. Management levels of the farmers in these communities vary, but in general are very low.

A comparison of the on-station results with the on-farm results indicates the influence of improved nutrition and management on performance. The poorer performance of the sows at the research station, in terms of first farrowing, could be due to the fact that they were offspring from sows on a low plain of nutrition, and the fact that selected gilts were placed in the communities.

The average IFP on-station of 216-days is very good, seen in the light that piglets are weaned at 7-8 weeks of age versus 3 weeks of age in the commercial sector. Furthermore, these animals have never been selected for fertility, age at first farrowing, litter size or growth.

Table 2. Summary of average birth-, weaning- and 6-month masses (kg) of piglets born between April 1997 and August 1999 at Mashare Research Station

	Birth		Weaning		6-Months	
	Summer (kg)	Winter (kg)	Summer (kg)	Winter (kg)	Summer (kg)	Winter (kg)
Boars 1997/98	2.16	1.36	12.02	9.45	39.43	50.96
Boars 1998/99	1.21	1.41	16.7	10.08	52.79	*
Sows 1997/98	1.56	1.32	9.69	8.38	42.98	58.00
Sows 1998/99	1.06	1.38	16.53	9.00	59.54	*

*Piglets born during the winter of 1999 were weaned during August/September 1999, therefore no 6-month weights were available

Table 3. Average daily gain (ADG) in kg per day of piglets born between April 1997 and August 1999

	ADG of Birth to Weaning (kg/day)		ADG of Weaning to 6-Months (kg/day)	
	Summer	Winter	Summer	Winter
BOARS 1997/98	0.176	0.144	0.245	0.371
Boars 1998/99	0.276	0.154	0.291	*
Sows 1997/98	0.145	0.126	0.297	0.443
Sows 1998/99	0.276	0.136	0.347	*

*Piglets born during the winter of 1999 were weaned during August/September 1999, therefore no 6-month weights were available.

Table 4. Results of the pigs in Mile 20 village

Birth					
Alive	Dead	Male		Female	
		no	kg	no	kg
377.4	0	153.0	1.07	224.4	0.91
Weaning					
Alive	Dead	Male		Female	
		no	kg	no	kg
367.2	10.2	153.0	4.35	214.2	4.20
6-Months					
Alive	Dead	Male		Female	
		no	kg	no	kg
186.0		82.7	9.12	103.3	10.28

CONCLUSIONS

Under improved conditions of management and nutrition, the fertility of the indigenous pigs is on par with those of commercial breeds. The production, due to no selection for litter size and growth, lags far behind that of commercial breeds as selection with indigenous pigs has always only been survival of the fittest. There is definite scope for improvement of litter size and growth in the indigenous pigs, but of greater importance currently, is improving the management of the pigs.

Table 5. Results of the pigs in Kapupahedi village

Birth					
Alive	Dead	Male		Female	
		no	kg	no	kg
225.5	0	123.0	1.12	102.5	1.05
6-Months					
Alive	Dead	Male		Female	
		no	kg	no	kg
124.0		51.7	11.72	72.3	10.27

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