



Zimbabwe  
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Programme



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# TECHNICAL PAPER:

## SUPERIOR PIG GENETICS PERFORMANCE REVIEW IN COMPARISON WITH INDUSTRY MINIMUM STANDARDS



Promoting Zimbabwe's Goat and Pork Value Chains

## INTRODUCTION

The importation of superior genetics was supported by the European Union supported Zimbabwe Agricultural Growth Programme (ZAGP), Value Chain Alliance for Livestock Upgrading and Empowerment (VALUE) project as an intervention to replace worm-out and eroded pig genetic material in the industry. The VALUE Project is a brainchild of project partners namely Action Aid Zimbabwe (Lead), Mercy Corps (MC), COSV, Braford Farming, Zvikomborero Farms and Michview Enterprise. A total of 397 superior pigs (grandparent boars, sows, and F1 gilts) were imported in two phases with 244 in 2020, and 153 in 2023. A total 1841 offspring from imported superior genes were selected and sold directly to smallholder pig farmers. Additionally, a total of 13560 doses of quality semen were tapped from superior imported grandparent boars resulting in over 6780 small holder farmers sows inseminated with the semen. All these achievements were to address the high rate of inbreeding due to overused genetics resources in the pig industry which had resulted decline in reproductive traits such as libido in inbred sows and boars, litter size, birth weight, survival rate, growth rate, and ultimately the cold dressed mass. Inbreeding will lead to some undesirable traits like hernia and cryptorchidism. It increases mortality or the death rate of the piglet from generation to generation as their immune system becomes weak. Selecting productive, performance-oriented breeding

stock is the first step in breeding quality pigs. Productive breeding stock is sound in conformation, fast-growing, muscular, lean and reproductively efficient. The following traits of high economic importance such as large litter size, high weaning weight, reduced days to market, high feed conversion efficiency, and less backfat thickness should be prioritised.

This technical paper presents an in-depth review of the performance of superior genetics in comparison with industry minimum standards. The objective of this study is to evaluate the effectiveness and impact of superior genetics on key performance indicators such as productivity, disease resistance, growth rates, and marketability. By analyzing the performance of animals bred from superior genetics and comparing them to established industry benchmarks, this paper aims to assess the extent to which superior genetics contribute to improved production outcomes and ensure compliance with industry minimum standards. The findings of this research will provide valuable insights for stakeholders in the livestock industry, including breeders, farmers, and policymakers, to make informed decisions and implement strategies that promote the adoption and utilization of superior genetics for enhanced productivity and sustainability.

# RECOMMENDED INDUSTRY SOW TARGET PERFORMANCE

A sow is the basic production machine in the piggery business. Figure 1 shows the expected and recommended

performance of the sow for the pig production business to be viable and sustainable.

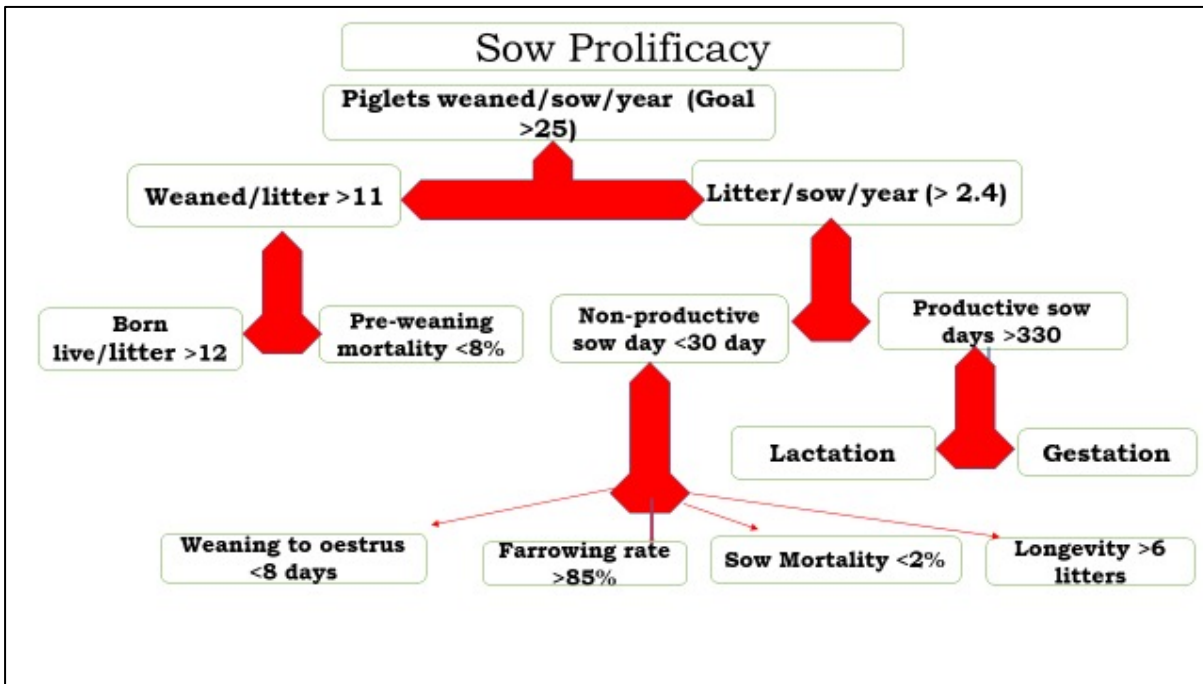


Figure 1: Expected sow performance in the piggery industry

Improved breeds imported performed extremely well with greater than 20 percent of sow being serviced monthly. This is the target of the industry and is being achieved. The conception rate is above 95 percent with the average observed performance recorded at

93 percent. In addition, a 91.5% farrowing rate was recorded against an industrial target of 90 per cent. This demonstrates that the imported superior sows had a fertility rate with the capacity to stimulate the performance of the pig industry.

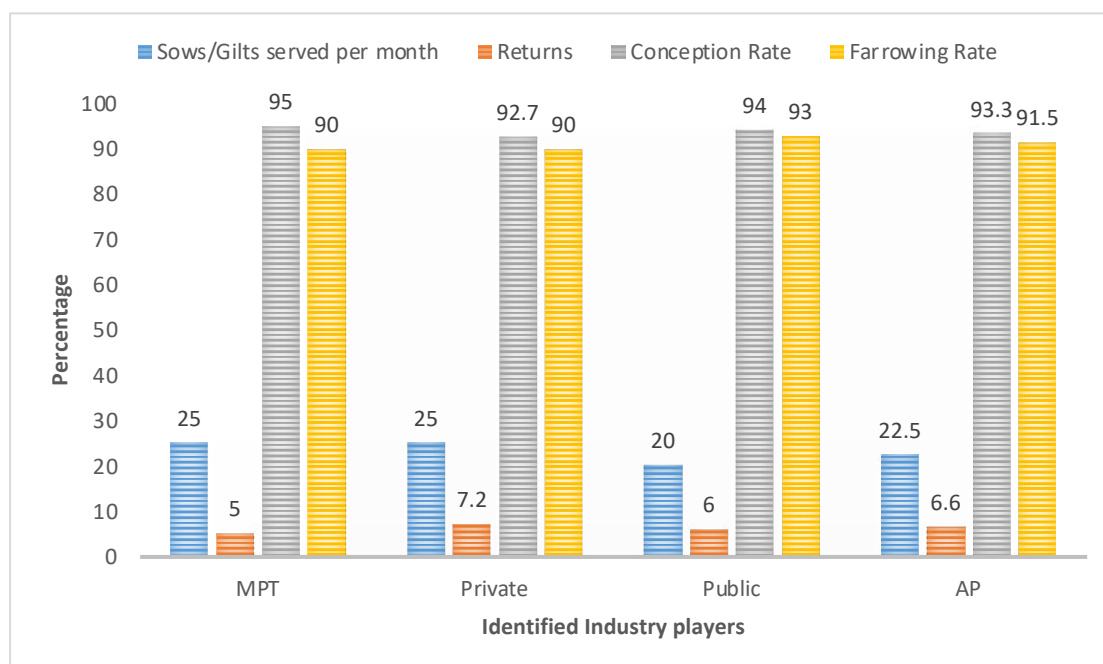


Figure 2 Comparison of sow performance amongst different industry papers against the minimum performance target (MPT) in the pig production business. MPT means Minimum Performance Target in the industry, Private pig producers, Public producers and AP stands for Average Performance.



## PERFORMANCE OF THE PRODUCED LITTER

The number of piglets born per farrowing determines the profitability of the pig production unit. Furthermore, the number of piglets which survive to be weaned at four weeks measures the success of the sow maternity period. From the analysis of results obtained improved imported superior sow and boars produced a large litter size, with a record 31 piglets born from one farrowing in Marondera from one of the participating small holder pig

producers. An average of 13.1 piglets were recorded only 1 piglet died before weaning thus resulting in weaning rate of greater than 92 percent. A pre-weaning mortality of less than 8 percent is acceptable in the industry. Very few mummies and stillbirth were recorded. The superior breeds performed better than the expected industry standard

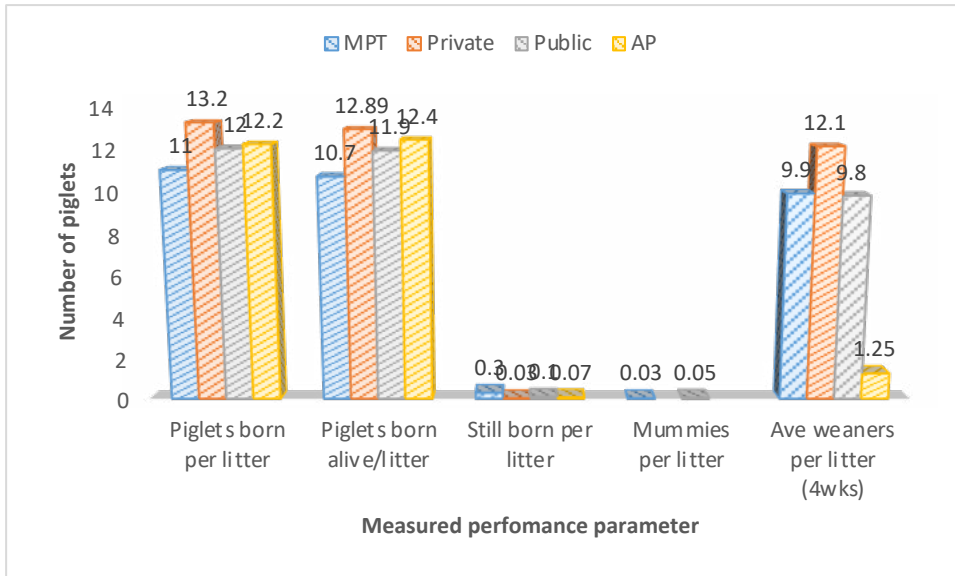


Figure 3: Litter size produced and its performance of piglets born by improved imported sows

Superior imported genetics performed better than the expected target performance with very few stillbirths and mummies recorded by smallholder farmers. With the advent of proper management and correct procedure of disease prevention stillbirth and mummies reduction could be due to the use of vaccines such as farrowsure and litterguard. There is still high pre-weaning mortality

in public and smallholder which may not be attributed to genetics but other management factors such as temperature management and crushing of piglets by sows, especially in smallholder farmers without farrowing crates. The acceptable pre-weaning mortality should be lower than 8 percent.

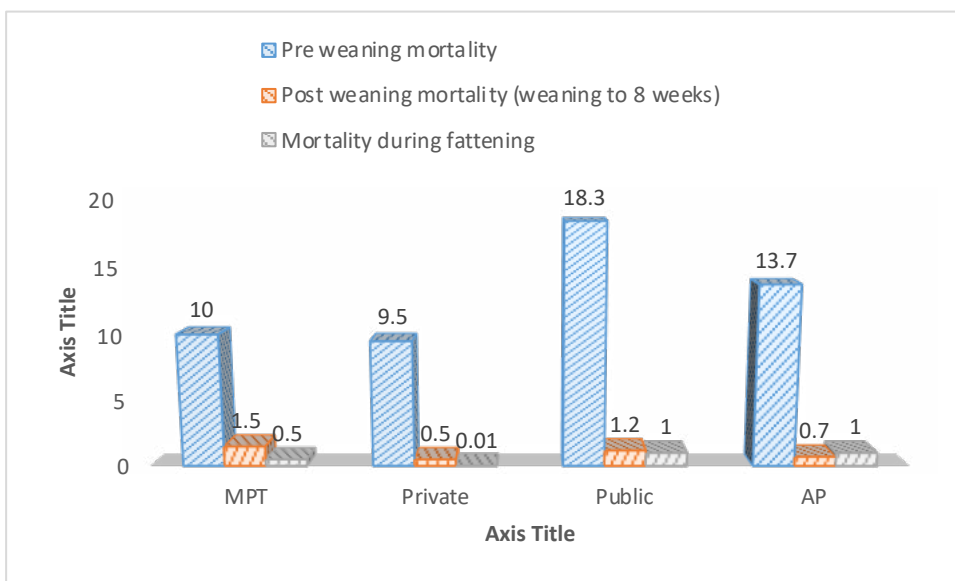


Figure 4: Pre-weaning, post weaning and fattening mortalities observed in offspring superior improved breeds of pigs MPT means Minimum Performance Target in the industry, Private pig producers, Public producers and AP stands for Average Performance.



## PERFORMANCE OF OFFSPRING FROM SUPERIOR IMPORTED PIGS

The results show that piglets born to imported sows and boars were born heavier than the local average and weighed heavier at weaning. Birth weight, weaning weight, weight at eight weeks and age to slaughter are shown in Figure 5. Growth rates were observed to be better in superior breeds, their offspring were sold at 18

weeks weaning approximately 80 kg producing about 55 to 62 kg of cold-dressed mass (CDM). This reduction in time taken to reach slaughter weights and puberty increases the profitability of piggery when superior genetics are used.

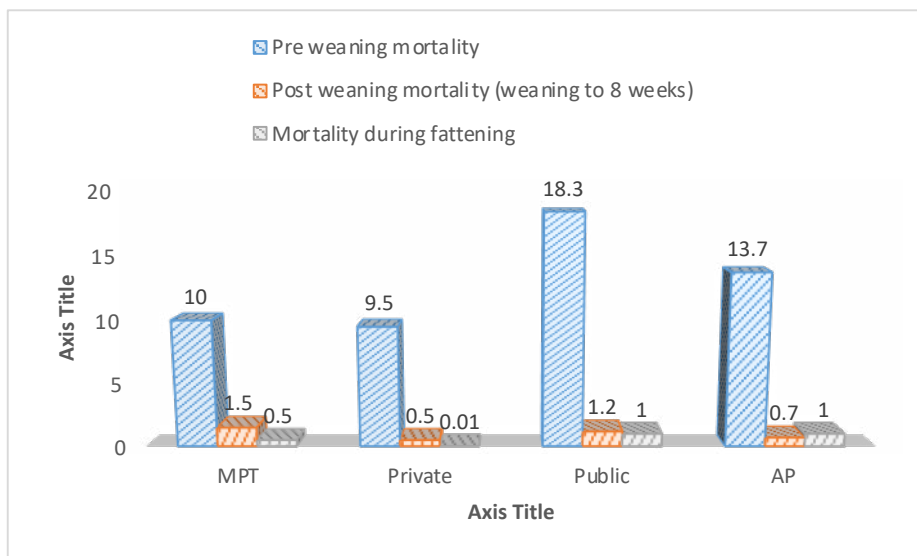


Figure 5: Birth weight, weaning weight and CDM obtained after 150 days. MPT means Minimum Performance Target in the industry, Private pig producers, Public producers and AP stands for Average Performance.

## SOW PRODUCTION CYCLE AND THEIR PERFORMANCE

The total sow production cycle is completed in 146 days under a minimum performance target. The cycle is made up of time to oestrus from weaning (3-5 days), gestation period (115 days) and weaning time (28 days). Most commercial farmers are weaning piglets between 28 and 42 days. However, with superior genetics offspring weaning at 28 days is becoming more common.

Figure 6: Sow production cycle and their performance. MPT means Minimum Performance Target in the industry, Private pig producers, Public producers and AP stands for Average Performance.

## CONCLUSION

The superior genetics of imported pigs perform better than the local breeds. There is a need to preserve the

gains of this project. Continual injection of new genes is necessary for the rejuvenation of the industry.





## **POLICY RECOMMENDATIONS TO ENHANCE UPTAKE OF SUPERIOR PIG GENETICS IN ZIMBABWE**

- Awareness and education campaigns: Launch comprehensive awareness and education campaigns to continue informing smallholder farmers about the benefits of superior genetics. These campaigns should highlight the improved productivity, disease resistance, and marketability of pigs bred from superior genetics. Provide farmers with training and workshops to enhance their understanding of the breeding techniques and management practices associated with superior genetics. Supporting institutions like Pig Industry Board (PIB) and government technical staff at local level to lead on the campaign critical for sustainability.
- Access to affordable superior genetics: Facilitate access to affordable superior genetics through the establishment of government-supported breeding programs or partnerships with private breeders. Provide subsidies or financial incentives to smallholder farmers to help offset the costs associated with acquiring superior genetics. Promote the establishment of community-based breeding/multiplication centres or cooperatives to increase access to superior genetics within local communities. Decentralisation of Artificial Insemination Centres is crucial to increase localised access. This includes sustaining multiplier centres already established under the ZAGP VALUE project.
- Strengthen extension services: Strengthen extension services by increasing the number of government extension officers to farmer ratio and improving their training on superior pig genetics. Government extension officers play a crucial role in disseminating information, providing technical assistance, and supporting smallholder farmers in adopting superior genetics. Ensure that extension services prioritize the promotion and dissemination of information on superior genetics and assist farmers in implementing breeding programs effectively.
- Collaborations and partnerships: Continue foster collaborations and partnerships between smallholder farmers, Pig Industry Board, other research institutions, and private sector actors involved in superior genetics. Encourage the exchange of knowledge, expertise, and resources to enhance the availability and uptake of superior genetics. Establish demonstration farms or pilot projects at local level in collaboration with research institutions to showcase the benefits of superior genetics and provide practical training to smallholder farmers.
- Access to financial and technical support: Provide smallholder farmers with access to financial support and technical assistance to facilitate the adoption of superior genetics. Develop targeted grant programs or revolving funds that offer affordable credit for smallholder farmers to invest in superior genetics. Additionally, provide technical support in the form of training, mentorship, and access to veterinary services to ensure that farmers can effectively manage pigs bred from superior genetics. This should include reducing number of doses per bottle of litterguard and farrowsure to allow access by small holder farmers with lower sow unit.

The ZAGP VALUE Project believes that the policy recommendations will create an enabling environment that encourages smallholder farmers in Zimbabwe to adopt superior genetics more effectively. By improving awareness, access, and support, policymakers can contribute to increased productivity, improved livelihoods, and the sustainable development of the smallholder farming sector.



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