Improving Solo Pig Industry Performance to Enhance its Competitive Position

Although 86% of citizens in Indonesia are Muslims, there are pig industries and they are keep increasing. Indonesia has the third largest pig population in South Asia. It had been reported by Indonesia's pig monogastric association that more than 20 million people in Indonesia regularly eat pork (pork consumption per capita is 7.0 kg/year), making Indonesia as a potential pork market.

Solo city is one of the cities in Indonesia that has pig production for commercial purposes. The city is located in Central Java and it has human population of 484,054. There was an annotation from Solo pig industry for not knowing how to optimize its current performance. Therefore, the goal of this research is to find feasible approach for Solo pig industry to improve its current competitive position. This report provides the insight of current Solo pig industry performance and its areas of improvement.

In this research, literature studies on supply chain and market pork demand were performed to understand types of important factors and variables in pork supply chain and pork customer demand. The information was used further to identify Solo pork chain (SPC) performance in meeting its customer demands. Interviews with Solo pork chain representatives (feeding–pig production-haulage- slaughterhouse-trader levels) and two Indonesian pig industry experts were conducted as part of qualitative research. The results of the interviews were at least suitable and reliable enough for this research to represent the actual and overall situation of current SPC performance. Moreover, a traditional meat market and also four supermarkets in Solo city were also visited as part of this research's external analysis. The purpose of the market visitations was to understand the actual availability of pork products at the markets, which could be used to represent pork customer's preference.

Some research questions structured in this research included:
Central question:
"What areas of performance and feasible actions could be recommended to Solo pig industry in order to improve its current competitive position?"
Sub-questions:
1. *a) What factors and variables do essentially influence pork customer demand?*
   b) What factors and variables do essentially influence pork supply chain performance?
2. *How does current Solo pork chain performance fulfilling those factors (from sub-questions 1)?*
3. *Areas of improvement:*
   a) What are the bottlenecks of current Solo pork chain performance?
   b) What feasible improvements can be recommended to overcome the Solo pork chain's bottlenecks?

Some foundings from the research results analysis had led to the answers of the above research questions, which were explained in the following.

Price, quality and safety were the essential factors that influenced pork customer demand. The variables used in this price factor were representatives of the product quality, product safety and product quantity (availability/supply). Color and drip loss were used as the variables of the quality factor. In addition, the variables used in safety factor of customer demand

consisted of traceability and freedom from chemicals.

On the other hand, some factors had essentially influenced pork supply chain performance. These factors included cost, quality, safety, trust, information sharing and governmental support. The variables used in cost factor of pork supply chain performance were costs of feed, labor, utility, medical expense, maintenance, transport and slaughter. The variables used in quality factor of pork supply chain performance consisted of pig genetic choices, diet composition, stress susceptibility and carcass techniques. Also, the variables used in safety factor of pork supply chain performance were traceability and biosecurity. In addition, the variables used in trust factor were not acting in a purely self-serving manner, not taking advantage of other parties and transparency. Moreoever, the variables used in information sharing factor covered transparency and accessibility to information. Furthermore, the variables used in governmental supports factor included regulations, guidelines, financial and technical assistances, education and training.

The research finding showed that SPC had been able to fulfill price consumer demand as the price of pork was positioned in the middle between price of chicken and beef, which perceived as acceptable by SPC consumers. In term of quality, SPC had used consumer feedbacks and complains to measure its performance in fulfilling consumer quality demand. It was found that SPC had also been able to fulfill its quality consumer demand in meat drip loss and color. As safety factor was the least brought up by SPC consumers, SPC had not taken the performance of this factor much further. Regarding SPC performance in supply chain factors, the chain performance on cost factor resulted in interesting finding that SPC pig production cost was slightly lower than Australia, the chain's competitor for special meat demand. In term of quality, significant finding found was that SPC average pig live weight had fulfilled its customer demand. The SPC average of pig live weight was compatible to UK's and Ireland's as top pig producer countries but yet still lower than Australia's. In addition, SPC feed conversion was still slightly higher than normal standard. However, SPC had been minimizing stress susceptibility on pigs to improve its quality performance, which indirectly resulted in animal welfare value. Additionally, carcass techniques used in SPC slaughterhouse level intended to improve quality performance. These findings showed SPC potentials to enhance the chain current competitive position. As for safety factor, biosecurity had been conducted in SPC for better quality performance but traceability was only carried out at SPC pig production level as record keeping was not performed throughout the rest of SPC levels. Due to the non-existence of quality grading system in Solo pig industry, the "win-win" solution was sometimes broken. The SPC trust factor performance resulted in high trust, which had led to high transparency and accessibility in information sharing of the chain. Despite the good findings, unfortunately the optimization of SPC performance was constrained by the lack of governmental supports.

Some bottlenecks were also found in current SPC performance such as a threat of inbreeding pig, the feed conversion of pigs at SPC pig production level (3.0) that was higher than normal standard (2.8), piglets survival rate that 8-9 out of 12 litters were able to survive, no guarantee of quality assurance, no safety assurance in the application of biosecurity and traceability, the non-existence of quality-payment standard and also the lack of governmental supports toward pig industry.

In conclusion, there were some areas of current SPC performance that could be improved to enhance its current competitive position. The areas of improvement found were quality-payment grading system, the quality-safety performance and the lack of governmental

supports. The standardization pig quality grading system, select criteria for the standardization of quality-payment grading system (quality, uniformity and health status could also be rewarded/deducted), advanced in measurement quality technology for pig grading information system and also adoption of international quality grading system standard were proposed to SPC for improving its quality-payment grading system. Regarding the area of quality-safety performance; the understanding of the importance of traceability-biosecurity, the benefit-cost analysis of the application of the quality-safety assurance system and record keeping were recommended to SPC. In addition, Danish two-step fostering process was also proposed to increase SPC piglet survival rate. Moreover, the collaboration among pig industry, pig experts and Indonesian government with the understanding the actual current position, actual needs and actual potent of Indonesian pig industry was proposed to improve governmental supports toward pig industry.