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Putting it all together → the high producing sow

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Introduction
The US swine industry has experienced steadily improved reproductive performance as a result of both production management and genetic advancements. As a result, 2010 sow productivity will be nearly 5-6 PSY improved over 2000. Some specifics – PigCHAMP reported that Top 10% Farms reporting in 2000 achieved a PSY of 22 on an 18 day average lactation length. In 2006, Pollmann reported that the 10 year trend in sow productivity improvement was a mere 2 PSY improvement (AASV 2006), and the current 5-year trend from the top farms compared to the median was similar, with the 2005-2006 data nearing the best ever at performance of 24 PSY.

Some individual farms have gained 50% improvement from 20 PSY to 30 PSY, adjusting for changes in data or calculations. And in many ways, these improvements may under-estimate what is possible for the best producers to achieve. Some of these improvements have been gained through “primary” focus in these individual areas: Nutrition, Genetics, Health, Management, and Environment. Systems are able to effectively integrate resource management in these areas with on-staff experts. Individual or medium sized producers most seek knowledge and methods to obtain these improvements and incorporate them properly into their “systems”. A challenge for us lies in the implementation of the proper changes in the right sequence and the correct combination. Another challenge is being ready for whole system changes that producers attempt to catch the industry leaders. This is an area where I believe we will spend a considerable investment in time, resources and infra-structure over the next decade. With these advancements, there are tremendous “re-engineering” requirements to incorporate the latest science, management techniques and knowledge into practice within the High Producing Sow Unit.

Background
The motivation for this presentation is the observations I have had the opportunity to make in multiple genotypes over the past 4 years and the search for best implementation of key strategies for increased sow productivity. Making many observations within US, Canadian and Dutch farms lead me to some findings that I wanted to share. These areas may relate to you as a production leader or as a veterinarian.

In the process of many farm visits and evaluation of basic differences between farms, I have found some excellent examples of individual performance that I feel describe the path that we will need to lead our colleagues, clients and companies through as we develop improved systems for sustainable highly productive sow units.

Observation 1: Roots of improvement
Genetic and Nutrition advancements are driving the system and enable superior productivity than was physically or biologically possible 10 years ago. The pace of improvement has continued to increase over the past 5 years as compared to the period from 1995-2005. Genetic improvements developed from essentially four areas: (1) larger databases for evaluation of reproductive performance, (2) hyper-prolific selection strategies, (3) analysis of underlying assumptions on the biological implications of birth weight and survival vs. total and born alive litter size and (4) genetic influx from other populations.

Nutrition programs have had adequate time to adapt to the annual progress from perspective of diet composition, cost basis and nutrient requirements for output. A higher weaning weight and older (age) piglet produced have resulted in constant demand for re-evaluation of diets and feeding strategies. Incremental (annual) improvements have given adequate time to stay ahead of pending changes. This may not be a correct assumption when making herd level or system wide genetic changes where the genotype is completely changed through a depopulation/repopulation or acquisition of a new herd.

Observation 2: Fast or slow change
The systems that today are excelling in sow productivity (biological) are the result of incremental improvement over time. Management and facility (environment, equipment and infrastructure) changes rarely are made immediate when systems are improving their progress. The journey from 22 PSY to 30 PSY in most cases always takes a path of multiple incremental changes, genotype, nutrition and the facility changes needed to make foreseeable constraints manageable.

In systems or individual farms, experienced experts will more often advise a slow steady approach to improvement over a quantum leap. Why? It takes time to change or
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re-engineer our thinking on how to provide optimum care for the high producing sow and adapt our beliefs to her biological requirements.

Observation 3: People – training and learning
I would attribute the following quote to a good friend and mentor whose knowledge probably is the source of my beliefs on how to interact with people and systems. “People aren’t resistant to change, but they are resistant to ‘forced change’”. In the successful systems that have developed and approach and “environment to succeed” there is a spirit of “ownership” and “consistency” that are core in the implementation of changes.

People have time to change towards the new management needs and understand the biological basis for the changes before implementation and success. Some of the routines that we have, monthly or quarterly farm visits, monthly or quarterly visits from nutrition, genetic and production service persons create the environment for learning. Individual people make the difference in implementing and “owning the changes.” This seems to be fundamental throughout the pig industry regardless of country.

Observation 4: Minimum database
At the onset of many of the improvement projects, the minimum dataset for changes in not in one person’s hands. It is the combined knowledge of an “architect”, an “engineer” and the “craftsman”. The database of knowledge between these three functions is critical to success, and sharing the model repeatedly through interaction and the small incremental improvements is the source of learning. The presentation will discuss the minimum database and steps in communicating the main assumptions between individuals.

Summary
The US pork industry is still 4-5 years from fully optimizing the genetic capabilities of the sow herd. Genetics and Nutrition are here today to make revolutionary changes in our productivity, and a tremendous continued investment in the implementation, including the skills to implement successfully these biological changes lies before us.