



DMRI Pork Profit®

– a suite of services boosting your profit

Pigs are the greatest asset to meat companies, but many of them do not exploit their full potential to maximize the profit throughout the value chain. DMRI has developed a full suite of services and tools that will assist you in harvesting the hidden profit.



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The value creation

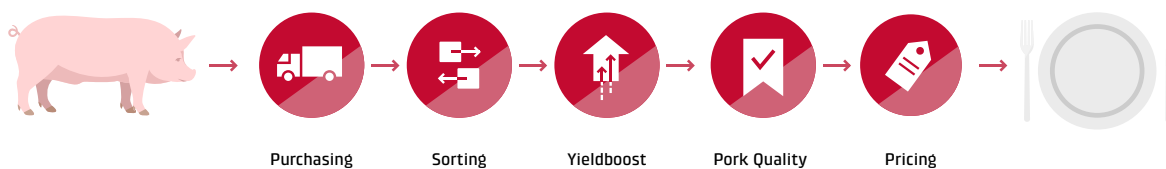
Key questions

From the farm to the market, the value creation at the pork industry is determined by how the pigs, characterised by their breed, provenance, and natural variation, match the sales, by how they are used to produce the different articles and by how the sale choices are consistent with the available pigs.

The relation between these elements – pig supply, operations, sales, and profit – brings four central questions for every company:

- Given my market demands, do my pigs maximise the profit?
- Given my pigs and the market, does the carcass utilisation maximise the profit?
- Given my pigs and the market, do my slaughtering, cutting & deboning operations maximise the profit?
- Given my pigs, does my product mix at the market maximise the profit?

The DMRI can assist you in answering these questions with a suite of four services and specialised software modules that conform the **DMRI Pork Profit**.



YIELD MODELS – THE VALUE IN THE DIVERSITY

All pigs are different, but how much does a certain pig yield? And why does it matter?

A 'Yield Model' consists of a set of equations that relates the company's margin to the measured variables for a certain type of pig and range of products and specifications. In other words, these equations connect the expected profitability with the natural variation of the pigs by means of objective measurements.

These Yield Models are the backbone of the **DMRI Pork Profit** services and software.





DMRI Pig Purchasing

– optimal pig supply

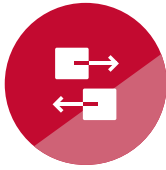
Whether a pork industry produces their own pigs or purchases them at the market, the available carcass online measurement systems offer a powerful tool to drive the population to the highest value in accordance with the targeted markets.

Given certain market conditions (products, specifications, volumes, and prices), the Yield Models enlighten how the different variables in the pig population affect the margin. In other words, they objectively provide information about how the pigs are suited to produce the final articles.

This knowledge can be transformed into a set of payment criteria that reward those traits in the pig supply that promotes the profit, creating a mutually beneficial relationship with the farmers.

The **DMRI Pig Purchasing** service transforms the developed Yield Model equations into a comprehensive and tailor-made set of payment criteria. These parameters are introduced to the flexible software module, which gathers the information and measurements needed from the traceability system and calculates the payment per batch. The software includes a powerful BI tool to effectively provide the suppliers with the proper feedback and benchmarking.





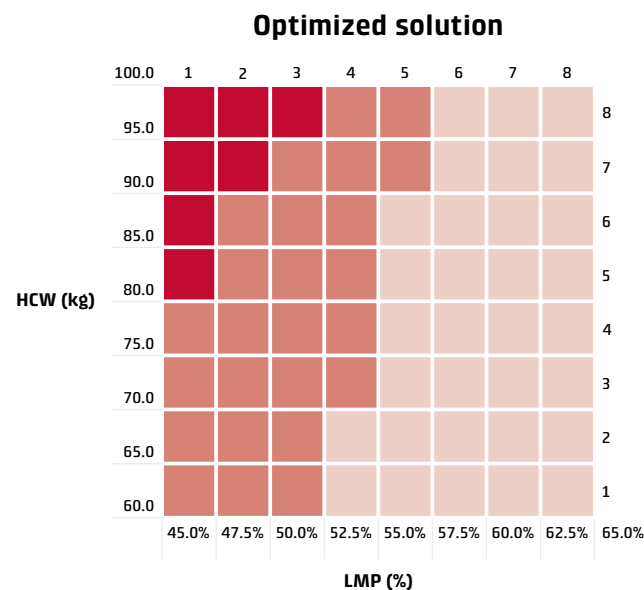
DMRI Pork Sorting

– optimal carcass utilisation

The sales are closed, the pig supply scheduled, and the production plan for the cutting and deboning is set. The next question is, how the pigs in the equalisation room will be used to produce the different products.

Once again, the answer is in the Yield Models. The available population of pigs, the Yield Model equations, the production planning, and the restrictions imposed by the quality specifications conform a Mixed-Integer Programming problem where the profit is the variable to be maximized.

The **DMRI Pork Sorting** service and software resolve this optimisation problem for any given population, providing a powerful simulation tool to explore the different possibilities and have a clear insight into the optimal sorting criteria. These optimal solutions need to be transformed into specific sorting criteria that cope with the real-life limitations (number of sorting groups that can be handled in practice).



The software module, in communication with the MES level, is fed with the dynamic sorting criteria to create the different groups of carcasses, which will be connected to the existing production planning to define how each group will be used to produce the different articles.



DMRI Yield Boost

– optimal operations

In meat production, the yield of a product is defined as the ratio of the product's weight to the carcass weight (%). By increasing the yields of the most valuable products – and therefore reducing the by-product's weight – the economic value of the whole carcass is increased.

The upper limit to the main product's yields is defined by the product specifications. A meat company is maximizing the use of their raw materials, and therefore their profit, when they can push every single piece to the boundaries defined by the specifications.

The cutting and deboning operations are carried out manually by workers dealing with a high volume of products per hour. Under these circumstances, cutting mistakes can be made, whereas a single wrong cut on each product have a big impact on daily/monthly/yearly earnings. In other words, wrong cutting and deboning operations lead to low yields for the main products and reduced profit.

DMRI counts with highly skilled cutting specialists who know how to improve the yields, securing uniformity and achieving high quality standards according to the best practice.

THE DMRI YIELD BOOST PROJECT IS BASED ON A "SUCCESS FEE" CONCEPT

- The project runs for 12 months.
- The Success Fee is calculated as a percentage of the objective economic improvement obtained. The current yields are compared to the initial situation – Baseline.
- There is (almost) no need for investment. The improvements are based on the knowledge, the training, the focus, and the management.
- The Success Fee concept involves no impact at the company's cash flow. The fee is paid by the improvement.
- The systematic approach where the focus is on the permanent observation of the deviations at the lines by skilled and specialized workers who take immediate action, leads to real improvements that can be kept thorough time.



By investigating the entire production from slaughtering to cutting & deboning, the DMRI consultants will find the potential to improve the production. The potential is found at every place where wrong cuts are being made by measuring the deviation from the best practice in grams, and the frequency of the failure.

DMRI's proactive consultants turn loss into profit by training, teaching, coaching, supervising, and securing that the full potential is achieved for every product-mix and specification. We have a positive reference list with more than 40 Yield Boost projects and with an increased profit of 0.02 to 0.05 €/carcass kg for our customers.



DMRI Pork Quality

– improved profit through optimized quality

The quality of your products is crucial to the price at which you can sell them, and thus, your profit. This applies both in the domestic market and particularly in export markets. By conducting a systematic investigation of your current production, DMRI will identify where the primary causes of quality problems lie, clarify what is needed to improve the quality and develop business cases for each improvement proposal and we will take leadership in implementing them. We always identify where the problems lie, how to solve them and we are typically able to improve our customers' profits by 0.5 to 1.2 EUR per pig.

The origin of quality problems in pork is usually complex and a result of the interaction of several factors that have a negative impact on meat quality. The quality defects are usually detected during cutting and boning the day after slaughter, but the defects are due to a combination of improper handling while the animals are alive, certain unit operations during the slaughter and chilling process on the day of slaughter. This can result in quality defects such as PSE, bruises, bloody meat, light colour and high drip losses, which can result in downgrading of cuts, reduced yield leading to financial losses and customer complaints.

- DMRI Pork Quality offers a quantification of your economic potential by improving meat quality of specific cuts.
- We help you realize the potential, regardless of whether the cuts are targeted at your home market or your export markets
- We will implement quality assurance tools for ongoing follow-up and correction of irregularities to maintain and increase your profit.

OUR APPROACH TO YOUR IMPROVED PROFIT

We will analyse your production chain with focus on how final meat quality is affected. The data and observations will be benchmarked to best practice and based on this, business cases will be worked out and potential profit estimated. One or more projects are initiated following the decisions you make based on our analysis and recommendations. Projects on longer terms could be renovation or construction of a new lairage, new stunning process or chilling facilities. Project on shorter terms could be training of operators in correct animal handling, adjustment of workflow and equipment, and possibly minor adaptations of driveways and equipment.

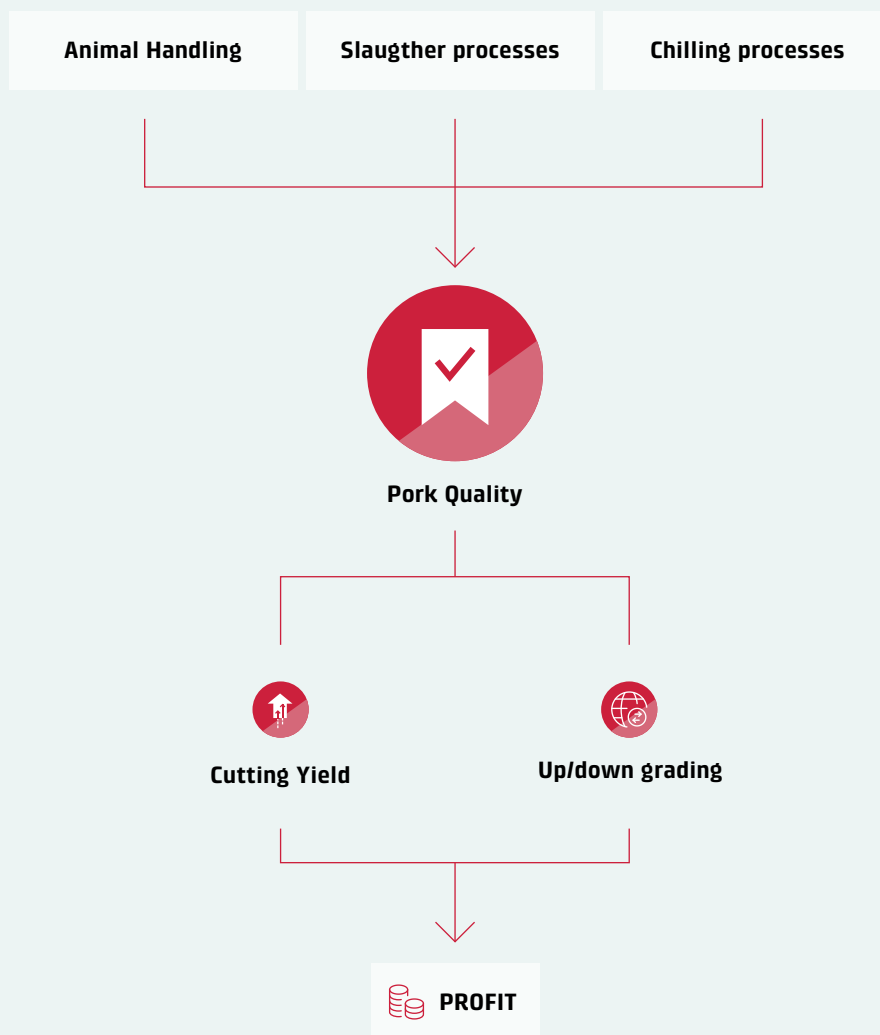


Figure: Quality-Profit relation in pork production

“Your customers at high price markets expect only the best in quality and service from you, thus increased quality improves your access to these markets”



DMRI Pork Pricing

– optimal product mix

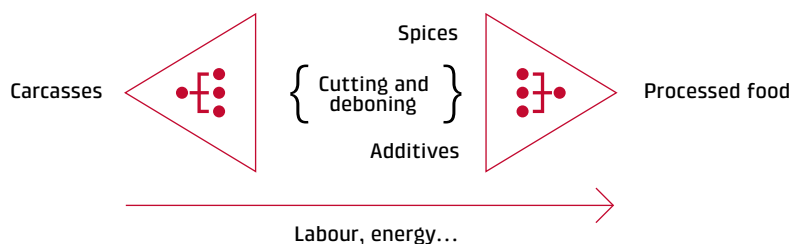
In a globalised world, a pork industry has almost endless possibilities of commercializing its articles in a wide variety of formats. Nevertheless, no matter the product nor the format, it all starts with a number of pigs that will be slaughtered, cut and further processed. Namely, the company needs to choose how these pigs will be used to supply the targeted markets.

Thus, given a certain pig supply and cost structure, several questions arise: Which market is more profitable? Which is the optimal product mix within this market? Which sales channels or customers are the best?

The key to answer these questions is on the determination of the 'break-even' prices, i.e., the prices at which the finished goods should be sold to cover the total costs.

THE COMPARISON BETWEEN THE MARKET AND BREAK-EVEN PRICES PERMITS

1. Sales profit forecasting.
2. Comparison of sales options.
3. Determination of sales prices.
4. Profitability by market, product mix, sales channel, or customer.





The typical process in a meat industry implies both disaggregation and aggregation processes. The slaughtering, cutting and boning of the pigs being the first (a whole split into parts), and the further processing and packaging the second (the parts conforming a whole).

In the aggregation case, the determination of the break-even prices is a straightforward calculation where the cost of each raw or auxiliary material is added to the related manufacturing costs: labour, utilities, services, supplies, depreciation, overhead...

Nevertheless, in the disaggregation case, the starting point is the unique cost of purchasing the pigs where there is no single way to split it among the parts. Therefore, the utilization of consistent standardized cutting tests and the adoption of coherent hypothesis and criteria are needed.

The **DMRI Pork Pricing** service and tool provide a comprehensive insight into these criteria and the proper flexible data structure to cope with the complexity of the different cutting and processing recipes, the different operative costs, and the calculation of the break-even prices from the reference purchase price for the pigs.

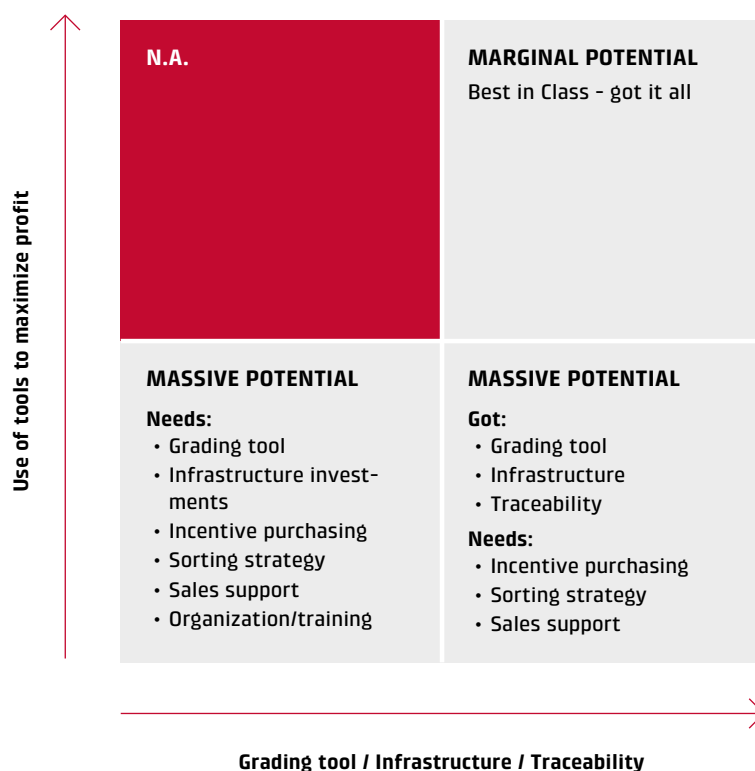
The software module, which naturally integrates into the company's ERP, includes a powerful BI tool to visualize and analyze the results.

The value in this?

DMRI calculates that optimal utilization of complete information for all the carcasses in a pig population is estimated to have a value that is approx. 7% larger than the value of a production, in which the knowledge of the carcasses is not used.

DMRI can assist your company in surveying the potential in each of the mentioned modules – make CAPEX/ROI of needed investments – supervision and training – verify performance and gain. Our approach is services and tools flexible and tailored to the individual producer – matching his individual situation

Baseline assessment



DMRI —
Food innovation for the future



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