EURODECISION
OPERATIONAL RESEARCH

Prisma
La solution sur mesure

PRISMA

OPTIMIZATION OF RATIONS FOR RAISING CATTLES

Objective:
Integrate an optimization engine in the RumiNeo software designed to ration livestock, in order to provide breeders with a decision support tool that would ideally and automatically complement their rations

Solution :
OptimRation, a custom optimization engine using an open source mathematical programming solver

Results :
- Livestock food distributors are now able to offer their breeder customers a simple, effective "custom" feeding solution managing a large number of parameters (items necessary for the animals' health, costs, component availability either on the farm or at the retailer, etc..).
- Breeders can adapt their rations "in real time"

"The solution from Eurodecision helped us achieve our goal: improving the RumiNeo software by adding decision support without calling the entire legacy solution into question. We appreciated their ability to listen and communicate, as well as their flexibility," said Sylvain Heurtier, Ruminant Development Engineer at Prisma

Prisma, a subsidiary of the InVivo agri-foodstuffs group—the leading French co-operative group—specializes in animal nutrition. It provides food suppliers and breeders with a large range of premix products (nutritional specialities and food supplements) as well as extensive services, including software for calculating rations in breeding.

Since 1998 Prisma had used freeware to develop rationing tools under Excel for each type of production (bovine milk, bovine meat, goat, sheep). In 2008 the company decided to upgrade its tools by grouping them into a single program (RumiNeo) and adding an optimization model for calculating rations. The software was developed in-house, but Prisma needed an external partner to provide the optimization solution.

Prisma chose Eurodecision, which had managed a similar project, albeit in a very different sector: smelting. Although that project concerned the need to optimize components in a mixture of metals, the underlying issues were identical.

Within four months Eurodecision had developed and delivered OptimRation, an optimization engine that could automatically create the ideal mixture of rations for livestock. The module is a software library that offers the calling application a set of functions for providing input to the engine, launching the optimization, and recovering the optimized ration. It uses the Coin-OR open source software.

Components of a ration are divided into two groups: "breeder" components (fodder the breeder wants to include in the ration) and "foodstuff" components (available from a food supplier) with their respective prices. The engine then determines the least expensive ration based on a number of constraints. It provides information such as the quantity of each component to include in the ration, a list of constraints not met, and the marginal costs for each component.

The product retailer makes this "custom" food software available to breeders. Prisma provides user training.

The optimization engine delivered by Eurodecision provides an ideal solution to the problem. Prisma can directly modify the constraints if necessary.