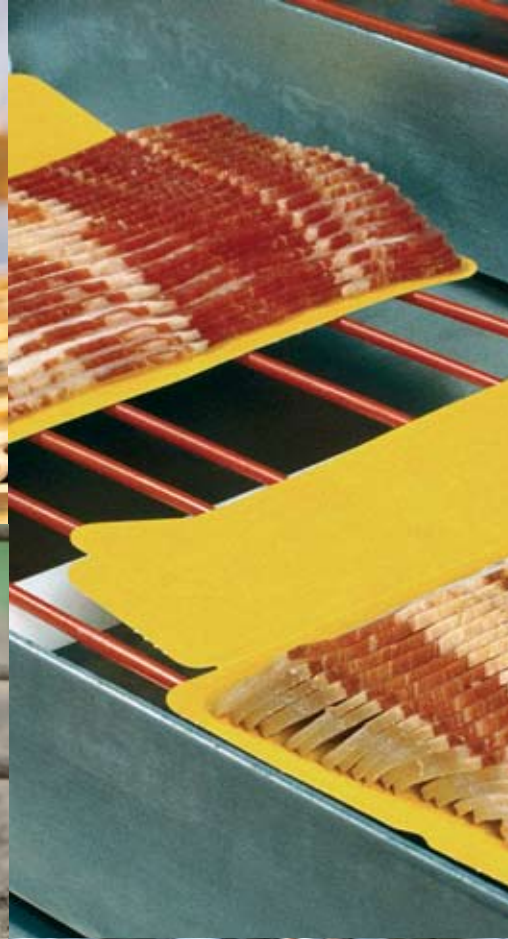


LAWSON™



Lawson M3 Yield Optimization Solution

Optimizes the use of raw materials to maximize throughput and profitability.



The challenge is to ensure that you always use your raw materials in the most cost-effective way possible.

The Business Challenge

In industries where raw ingredients have variable grades—such as meat, poultry and fish processing, and fruit and vegetable canning and freezing—a key to maximizing yield and profitability is in the appropriate allocation of raw materials and ingredients and the selection of the right processing method(s) to balance supply and demand.

Typically, incoming raw materials are graded based on their size and/or quality, which determines the alternative ways that they can be processed. For example, each grade may be sold as a whole product, cut into parts and sold at one or more levels, or be processed further to create other value-added products. The product alternatives, pack sizes and prices determined at each level are often dependent on the grade of product processed.

The challenge is to ensure that you always use your raw materials in the most cost-effective way possible. If your planning is off in this area, your business can suffer both from delays in the production of your higher-end products (due to running out of the appropriate grades of raw materials) and from lost profits due to the repeated use of higher-grade and higher-cost raw materials than are actually required.

Traditional Approaches to Material Usage Planning

Many food manufacturers currently manage their material usage by using one or a combination of the following methods: paper-based calculations, spreadsheets, a material resource planning system or a finite capacity scheduler. But each of these methods has significant drawbacks. Paper-based calculations are time consuming and it is difficult to use them to handle complexity and large data volumes. Spreadsheets contain built-in assumptions that prevent them from considering all the constraints and possibilities, they lack flexibility and they are too static to enable you to react quickly to demand changes. Material resource planning systems and finite capacity schedulers don't optimize the allocation and use of inventory in situations where there are alternative materials or processes, they don't automatically select the best combination of alternate processes and they don't consider all the constraints or the cost impact of alternatives.

An alternative approach to material usage planning that some food manufacturers have tried is to invest in new automated production equipment. But new equipment cannot consider or optimize the use of available inventory, it has a high capital cost and it is inflexible to changes in your business in the future.

In the consumer packaged meat sector, a mix of different primal cuts is often issued to the same production order, which adds complexity to the production process.



The Lawson M3 Yield Optimization Solution

The Lawson M3 Yield Optimization solution is a decision-support planning tool that calculates the most profitable way to process raw materials or ingredients to meet demand. It easily overcomes all of the limitations presented by paper-based calculations, spreadsheets, material resource planning systems, finite capacity schedulers and automated production equipment. Based on forecast demand and existing and arriving inventory, it generates an optimized production plan that indicates what quantity of each grade to process in each different way to most effectively meet demand. It dramatically reduces the planning effort and increases yields, which in turn improves revenues and margins, and maximizes profitability. The Lawson M3 Yield Optimization solution is ideal where the use of incoming raw materials or ingredients and the end products or quantities vary according to the alternate processing selected. It is also very appropriate for disassembly production where there are reverse bills of material or recipes and by-products and the inputs vary by grade, size, content, and so on. Furthermore, it provides you with the agility to quickly replan should customer orders change or turn out to be different from the forecast.

The Lawson M3 Yield Optimization solution dramatically reduces the planning effort and increases yields.



The Slaughterhouse and Boning Sector

The narrow margins, the complexity of the input push and demand pull, and the variety of alternate cutting methods to achieve different primal combinations and quantities makes production planning in a meat processing facility highly complex. When measured yields and planned yields do not coincide, meat processors must be able to take rapid action to identify and resolve the problem. With tight margins, achieving profitability requires that they both project and identify any surplus primals to ensure they sell all the meat and by-products from each carcass. The Lawson M3 Yield Optimization solution focuses on optimizing profit in this environment by calculating the ideal combination of cutting methods given the available and incoming inventory.

The Consumer Packaged Meat Sector

It often happens in this sector that a mix of different primal cuts (or primal cuts with differing origins) is issued to the same production order, which adds complexity to the production process. A traditional material resource planning system creates one production order based on a standard bill of materials. Where there is an insufficient quantity of the normal primal, the material resource planning system will generate a purchase order. Thus, if it is impossible to quickly source more of the required primal—or if a different primal, a different grade of primal or a primal with a different origin is desired—then the planner must split the production order manually. In high order-volume environments where it may sometimes be necessary to issue a variety of different primals to an order, this approach is impractical due to the time and effort required. Lawson M3 Yield Optimization solution solves this problem by considering customer demand, available and incoming primals inventory and the valid alternate processes to generate a daily production schedule. It finds the most profitable solution to meet demand and automatically generates the appropriate manufacturing order proposals. This saves a vast amount of manual planning work and ensures a balanced plan and high throughput.

The Poultry Processing Sector

The Lawson M3 Yield Optimization solution focuses on optimizing profit in this sector through calculating the optimum use of the different grades and sizes of birds available. For example, you can produce diced chicken fillets by cutting large, medium sized or small birds of different qualities, but there is a cost penalty if more birds of a higher grade or size are used than is actually necessary. By considering factors such as customer demand, available and incoming inventory, and the valid alternate processes to deliver end products, Lawson M3 Yield Optimization solution avoids such cost penalties. It quickly generates the optimum solution to achieve an anatomical balance between supply and demand. The result is optimized yield, increased revenue and maximized profit.

The Fish Processing Sector

In this sector, the size and grade of the fish in each catch determines what they can and will be used for. Each grade may be sold as a whole product, cut into parts and sold at one or more levels, or be processed further to create other value-added products. The product alternatives, pack sizes and prices achieved at each level are often dependent on the grade of product processed. If supplies of lower-grade or smaller fish are short, higher-grade larger fish are often used to meet demand for lower-quality or processed end products, but there is a cost penalty for doing this. The Lawson M3 Yield Optimization solution overcomes this problem by calculating the optimum use of the different grades and sizes to balance supply and demand in the way that maximizes profit.

The Fruit and Vegetable Canning and Freezing Sector

In this sector, the grade, size and harvested tonnage determine how a crop is processed. It is necessary to quickly generate production schedules for how to process each load of harvested fruit or vegetables to ensure that the forecast for each product line is met. If you have different grades of fruit—large, medium and small pineapples, for example—you might use the large ones for rings, chunks or juice, the medium ones for chunks or juice, and the small ones only for juice. If you juice too many large pineapples you may later discover that there are not enough left to meet the demand for rings. The Lawson M3 Yield Optimization solution overcomes this problem by calculating how much of each grade to process using each alternative processing method to meet the forecast and/or customer demand. As a result, you can be confident that you are meeting as much of the demand for each of your product lines as possible—thereby maximizing your profits.

In the fruit and vegetable canning and freezing sector, the grade, size and harvested tonnage determine how a crop is processed.



The Process of Yield Optimization

Your installation of Lawson M3 Yield Optimization solution will include all the potential methods of processing that are available to you. You define the inputs, outputs, capacity requirements and costs for each alternate process. The input data for yield optimization can include supply quantities and prices, demand quantities and sales prices, production costs and capacities, and inventory costs and capacities. The decision to use non-standard alternate processes can be made manually by the user or automatically by the system. The solution uses customer orders and forecast demand for each different product over time and details on all incoming and existing inventories. It then generates day-by-day production schedules for what to produce and how to produce it. The incoming raw materials or ingredients are synchronized against demand using the optimum alternate processes to optimize yield and maximize profitability. The solution generates manufacturing order proposals and will also create purchase order proposals if required. It also calculates the projected inventory levels at the end of each day. User-definable records in the solution's performance scoreboard enable planners to define and measure key performance indicators and exceptions around a wide variety of measures including sales revenue, profitability, utilization levels, inventory, costs, and so on. The Lawson M3 Yield Optimization solution projects surplus inventory levels per day and enables planners and sales to easily spot these surpluses in the performance scoreboard. This enables salespeople to focus on selling any surpluses in time to avoid the need for discounting and waste, which results in improved profitability. Fast optimizations and easy drill-down from aggregated totals to the details ensures a much quicker and easier planning process. In addition, Lawson M3 Yield Optimization solution will generate, on request, profitable promotion proposals for a selected range of products and days considering any promotional price discount. This enables manufacturers to become more proactive in developing promotional plans with retailers that are profitable for the manufacturer, resulting in a win-win situation.



Solution Features at a Glance

- Synchronizes existing and incoming raw materials or ingredients against demand at maximum profit
- Optimizes schedules to process existing and incoming inventory in the most cost-efficient way
- Generates manufacturing order proposals and purchase order proposals, if required
- Includes a performance scoreboard with user-definable records for sales revenues, profitability, utilization levels, inventory, costs, and so on
- Optimizes the balance between the simultaneous push from stock and pull from demand
- Groups demands (into orders and forecasts, for example)
- Supports reverse bills of material, recipes and by-products
- Supports alternative processes (bills of material/recipes)
- Supports multilevel product structures
- Respects shelf-life constraints
- Handles quarantine and maturation periods
- Enables manual or automatic decisions to open nonstandard alternative processes
- Provides easy drill-down from aggregated totals to details
- Respects finite production resource capacities
- Respects inventory capacities
- Uses Dash ExpressMP optimization technology (which incorporates linear programming and mixed integer linear programming algorithms)

Getting the Solution Up and Running

The Lawson M3 Yield Optimization solution runs on a PC with Windows XP. Installation for a single site usually takes approximately 20 days of consulting time for customers that are currently running the latest version of the Lawson M3 Enterprise Management System (formerly Movex) assuming the necessary data is available.

It is also possible for Lawson customers that run older versions of The Lawson ERP system (Movex) to implement The Lawson M3 Yield Optimization solution. Users of third-party ERP systems can also implement the Lawson M3 Yield Optimization solution via an interface using ODBC technology.

The Lawson M3 Yield Optimization solution is appropriate for both existing Lawson customers and for companies that use other ERP systems.



The ability to project and identify surpluses enables the focusing of sales and shaping of demand to maximize sales revenue and profits.

Rapid Return on Investment

The Lawson M3 Yield Optimization solution significantly improves the bottom line profitability of companies with a disassembly process or alternate processes. The main benefits come from the ability to better meet customer demand and thus maximize customer service levels and sales revenues. Yield optimization takes the guesswork and errors out of production and yield planning. Profitability is optimized through meeting demand in the most cost-effective way given production process costs and existing and incoming inventories. Through selecting the best combination of alternate process runs, invoiceable throughput is improved, waste in production is avoided and the need for overtime is reduced. Planning time is significantly cut thanks to the ease of use of the software and the fast number-crunching that identifies the optimum solution from a customer delivery and profit perspective. If changes occur in demand, capacity or available inventory, it is possible to quickly respond and re-optimize the plan. The ability to project and identify surpluses enables the focusing of sales and shaping of demand to maximize sales revenue and profits. The Lawson M3 Yield Optimization solution will also generate, on request, profitable promotion proposals for a selected range of products and days considering any promotional price discount. However, the most compelling reason to implement the Lawson M3 Yield Optimization solution is the competitive advantage you will gain in the marketplace. With its impressive value proposition and the ease of implementation, the Lawson M3 Yield Optimization solution provides a high return on investment. Food manufacturers that seize the opportunity to use mathematical optimization are most likely to thrive and grow in the future.

The main benefits of Lawson M3 Yield Optimization solution are:

- Increased throughput and sales revenue
- Maximized profitability
- Improved customer service levels
- Maximally cost-effective use of both existing and incoming inventories
- Avoidance of waste in production
- Minimized overtime
- Reduced planning time.

About Lawson

In 2006, Lawson Software and Intenia merged to form the new Lawson. We deliver software and implementation services to 4,000 customers in manufacturing, distribution and services industries across 40 countries.

Our Financials, Human Capital Management, Supply Chain Management, Business Intelligence, Asset Management and industry-specific solutions help customers streamline processes and enhance their business performance. And by radically simplifying the process of deploying and using our applications, we help customers reduce costs while increasing their flexibility.

Why Lawson? Because simpler is better.

Find Out More

To learn more about the Lawson M3 Yield Optimization solution, e-mail info@lawson.com or visit www.lawson.com/yop



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