BESTMIX
SOFTWARE feeding the future

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Close the gap between formulation and the production floor

Turning variability into predictable performance.

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01

The Reality: Growth is not a constraint. Complexity is.

An R&D team designs a formula targeting 10% moisture. On paper, nutrients are balanced, cost is aligned, and compliance is validated.

But when it reaches the production floor, reality tells a different story. Raw material moisture is higher than expected. The operator adjusts steam and temperature to keep the line running, and the batch proceeds. Later, QC flags a deviation. Moisture is off. Density is inconsistent.

The formulation was right.
The finished product is not and no one can clearly point to where it broke.

This is not a one-off issue. It is daily reality.

A formula might look perfect on paper, but that does not guarantee the same outcome in production.

Not every manufacturer can quickly adjust formulations, bring new SKUs to market, respond to emerging trends, and at the same time maintain nutritional completeness, regulatory compliance, and production stability.

Pet food production is not limited by demand. It is limited by how well variability is managed across formulation, production, and quality from recipe design to finished product.
Even a small recipe change affects multiple functions: specifications, labels, process settings, and quality checks.

To manage this, many producers rely on buffers such as over-formulation, safety margins, or last-minute manual adjustments. It works to some extent, but it comes at a cost. With increasing raw material prices and volatility, these approaches slow down decisions and lead to unnecessary rework and waste.

Formulation, quality, purchasing, and production often operate in parallel. When conditions change, response is delayed and data continues to live in silos.

Ask yourself:

- When raw material quality shifts, how fast can formulation adapt, minutes, hours or days?
- When production drifts, how quickly does that feedback return to R&D?
- When QC detects a deviation, does it prevent the next batch or only explain the last one?



Is it hours? Days? Or only after financial impact becomes visible?

Growth rewards scale. Complexity rewards integration.

And what does that delay cost in your case?

As an expert, it is not enough to have the right formula on paper. You need the ability to keep it right when conditions change by using one connected source of data shared across all teams.



02

The hidden cost of delay

In most pet food companies, the expertise already exists.

Scientists know how to design precise formulations. They understand nutrient interactions, digestibility, palatability, and regulatory limits. Plant managers understand their lines. They know how extrusion behaves. They adjust temperature, steam, moisture, and retention time based on experience. They can sense when texture is right and when something is off.

The real issue is not competence. It is variability.

Nutritional values fluctuate from batch to batch. Protein levels shift. Moisture changes. Fat quality varies. Even small deviations affect formulation balance and processing behavior. A minor deviation can escalate into costly rework or even recall.

When ingredient quality fluctuates, product consistency declines, nutrient margins widen, costs and waste increase, and compliance risk grows.

In many cases, decisions rely on averages like average protein values, average moisture assumptions, average historical pricing.

Averages provide stability, but they also embed inefficiency.

When formulations use actual batch-level data such as real protein values, real moisture levels, real ingredient prices, optimization becomes dynamic. Safety margins can be reduced without increasing risk. Substitutions can be evaluated immediately. Purchasing decisions can reflect nutritional impact, not only price per ton. Temperature adjusted based on data, not feeling.

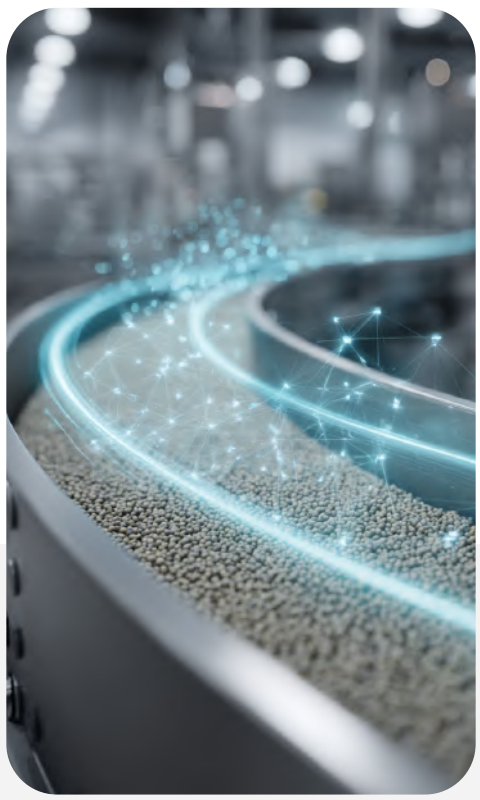
The difference is measurable. Smaller safety buffers reduce raw material cost. Faster adaptation protects margins during volatility. Real-time recalculation maintains target specifications with greater precision.

But batch-level intelligence alone is not enough.

If formulation adjusts but production does not see the change immediately, texture drifts. If purchasing reacts to price shifts without visibility into nutritional impact, formulation becomes constrained. If regulatory validation is disconnected, label updates lag behind recipe adjustments.

Integration determines whether expertise translates into performance.

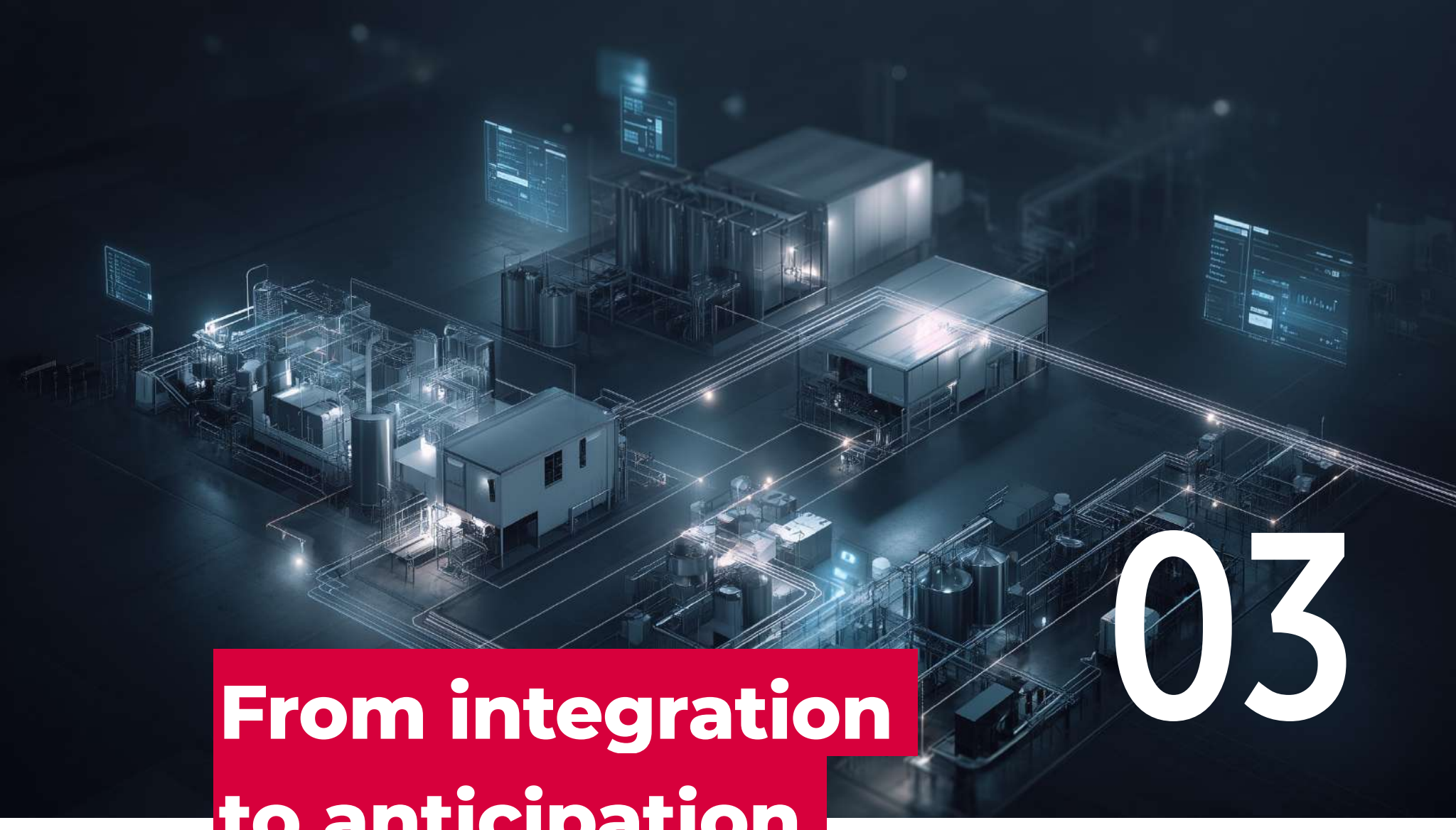
This becomes even more critical as market dynamics accelerate. Consumer preferences shift rapidly. New functional ingredients emerge. Scientific findings influence claims and positioning. What was innovative a few months ago becomes expected now.



Producers are required to respond quickly, introducing new formulations, adapting product portfolios, adjusting claims without compromising quality, compliance or production stability.

Without integrated systems, responsiveness creates strain. With integrated systems, responsiveness becomes an advantage.

Every specialist already knows what to do: act fast and rely on data. The difference lies in whether the environment enables coordinated action. When all stakeholders, from initial concept to finished product, operate on shared, live data, decisions align instantly and performance becomes predictable.



03

From integration to anticipation

Industry data consistently shows that companies working with connected data achieve better results such as more stable nutritional values, less waste, and faster product launches. The difference is not automation alone, but how well decisions are aligned across teams.

In pet food production, integration directly affects performance. When formulations use real batch data instead of averages, they reflect actual protein, moisture, and cost values. This allows tighter control without increasing compliance risk. Even a 1% reduction in protein over-formulation across high-volume SKUs can result in significant annual savings.

Real-time visibility into ingredient costs also improves purchasing decisions. Companies that connect cost and formulation data typically reduce material costs by several percentage points compared to those managing them separately.

The same applies to production. Moisture and extrusion settings directly influence texture, density and yield. When adjustments are based on live data, variability is corrected earlier, before it affects multiple batches. This reduces rework and waste.

When formulation and production are aligned and operators receive clear guidance on temperature and process adjustments the production becomes more stable and predictable.

For specialists, the impact is clear.

For R&D and nutrition scientists, formulations can be adjusted based on actual raw material values and current prices, without waiting for manual recalculation. Scenario testing becomes immediate, speeding up product development.

For QA and regulatory teams, validation no longer needs to happen step by step. Compliance checks run alongside formulation updates, reducing delays and lowering audit risk.

For purchasing, cost analysis becomes contextual. Ingredient price shifts are evaluated against nutritional impact, substitution feasibility, and production performance – not just cost per ton.

For plant managers, integrated systems connect formulation logic to process control. Updated moisture values and raw material characteristics translate directly into adjusted extrusion parameters. This reduces reliance on conservative safety settings and supports more consistent production and outcome.

Technology is no longer the limitation. Modern plants already generate large volumes of data through NIR systems, laboratory analysis, ERP platforms, and process control systems. The difference is whether those data sources actually talk to each other.

Companies that integrate formulation, quality, cost, and production data move from silos to synchronized, data-driven operations. They shorten decision cycles, reduce unnecessary safety margins, and stabilize output under variable conditions.

As product portfolios expand and functional ingredients evolve, integration capabilities become strategic rather than optional.

Integration does not replace expertise. It enables it to scale.

When all departments operate on shared, live data, variability becomes measurable and controllable, margins become predictable, and response to market trends accelerates, shortening the path from concept to finished product.



04

Prediction: Turning data into actionable intelligence

In pet food production, many critical parameters are measurable in real time: moisture, protein variability, ingredient composition, extrusion temperature, pressure, and product density. The challenge is not measurement, it is using this data early enough to act before problems appear.

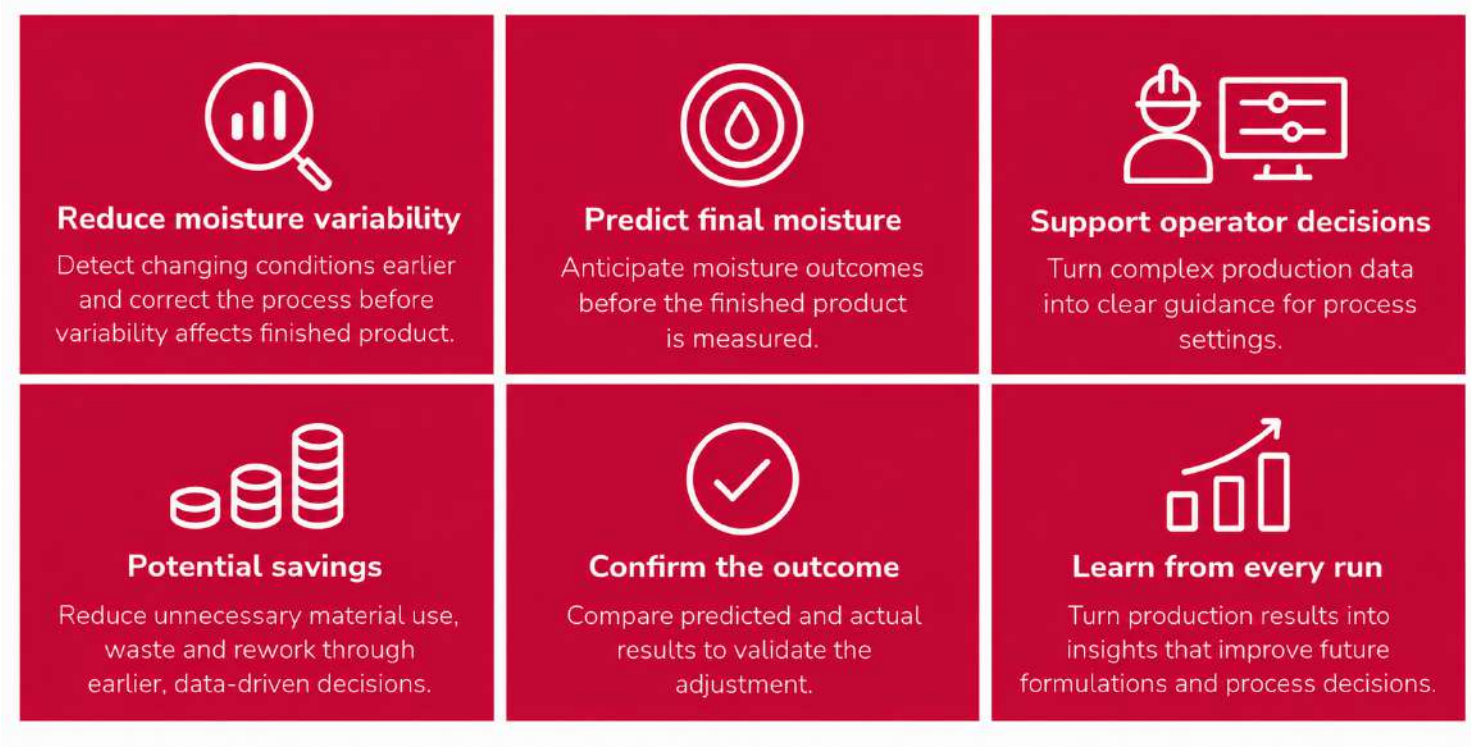
Advanced systems such as BESTMIX Insights act as an AI co-pilot on the production floor, continuously monitoring process variables and recommending optimal settings before deviations occur. By translating moisture trends, pressure behavior, energy usage, and density patterns into clear guidance, operators can stabilize quality, protect yield, and reduce waste before variation becomes visible.

Predictive models identify early patterns that lead to quality drift.

If moisture begins to increase, extrusion parameters can be adjusted before texture changes. If protein levels decline across incoming batches, inclusion rates can be recalculated while maintaining compliance and performance targets. If raw material prices fluctuate, cost–nutrition scenarios can be evaluated immediately across alternative ingredients. The objective is not automation, it is correcting earlier, before issues escalate.

A predictive model can estimate final moisture after the dryer using upstream inputs, extruder settings, recipe parameters, ingredient batch data, and temperature readings. Instead of waiting up to an hour to see the result of an adjustment, operators receive recommended settings before making a change.

This approach is already delivering measurable results in real pet food production.

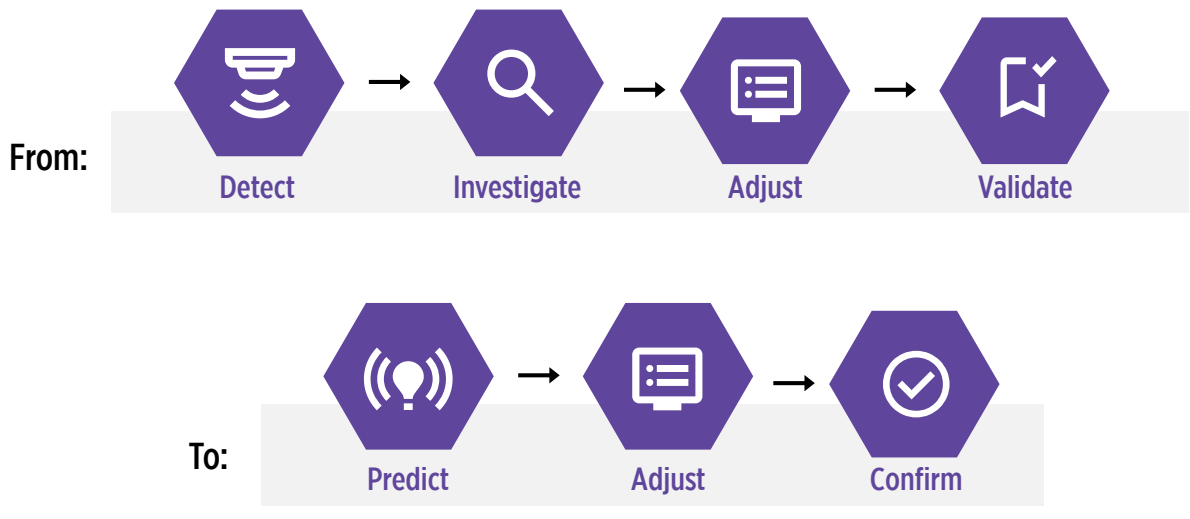


In formulation, BESTMIX Procision shows how real batch data, actual quality and lot-specific prices can be used to re-optimize recipes continuously instead of relying on historical averages. Cost, quality, compliance, and operational constraints are balanced across production orders, keeping formulations aligned with actual conditions.

This shortens reaction time across the organization. Nutrient margins stay under control without increasing safety buffers. Compliance risks are identified earlier. Purchasing decisions reflect both cost and formulation impact. Production parameters can be adjusted before variability spreads.

Across manufacturing sectors, predictive analytics has been linked to measurable reductions in waste, variability, and downtime. In pet food production, where ingredient variability directly affects cost and compliance, the impact is even more visible.

Operationally, the shift is clear:



Business Impact

This shift is not only technical, it has direct impact on daily operations and cost structure.

Reduced over-formulation

Using real batch data allows tighter nutrient control without increasing compliance risk. Even small reductions in safety margins show measurable raw material savings across high-volume production.

Lower waste and rework

When variability is corrected early in the process, fewer batches are out of specification. This reduces rework, material waste and production instability.

Faster product introduction

When formulation, compliance, and quality control are connected, new products move faster from product development to production without delays between steps.

Reduced compliance effort

When formulation and quality data are aligned, compliance checks happen continuously instead of manually after changes. This reduces workload and audit risk.

Faster, better decisions

When data is shared across teams, decisions become more confident and timely, allowing teams to react before issues spread through production.

Predictive capability depends on integration. These systems must work with connected and shared data between formulation, batch values, compliance rules and production parameters to provide reliable recommendations.

Integration makes data visible. Predictive models make it usable.

That’s what allows teams to act with more precision, less guesswork and better results.



05 Turning capability into performance: What it means for each role

Operational complexity affects everyone differently, but the value of alignment is shared.
Where do you see yourself?

Your Role	What you deal with	Where it breaks
R&D /Nutrition	Designing precise formulations under time pressure	"I'm still working with average values." "By the time I update the formula, something has already changed."
QA / Regulatory	Ensuring compliance across changing specs	"I check compliance after the change — not during." "Data is in different places, so validation takes time."
Purchasing	Managing cost under volatile markets	"I see the price, but not the impact on formulation." "We react to price changes, not plan for them."
Plant Manager	Keeping production stable under variability	"I adjust based on what I see." "I don't know a formula changed until the line is already running."

When data is fragmented, decisions are reactive.

When data is shared, decisions become clear, consistent and production becomes more controlled and efficient.

Role	What changes with integration	Impact and Value
R&D /Nutrition	Real-time formulation using batch data, instant scenario testing, embedded compliance	Faster reformulation, reduced over-formulation, shorter development cycles
QA / Regulatory	Continuous compliance, real-time deviation detection, full traceability	Earlier risk detection, reduced rework, stronger audit readiness
Purchasing	Cost decisions aligned with nutritional and production impact	Faster response to volatility, better cost–quality balance, protected margins
Plant Manager	Real-time process guidance based on live data	Earlier corrections, reduced variability, more stable and predictable production

Shared impact

When all teams operate on shared, real-time data:

- Variability becomes controlled
- Safety margins are reduced
- Decisions are faster and more confident
- Compliance is built
- Production becomes more stable and predictable



06

Conclusion: From complexity to measureable impact

Raw material quality will continue to fluctuate. Costs will continue to shift. Nutrient tolerances will tighten. New SKUs will emerge. Regulatory requirements will multiply across markets.

Most organizations respond by widening safety margins, adding manual controls, and separating responsibilities across systems. It stabilizes risk, but it increases cost.

Small protein buffers accumulate into significant raw material expense. Conservative extrusion settings reduce yield. Sequential compliance validation slows product launches. Fragmented data delays purchasing decisions.

The financial impact is structural, not incidental.

The competitive advantage now lies in synchronization.

When formulation, quality control, purchasing, and production operate on shared, real-time data:

- Formulations reflect actual batch values instead of averages
- Safety margins shrink without increasing compliance risk
- Waste and rework decline
- Compliance becomes embedded rather than reactive
- Process deviations are corrected earlier
- New products move faster from concept to production

BESTMIX Software brings recipe management, quality control, cost optimization, and real-time production insight together, so teams work with the same information, not separate systems. In a market defined by precision and speed, alignment is no longer optional.

Producers who reduce variability at system level protect margins, accelerate innovation, and outperform competitors.

Now is the time to address complexity structurally.

Ready to explore what's possible?

CONTACT

Interested in a demo to see firsthand how integrated software solutions can elevate your business?

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