# If the gut is fine …

# why are our animals still struggling?

## LIKE ELITE ATHLETES WHO MISS THE PODIUM WHEN MICRO STRESSORS ACCUMULATE, POULTRY AND PIGS CAN LOOK CLINICALLY NORMAL WHILE LOW GRADE INTESTINAL IMMUNE ACTIVATION AND THE ASSOCIATED OXIDATIVE LOAD QUIETLY DIVERT ENERGY, LOOSEN TIGHT JUNCTIONS, AND ERODE EFFICIENCY LONG BEFORE SIGNS APPEAR.

In production, this subclinical pressure builds from routine triggers and first shows up as broken uniformity and unexplained performance loss. Addressing the mechanisms rather than symptoms, wood lignans in agromed roi are designed to down regulate pro inflammatory mediators and support antioxidative protection at the epithelial interface, helping stabilize barrier function so the system performs under commercial pressure.

**Intestinal inflammation: A hidden performance limit**

Think like a high performance coach. An Olympic athlete can look fit and still miss the podium when small, constant stressors add up. Livestock animals are no different. A gut can appear normal while low grade inflammation quietly diverts energy away from performance, before anything looks clinically wrong. In commercial barns, this hidden load comes from everyday triggers — feed fractions (oxidized fats, antinutritional factors, mycotoxins), management stress (heat, weaning, feed changes), and baseline microbial load. Each of those being modest alone, but together they are enough to keep inflammatory signaling “on.”

Peak performance collapses not from one big hit, but from dozens of micro hits. In the gut, those hits are tiny inflammatory sparks that keep burning in the background until the barrier and efficiency give way. Over time, that state accelerates epithelial turnover, loosens tight junctions, and raises oxidative pressure, turning a resilient interface into a bottleneck for efficiency.

## Oxidative stress: when the gut burns slowly and efficiency pays the price

When immune signaling runs “quietly on”, reactive oxygen species (ROS) rise as part of the defense response. Useful in small, tightly controlled bursts, but performance-diming when the signal is not switching off after a reasonable time. Once the gut immune activity is “on”, oxidative stress starts to rise. In excess the ROS, as part of the innate defense response, damage intestinal cells, disrupt membrane integrity and promotes cell turnover, turning a seemingly fine gut into a leak of energy and efficiency. In poultry and pigs oxidative stress rises naturally with high metabolic rates, rapid growth and environmental stressors pushing the defense to the limits. This further contributes to the vicious cycle towards lower efficiency, poorer uniformity and higher risk for secondary challenges.

## Economic consequences of impaired gut health

When low-grade inflammation and oxidative stress persist, the gut digests less efficiently and absorbs less efficiently, which means more feed to achieve the same output. In practice reduced digestibility pushes FCR upward, while a weakened barrier raises health risks and medication costs. Variability in gut resilience breaks uniformity, making planning and processing more expensive.

Crucially, these costs arise without signals. Animals look healthy and keep producing, just below potential. That silent inefficiency compounds across flocks and herds and remains one of the largest untapped levers for performance optimization in poultry and pig production.

## Wood lignans: a targeted tool for gut health stabilization

To reverse this economic drag, maintaining gut integrity in commercial production means more than pathogen control, it requires active management of inflammatory processes and oxidative stress in the intestine. This is exactly where wood lignans can be a precious partner.

AGROMED ROI targets the underlying biological drivers of impaired gut health by modulating immune activity in the gut and supporting antioxidative protection, rather than masking symptoms. Its bioactive wood lignans downregulate pro inflammatory mediators and enhance the gut’s antioxidative capacity, helping protect epithelial cells from oxidative damage. By restoring balance rather than suppressing, wood lignans support a physiologically efficient immune response that protects the animal without unnecessary energy expenditure to better utilize animals’ potential.

### 1. Reduced inflammation & oxidative stress– a calmer, more efficient gut

The first biological shift observed with supplementing wood lignans is a reduction of inflammation biomarkers, like cytokines. A lower blood count of cytokines like interleukin-6 (IL-6) or TNF-α in piglets indicates a reduced basal immune tone (Figure 1). With less inflammatory triggers, oxidative stress is limited, antioxidative defense promoted, measurable with protective enzymes like glutathione-peroxidase in broilers (Figure 2).

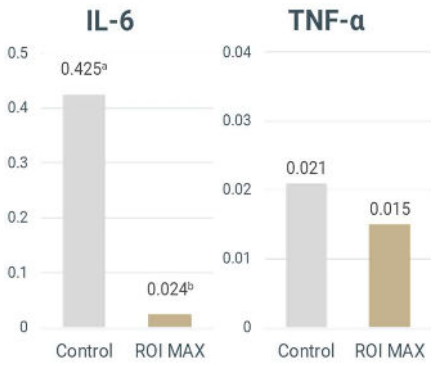


*Figure 1. Cytokines IL-6 and TNF-α in post weaning piglets, 60 days of age, supplemented with 70 g of AGROMED ROI MAX per ton of feed (TN70 x TN Duroc, mixed sex. [a,b] significant differences (p<0.05); UFMG Brazil).*

### 2. Better barrier, better digestion – stability you can measure

Lower inflammation translates directly into improved intestinal integrity: tighter junctions and less leaks, more absorption. In broilers this is reflected in reduced Fluorescein-isothiocyanate-dextran (FITC-d) translocation, a direct indicator for improved permeability control (Figure 3). A more stable gut barrier means more predictable nutrient utilization, steadier intake and less performance loss under challenge.

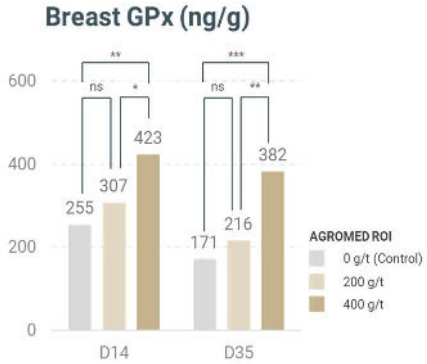


*Figure 2. Glutathione-Peroxidase in breast tissue of ROSS 308 male broilers. Measuring at d 14 and d 35 of total 42 days of trial (significant differences - *(p<0.05), **(p<0.01), ***(p<0.001), ****(p<0.0001); PSU Thailand).*

### 3. Energy reallocation – performance instead of repair

With less inflammation, less oxidative stress and a better gut barrier integrity and functionality, unnecessary energy expenditure on immune activation and tissue repair is shifted back towards growth, feed efficiency and overall performance. Wood lignans contribute to consistent improvements in performance parameters, including for instance improved egg production and FCR in laying hens, even in late production period (Table 1).

In a production environment of increasing restrictions on antibiotics and pharmacological growth promoters, AGROMED ROI offers a sustainable solution based on preventive physiological regulation rather than intervention.

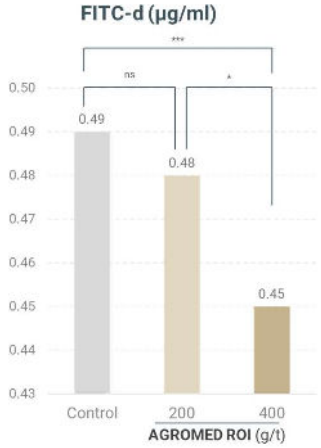


*Figure 3. FITC-d levels in blood of male ROSS 308 broilers at d 14 and d 35 of total 42 days of trial (significant differences - *(p<0.05), **(p<0.01), ***(p<0.001); PSU Thailand).*

***Table 1. Performance and egg traits of Lohmann LSL laying hens, 61-76 weeks of age ([a,b] significant difference p < 0.05; [x,y] significant difference 0.05 < p < 0.1; Germany).***

| Parameters | Control | AGROMED ROI (200 g/t) | AGROMED ROI (400 g/t) |
|---|---|---|---|
| Egg number (n) | 102.8[a] | 104.0[ab] | 104.9[b] |
| Egg weight (g) | 65.2 | 65.4 | 65.8 |
| Total egg mass (kg) | 6.71[a] | 6.80[ab] | 6.90[b] |
| FCR | 2.166[a] | 2.094[b] | 1.983[b] |
| Egg shell stability (N) | 38.3[x] | 39.2[x y] | 40.2[y] |

## Conclusion: gut health as a strategic performance lever

Livestock animals cannot reach their genetic potential when the gut is quietly battling with constraints. Wood lignans in AGROMED ROI help break this cycle by reducing intestinal inflammation, supporting antioxidative protection and by creating the needed environment to promote gut barrier integrity. In a world shifting away from antibiotics and growth promoters, the most sustainable competitive advantage is gut health. . Strong gut health turns hidden inflammation into visible performance and wood lignans help animals realize their true performance potential by keeping the barrier tight, the immune system calm, and the energy where it belongs: in growth, not defense.