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FAO report highlights long-term economic case for tackling antimicrobial resistance in livestock

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Antimicrobial resistance (AMR) poses a significant long-term threat to food security, livestock production, economic welfare and human health, making it imperative to realign incentives in the global livestock sector before the costs of inaction become much harder to reverse, according to a new scenario-based economic assessment from the Food and Agriculture Organization of the United Nations (FAO).

Under current trends, driven by growing demand for animal source foods and continued production intensification, global antimicrobial use in livestock is projected to increase by nearly 30 percent by 2040 compared with 2019, according to The future of antimicrobial use in livestock â?? The economic cost of action or inaction, presented Wednesday on the sidelines of the Fourth Session of the COAG Sub-Committee on Livestock at FAO headquarters in Rome.

The report highlights that while antimicrobial growth promoters (AGPs) are associated with clear short-term productivity gains, especially in resource-limited areas, the long-term production losses projected under rising AMR scenarios are much larger. In the scenarios assessed, cumulative livestock production losses under the high-AMR case could reach about $318 billion by 2040, compared with about $53 billion under the most severe AGP phase-out case.

â??The costs of reducing unnecessary antimicrobial use are often immediate and concentrated, while the benefits of preserving antimicrobial effectiveness are long-term and widely shared,â? said Thanawat Tiensin, FAO Assistant Director-General, Director of the Animal Production and Health Division, and Chief Veterinarian. â??This is why antimicrobial effectiveness should be treated as a global public good, requiring better alignment between national and farm-level incentives

and the global benefits of preserving its effectiveness, supported by investment that makes prevention feasible at scale.â?

This calls for integrated policy approaches that combine regulation with economic incentives, invest in veterinary services, surveillance and diagnostics, promote alternatives such as vaccination, biosecurity and improved husbandry, and align trade and market incentives with responsible antimicrobial use and the adoption of viable alternatives. The report estimates that at least $28.4 billion in transitional investment would be needed to cover the short-term cost of action.

The current situation

International guidance increasingly calls for restricting and progressively phasing out the use of AGPs. Yet the effort and adjustments required are not uniform, as these products are associated with clear productivity gains, particularly in settings where producers face high disease risks and have limited access to veterinary services, biosecurity measures and affordable alternatives.

The report shows that future antimicrobial use in livestock can be reduced through better productivity, stronger animal health systems and improved prevention. Still, phasing out AGPs imposes an up-front and visible shock, followed by partial recovery as producers adapt and scale alternatives. Rising AMR follows the opposite path. Its economic effects may be less visible at first, but they grow over time. This time gap is one reason why action can be delayed, even when the long-term case for intervention is strong.

The report presents an integrated One Health economic framework and scenario-based modelling analysis to assess the return on investment in livestock antimicrobial stewardship by linking farm-level decisions, governance capacity and macroeconomic outcomes. It concludes that antimicrobial stewardship in livestock cannot be achieved through technical guidance or national regulation alone, pointing to the need for clearer targets, sustainable financing, market-based incentives and farm-level adoption support. Economic instruments may include, where appropriate and adapted to national contexts, caps, tradable standards and fiscal measures.

Pairing restrictions with targeted transition support, including investments in biosecurity, vaccination, veterinary services and accelerated access to effective non-antibiotic alternatives, is central to bridging the cost and time gap between action and inaction. That case is reinforced by the reportâ??s projection that global livestock production is expected to rise by about 23 percent through 2040, led by poultry and milk production.

By 2040, Asia and the Pacific are projected to remain the largest global users of livestock antimicrobials, accounting for nearly 65 percent of total use, followed by South America with around 19 percent. While Africaâ??s share is lower, its growth rate is among the highest.

The report assesses how AGPs are associated with improved growth and feed-use efficiency across broilers, pigs and cattle, although effects vary by region, species and production system. These findings help explain why producers may rely on AGPs when affordable and effective alternatives are limited. They also show why short-term losses from reform are likely to be uneven, requiring carefully tailored policy responses and collective support.

FAO is supporting Members in this transition through RENOFARM, its 10-year initiative to Reduce the Need for Antimicrobials on Farms for Sustainable Agrifood Systems Transformation, the Farm 5Gs framework of good practices and the International FAO Antimicrobial Resistance Monitoring system (InFARM). Together, these efforts aim to strengthen prevention, improve monitoring and make responsible antimicrobial use feasible for farmers, value chains and governments.

Participants in the Sub-Committee on Livestock will also discuss the draft Global Plan of Action for Sustainable Livestock Transformation, which lays out practical priorities and actions for governments and partners to follow. The Plan promotes working across the whole livestock value chainâ??from production to marketsâ??and making decisions based on evidence and local context to make livestock systems more sustainable while still meeting growing demand for meat, milk and eggs.