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Replacing ionophores means replacing many functions

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This issue examines why ionophores occupy multiple biological roles simultaneously and argues that replacing them means replacing each function separately within any given beef production system.

One of the topics that has followed me throughout my years working with feedlot systems is the recurring discussion around ionophores.

The question usually sounds simple:

Can ionophores be replaced?

But in practice, I have found that this is often the wrong question.

Because ionophores are not just another feed additive. Their value extends beyond average daily gain and feed conversion. They influence rumen fermentation, intake patterns, adaptation, digestive stability, and even environmental efficiency (sustainability).

When ionophores are removed, we are not simply removing a product.

We are removing several functions simultaneously.

Ionophores shift fermentation

Perhaps the most recognized effect of ionophores is their ability to favor propionate production over acetate. This improves the efficiency with which cattle capture energy from feed.

The response may not always appear as greater daily gain, but it frequently appears also as improved feed efficiency. This is one reason why evaluating ionophores only through average daily gain can underestimate their true contribution.

Intake moderation aids consistency

Many feedlot managers notice that cattle receiving ionophores often consume feed more consistently. This moderation effect can become especially important during dietary transitions and periods of elevated digestive risk.

Consistency itself has economic value. Reduced day-to-day variation in intake often translates into smoother cattle performance. In highly intensified systems, predictability frequently becomes as valuable as growth itself.

Digestive protection against acidosis

The benefits of ionophores are rarely confined to growth performance alone. Their influence on rumen fermentation contributes to lower digestive disturbances and smoother adaptation to high-energy diets.

In many systems, this hidden protection is more valuable than the visible performance response.

Problems that never occur rarely appear in performance summaries, but they still contribute to profitability. Prevention often remains cheaper than correction.

Environmental efficiency plus

By shifting fermentation toward propionate, ionophores also reduce the amount of energy lost as methane. In my opinion, this aspect deserves more technical discussion, particularly when environmental efficiency becomes part of the policy conversation. Less methane means that a greater proportion of feed energy remains available to the animal. Environmental efficiency and biological efficiency are often closely related.

Replacing all functions

Alternative additives may successfully address one aspect of ionophore activity. Some may support rumen fermentation. Others may improve stability or digestive health. But reproducing the entire biological package often requires combining multiple tools, increasing cost and management complexity. In many cases, replacement strategies become more complicated than the original system.

Complexity itself carries both economic and management costs.

Systems should focus on functions

Perhaps the most important question is not whether ionophores can be replaced. The better question is: which function are we trying to replace? Only after identifying that objective can meaningful discussions about alternatives begin.

Products are tools, whereas functions are the true requirements of the production system. Confusing the two often leads to disappointing results.

In brief, replacing a product is often straightforward. Replacing the biological functions behind that product is often much more difficult. Ionophores occupy several roles simultaneously inside modern beef production systems, and this is precisely why replacement discussions are rarely simple.

The most successful systems tend to focus first on the functions they need and only then on the products capable of delivering them.

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