

IPPE 2024 TECHTalks

Survey of Quantitative Methods for Feed Additives

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Laboratory Methods and Services Committee Meeting

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AGENDA

— OVERVIEW OF FEED ADDITIVES

— ANALYTICAL METHODS FOR
TESTING MEDICATED FEEDS

— MODERN APPROACHES TO ANALYSIS

— CASE STUDIES

Overview of Feed Additives

- Feed additives are substances added to animal nutrition to improve animal performance, enhance nutritional value, and ensure proper growth, maintenance, and reproduction.
- Types of Feed Additives
 - Nutritional
 - Zootechnical
 - Sensory
 - Technical

Regulations Governing Medicated Feeds

- The use of medicated feed is regulated by the Food and Drug Administration (FDA) under the Code of Federal Regulations (CFRs).
- These regulations aim to ensure the safe and effective use of medicated feed in animal production.
- Compliance with FDA regulations is essential to prevent antimicrobial resistance and safeguard consumer safety.
- The regulations encompass various aspects, including drug approvals, labeling requirements, and withdrawal periods.
- Adherence to these guidelines is critical for the responsible development, distribution, and usage of medicated feed.



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Guidelines as per 21 CFR 558.4

- The FDA has established guidelines under 21 CFR 558.4, which outline the regulations governing the use of medicated feed.
- These guidelines specify the approved uses, conditions, and limitations of medicated feed in animal production.
- Adherence to 21 CFR 558.4 is essential for ensuring the legal and ethical use of medicated feed.
- FDA-approved official methods are required for regulatory-compliant testing
- Understanding and following these guidelines are critical for maintaining compliance with regulatory requirements and upholding animal and public health.
- Enforced as outlined in 7371.005 specifications of the FDA Compliance Program Manual

Limitations of Outdated Techniques

- Modern feed formulas may have multiple feed additives Utilizing obsolete methods can jeopardize the safety and effectiveness of medicated feed due to potential interferences in the feed formulation.
- The potential for inaccuracies of results resulting from utilizing outdated analytical techniques underscore the necessity of embracing modern analytical methods for ensuring medicated feed safety.



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The Need for Specificity and Selectivity in Feed Formulas

- Achieving precise and selective quantification is essential for accurate feed additive analysis.
- Chemistry methods utilizing HPLC allow exceptional specificity in analyzing feed formulas.
- The utilization of current technology allows the targeted detection of additives

Technological Advancements in Feed Additive Analysis

- Modern milling and sample preparation equipment
- Automation can streamline sample preparation and reduce laboratory errors
- The integration of AI and machine learning optimizes data processing and analysis, while advanced software facilitates the seamless interpretation of intricate analytical results.



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Current Challenges Facing Regulators

- Microbiological method support
- Chemistry method development
- Validations for regulatory compliant testing
- Availability of approved official methods

Developing a New Methods Needs Statement

- Is this necessary?
- Do regulators have a complete catalog of methods appropriate for Category II feed additives

Conclusions and Next Steps

- Technical progress and method updates are critical for ensuring animal health and feed safety.
- Modern techniques play a crucial role in enhancing feed quality
- By leveraging technological innovations, feed additives' safety and efficacy can be ensured
- These advanced methods provide greater specificity and selectivity, ensuring accurate and reliable results.

QUESTIONS?



