BEM-VINDOS!

Departamento de Agricultura dos Estados Unidos (USDA) em parceria com a Associação Americana da Indústria de Alimentação Animal (AFIA)

ADITIVOS DOS EUA NA ALIMENTAÇÃO ANIMAL:

Agregando Valor e Gerando Resultados

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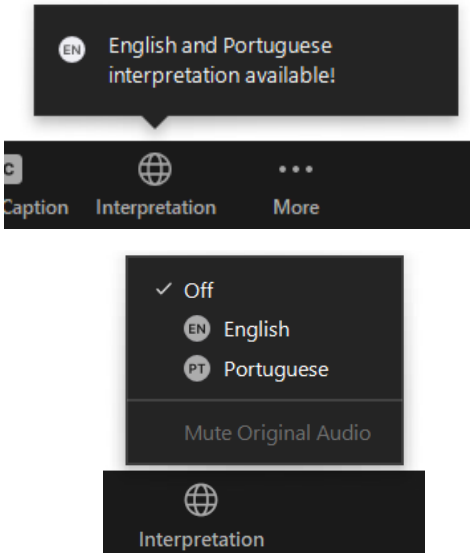

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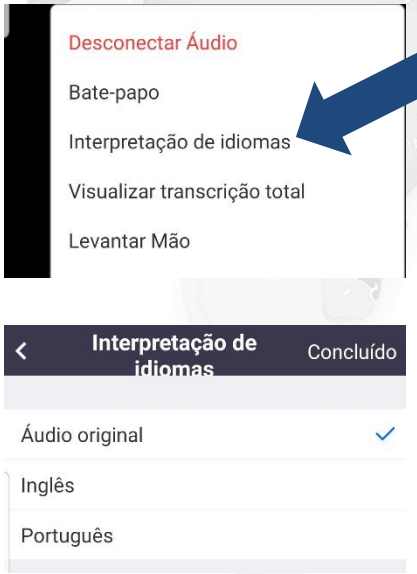

Bom dia!

Good morning!

Bem-vindos ao webinar: **Aditivos Dos Eua Na Alimentação Animal: Agregando Valor E Gerando Resultados** organizado pelo **Departamento de Agricultura dos Estados Unidos (USDA)** em parceria com a **Associação Americana da Indústria de Alimentação Animal (AFIA)**

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USDA

Apresentadores
Speakers

Nicolas Rubio
Departamento de Agricultura dos EUA (USDA)

Gina Tumbarello
American Feed Industry Association (AFIA)

PhD Cathy Bandyk
AB Vista

Apresentadores
Speakers

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Diretor do Escritório de Promoção de Produtos Agroindustriais (ATO)
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Apresentadores
Speakers

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Apresentadores
Speakers

PhD Cathy Bandyk
Gerente Técnico de Ruminantes
AB Vista

www.abvista.com

Enquete 1

Poll 1

Você já trabalhou com ingredientes e/ou aditivos dos EUA para alimentação animal?

Have you ever worked with U.S. feed ingredients and/or additives?

Enquete 2

Poll 2

Quais são os aditivos que você tem mais interesse em utilizar?

Which feed additives are you most interested in utilizing?

Our Industry. Our Passion. Our Voice.

Adding Value With Additives

Cathy Bandyk, PhD, PAS ♦ Ruminant Technical Manager, AB Vista

VOICE

REPRESENTATION

EXPERTISE

ENGAGEMENT

Could you and your customers get excited about…

12% increase in weight gains for beef cattle on pasture?

4% increase in fat-corrected milk production, with less acidosis?

49-day nursery pig improvements of 2.9 kg extra gain, 12% increase in intake, and 5% improvement in G:F ?

35-day broiler increases in live weight (17%) and tibia ash (53.6%)?

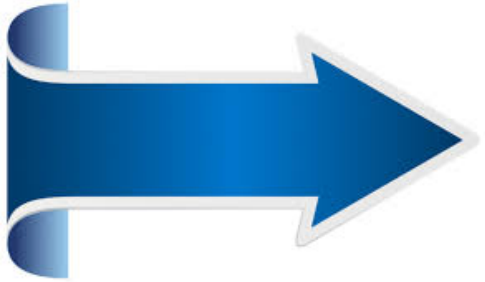
What's a "feed additive"

- Added to diet in (sometimes very) small amounts
- Expected benefits often based on biologic impacts or actions, not direct supply of required nutrients
- May or may not qualify as a "drug"

Why Consider Additives?

Commercial

- Adds value to feeds
- Opportunity for differentiation
- Progressive image
- May support sales in new markets or seasons



Why Consider Additives?

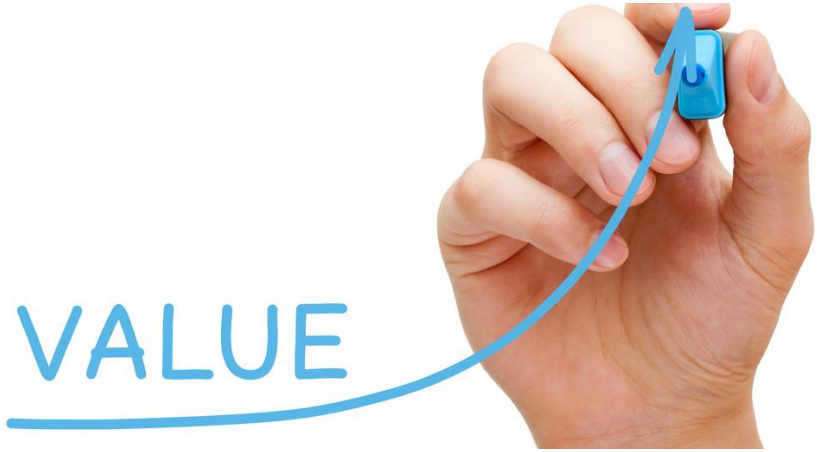
Commercial

- Fresh marketing messaging
- Direct margin opportunity
- Positive response to direct requests
  - Customers
  - Consultants

Why Consider Additives?

Production

- Improve performance
- Support animal health
- Improve efficiency
- Reduce environmental impact
- Address specific problems



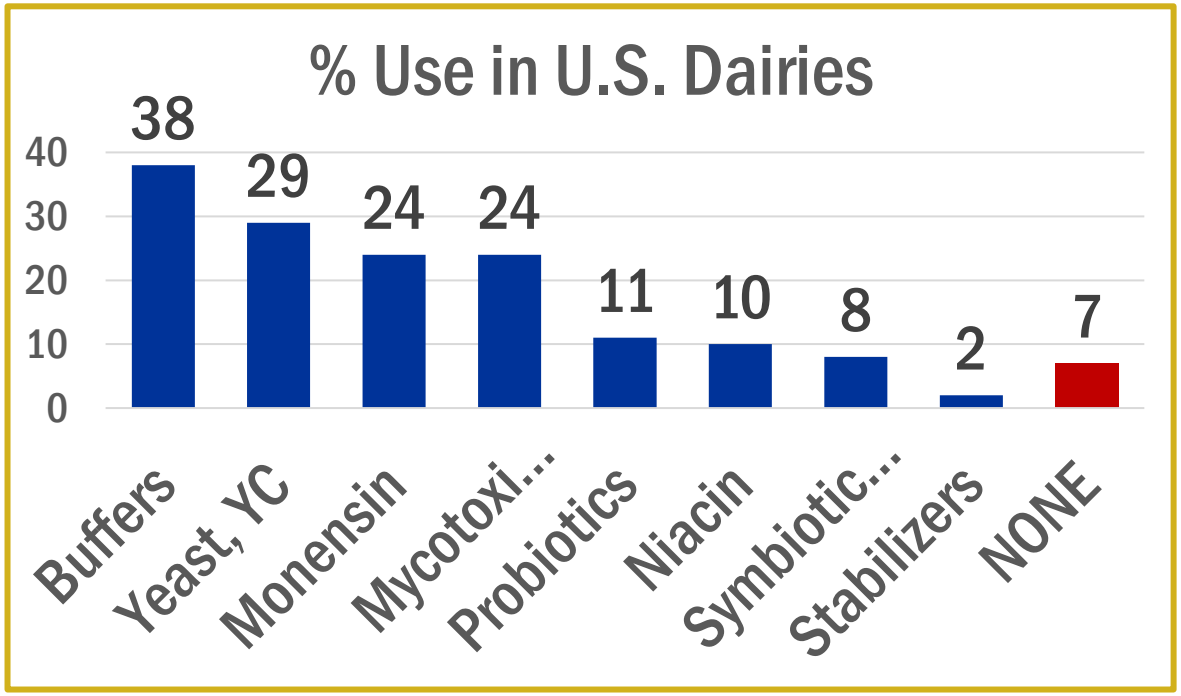
-- Mask bad management

Feed Additive Delivery

- As a branded product feature
- As a “menu” item
- In special custom formulas
- Incorporated on-farm

Different routes provide different values to different segments of the feed industry

Additives are a BIG DEAL!



Source: Mike Hutjens, U of Illinois

Additive Types: Non-medicated

- Vitamins, minerals
- Amino acids, analogs
- Anionic salts
- Acidifiers
- Buffers
- Anti-oxidants
- Sweeteners/flavors

- Probiotics
- Prebiotics
- Enzymes (and fungal extracts)
- Phytogenics
- Methyl-donors

Probiotics

- Viable (naturally occurring) microorganisms
  - *Live yeast, bacteria – "DFM"*
- Beneficial effect in prevention and/or treatment of certain pathologic conditions
- Need to maintain viability until they reach target site in the animal
- Products vary in species, strain, concentration, physical form (impact)

Probiotics – Research Results

- Live yeast for sows
- 10-trial meta-analysis
  - Feed intake ↑ **4.5%**

- Live yeast for artificially raised calves
- 16-study summary
  - Daily gains ↑ **19.5%** (.55 vs .46 kg/hd/d)

Prebiotics

- Selectively stimulate growth/activity of beneficial gut microorganisms
- Often non-digestible
- Induce targeted metabolic processes
  - *Oligosaccharides (fructans, galactans)*
  - *Non-starch polysaccharides (fiber)*

Synbiotic: Probiotic + Prebiotic
Stimbiotic: Prebiotic + Fiber-degrading enzyme

Prebiotics – Research Results

- Yeast culture for feedlot cattle
- 18-trial meta-analysis

	Prebiotic Advantage	Percent Improvement
Average daily gain	0.9 kg	6.5%
Dry matter intake	.08 kg	1.0%
Gain:Feed ratio		2.6%

Enzymes

- Supplement native enzymes
  - Fiber, starch, protein
  - Direct and indirect action
- Encourage lower gut fermentation of fiber
- Break down physical barriers to nutrients
  - Fiber, phytate
- Break down viscous gels in GIT
- Degrade mycotoxins

Enzymes – Research Results

- NSP-ase in broilers (*Non-Starch Polysaccharides*)
- 17-trial meta-analysis

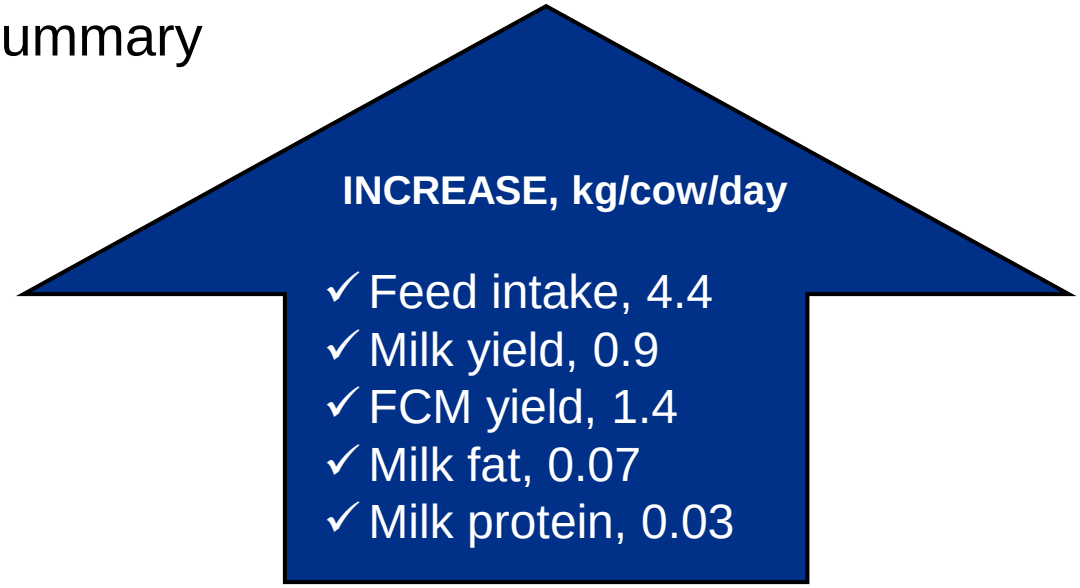
	Control	NSPase	Change
ADG, g	38.0	41.1	↑ **8.1%**
FCR	1.44	1.52	↑ **5.3%**

Phytogenics

- Plant extracts, “essential oils”
- Range of biologically active compounds
  - *Sensory & metabolic modes of action (palatability; antimicrobial, anti-oxidant, rumen modification, enzyme inhibition, altered intake or partitioning)*
- Often sold as blends
- Examples: yucca, garlic, oregano, cinnamon, peppers, coriander….and many more

Phytogenics – Research Results

- Various commercial products, dairy cows
- 7-study summary



Methyl Donors

- Methionine, choline, betaine
- Related, but not fully interchangeable
- Wide-ranging impacts
  - *Protein nutrition*
  - *Fat metabolism*
  - *Immune modulation*
  - *Liver metabolism*
  - *Neurotransmitters*
  - *Antioxidants*
  - *Gene expression*
  - *Developmental programming*
  - *Osmotic balance*
  - *Rumen activity*

Methyl Donor – Research Results

- Protected choline, transition dairy cows
- 13-study meta-analysis

- ❑Post-partum DMI ↑ 0.73 kg/day
- ❑Milk yield ↑ 2.23 kg/day
- ❑Milk fat yield ↑ 0.12 kg/day
- ❑Milk protein yield ↑ 0.08 kg/day

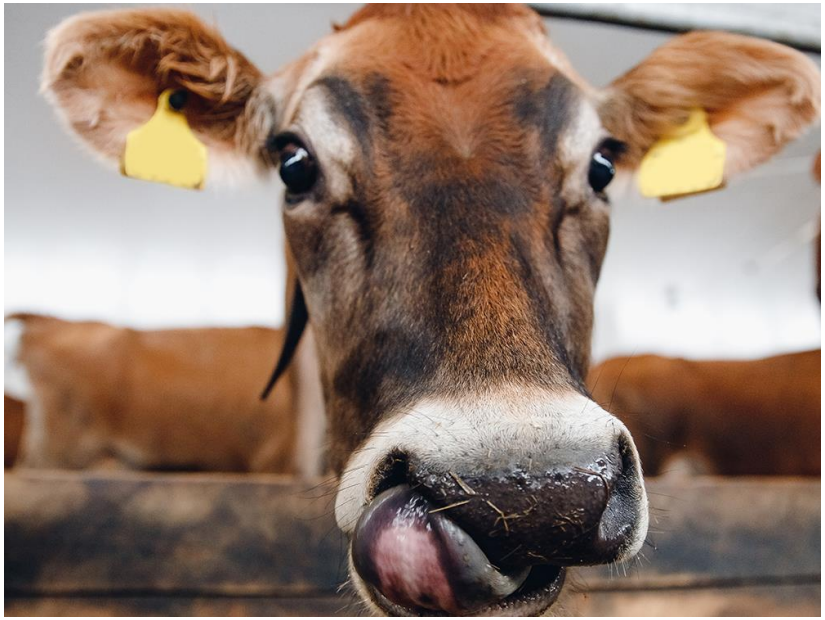
Additive Types: Medicated

- Antimicrobials
  - Antibiotics
  - Ionophores
- Anticoccidial
- Antiparasitic
  - Internal
  - External
- Sulfonamidics
- Hormonal
- Beta-agonists
- Anti-bloating

Additive Roles: A Little Can Do a Lot !

- **Meet nutrient requirements**
  - Provided in forms or concentrations that offer advantages over conventional ingredients, i.e., more bioavailable
  - In ruminants, may support microbial growth/activity to then support animals
  - Sparing action
    - Example: methyl donors for methionine

Additive Roles: A Little Can Do a Lot !



- **Enhance feed intake**
  - Sensory properties
    - Aroma
    - Palatability
  - Speed rate of passage
- **Restrict intake of self-fed supplements**

Additive Roles: A Little Can Do a Lot !

- **Increase Digestibility**
  - Increase physical access
    - *Direct degradation*
    - *Barrier removal*
  - Support/complement endogenous enzyme activity
  - Support microbial digestive activity
    - *More beneficial, fewer antagonistic*

Additive Roles: A Little Can Do a Lot !

- **Modify Digestion**
  - Alter metabolic pathways
    - More protein production
    - More glucose availability
    - Fewer ‘waste’ products
  - Alter site of digestion
  - Impact insulin metabolism

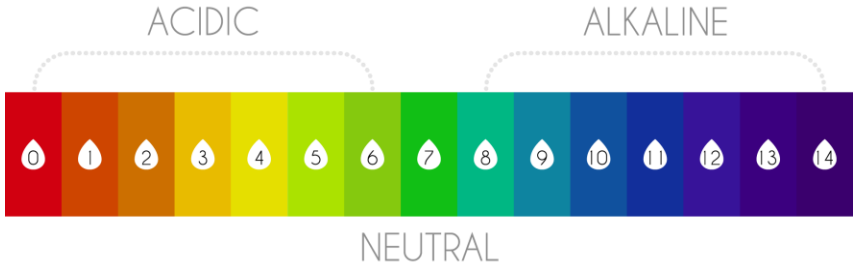
⬇ methane, ammonia

Additive Roles: A Little Can Do a Lot !

- **Impact the GIT/gut**
  - Health and function of lining
  - Support desirable microflora
  - Inhibit undesirable, pathogenic microflora
  - Encourage digestive activities
  - Reduce barriers to digestion & absorption
  - Break down gels, froth

Additive Roles: A Little Can Do a Lot !

- **Impacting the GIT/gut**
  - Modify pH with buffers or acidifiers
    - *Avoid acidosis; stimulate pancreatic secretions, possibly enhance phytase activity; selective impacts on bacteria*
  - Alter populations with (+) nutrients, growth factors, (-) selective antimicrobials



Additive Roles: A Little Can Do a Lot !

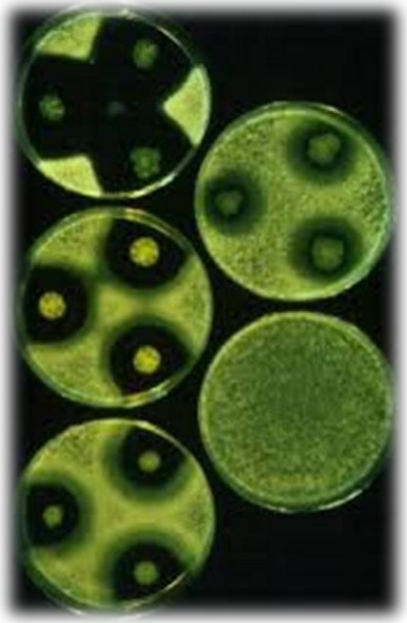
- **Improving Efficiency**
  - More complete digestion
  - Better nutrient absorption
    - *Sweeteners, NSP-ases*
  - Improved retention (energy, protein)
    - *Ionophores*
  - Via increased feed intake

Additive Roles: A Little Can Do a Lot !

- **Enhancing Health**
  - Support immune function
  - Support stress responses
  - Modulate inflammatory responses

Additive Roles: A Little Can Do a Lot !

- **Health-enhancing Activity**
  - Osmolyte
  - Anti-oxidant
  - Anti-microbial
  - Anti-pathogenic
    - Compete for binding sites
    - Compete for nutrients
    - Direct antagonism

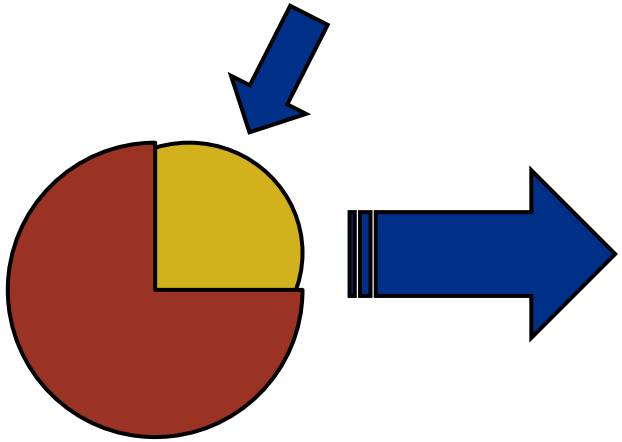


Additive Roles: A Little Can Do a Lot !

- **Control Parasites**
  - Internal
    - *Anthelmintics*
    - *Coccidiostats*
  - External
    - *Hormonal*
    - *Pesticides*

Additive Roles: A Little Can Do a Lot !

- **Mitigate Mycotoxins**
  - Adsorbents
    - *Yeast-based*
    - *Clays*
    - *Silicates*
    - *Activated charcoal*
  - Enzymes



Additive Roles: A Little Can Do a Lot !

- **Enhancing Products**
  - Flavor
  - Shelf life
  - Composition
    - *Leanness*
    - *Milk fat, milk protein*
    - *Fatty acid profile*

Additive Roles: A Little Can Do a Lot !

- **Manage Waste Products**
  - Inhibit urease
    - *Less ammonia release*
  - Reduce pathogen shedding
  - Reduce moisture and nutrients in poultry litter
    - *Restrict pathogen growth*

Additive Roles: A Little Can Do a Lot !

- **Maintain Feed Quality**
  - Minimize spoilage and loss throughout processing, storage, and in the bunk
    - *Acidifiers*
    - *Antioxidants*
    - *Silage innoculants*

Farm-Level Additive Decisions

- **Need to be able to address:**
  - Response
    - *How much, under my conditions?*
  - Returns
    - *What is the ROI? (≥ 2:1)*
    - *What would be the "cost" of not using?*

Source: Mike Hutjens, U of Illinois

Farm-Level Additive Decisions

- **Need to be able to address:**
  - Research
    - *Quantity*
    - *Quality*
  - Records
    - *Can we quantify the response on my farm?*

Source: Mike Hutjens, U of Illinois

Farm-Level Additive Decisions

- **Need to be able to address:**
  - Realistic
    - *Practical delivery options*
    - *Compatible with carrier feed*
    - *Compatible with expected conditions*
    - *Reasonable expectations of needed intake*

Questions?

Dr. Cathy Bandyk

More Questions? Email:
trade@afia.org

Perguntas & Respostas

Questions & Answers

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Enquete 3

Poll 3

Como você avalia este webinar?

How would you evaluate this webinar?

Obrigado por participar!

Thank you for attending!

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