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GROW FINISH

Managing Feed Mills for Success: A look at Federal Regulations, Biosecurity, and Feed Quality

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Advancing Animal Care Every Day[™]

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SYSTEM

Helping Farmers Today Create the
Farms of Tomorrow

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Overview

- Who is Pipestone?
- FSMA – Who must comply and how?
- Biosecurity – What are the risks/how do we manage them?
- Feed Quality – Performance matters

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SYSTEM

- Sow Management
- 450 shareholders
- 775 team Members
- 250,000 sows (USA)

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VETERINARY SERVICES

- 5 Locations in Midwest USA (MN, IA, IL, IN)
- Pipestone Applied Research (PAR)
- 35 Veterinarians
- 245 team members

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INTERNATIONAL

- China
- Mexico
- Chile
- 25 team members

Big Stone Marketing

- Hog Marketing
- Risk Management
- 8 team members

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- Nutrition
 - 230K Sows
 - 3 M GF Pigs
- Consulting/Mgt
 - 1.7 M Pigs
- Records
 - 1.2 M Pigs
- 28 team members

Production Management



Experienced Technical Advisors provide assistance at every stage of growth.

Management packages are customizable.

- Consultation
- Production Training
- Feed Budget Management
- Market Logistics

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Production Information & Analysis



Timely, accurate information used to make the decisions necessary to improve your bottom line.

Service Includes-

- Biological and Financial Closeouts
- Weekly Marketing Report
- Mortality Analysis
- Historical Trends and Quarterly Benchmark

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Nutrition



Nutrition based on 4 pillars...

Diet Formulation is based on an unbiased, economic-driven, and performance driven mentality.

Aggregate Sourcing advantage by obtaining volume pricing.

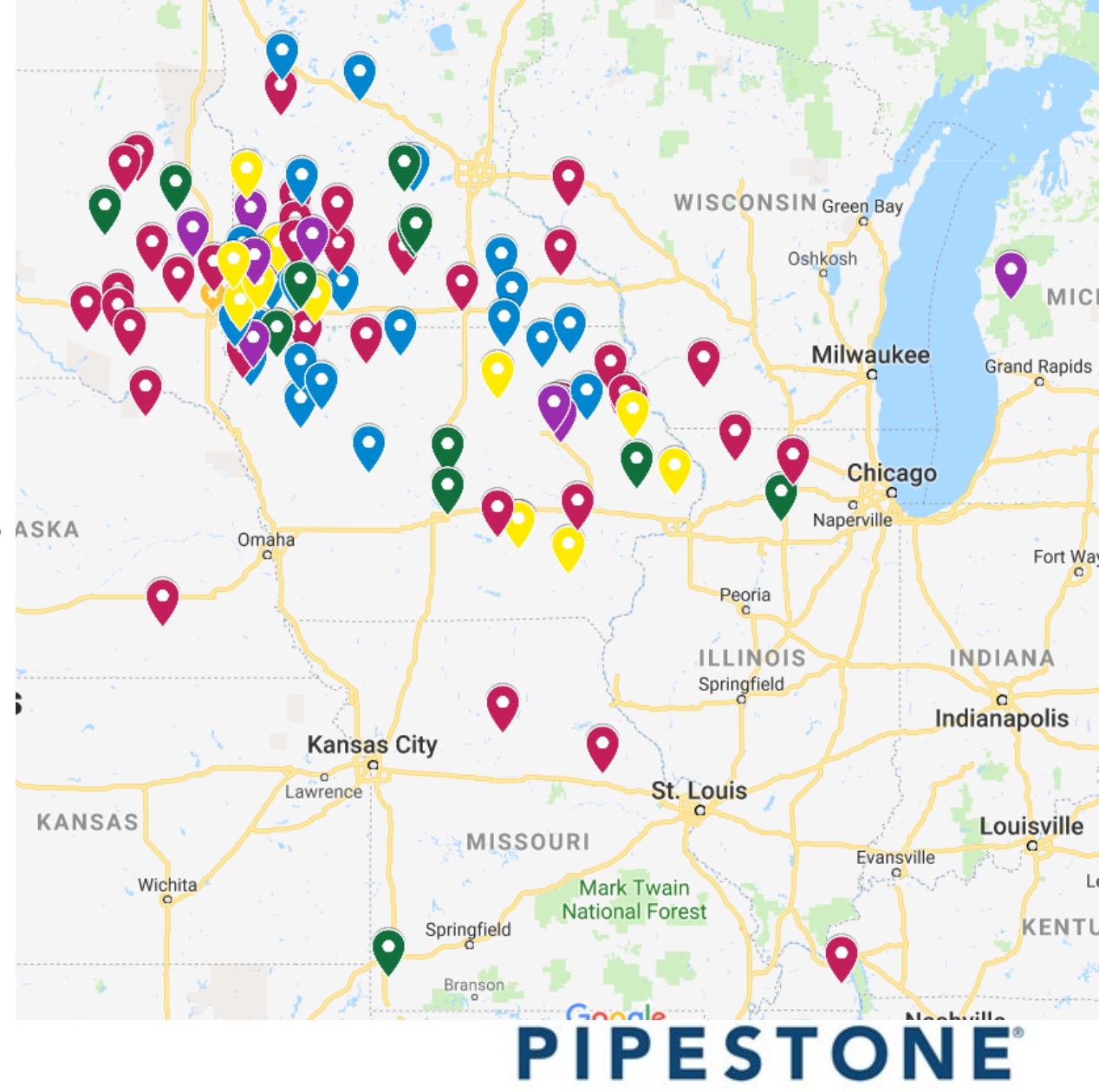
Quality Assurance performed with a group of preferred suppliers and feed mill audits.

Validation through our research facility and an expert industry panel.

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Pipestone Grow Finish:

- Nutrition Service
 - Contact with 95 Feed Mills
 - 21 “On-Farm”
 - 74 Toll Mills



On-Farm Feed Mills

- Lots of different types of mills.

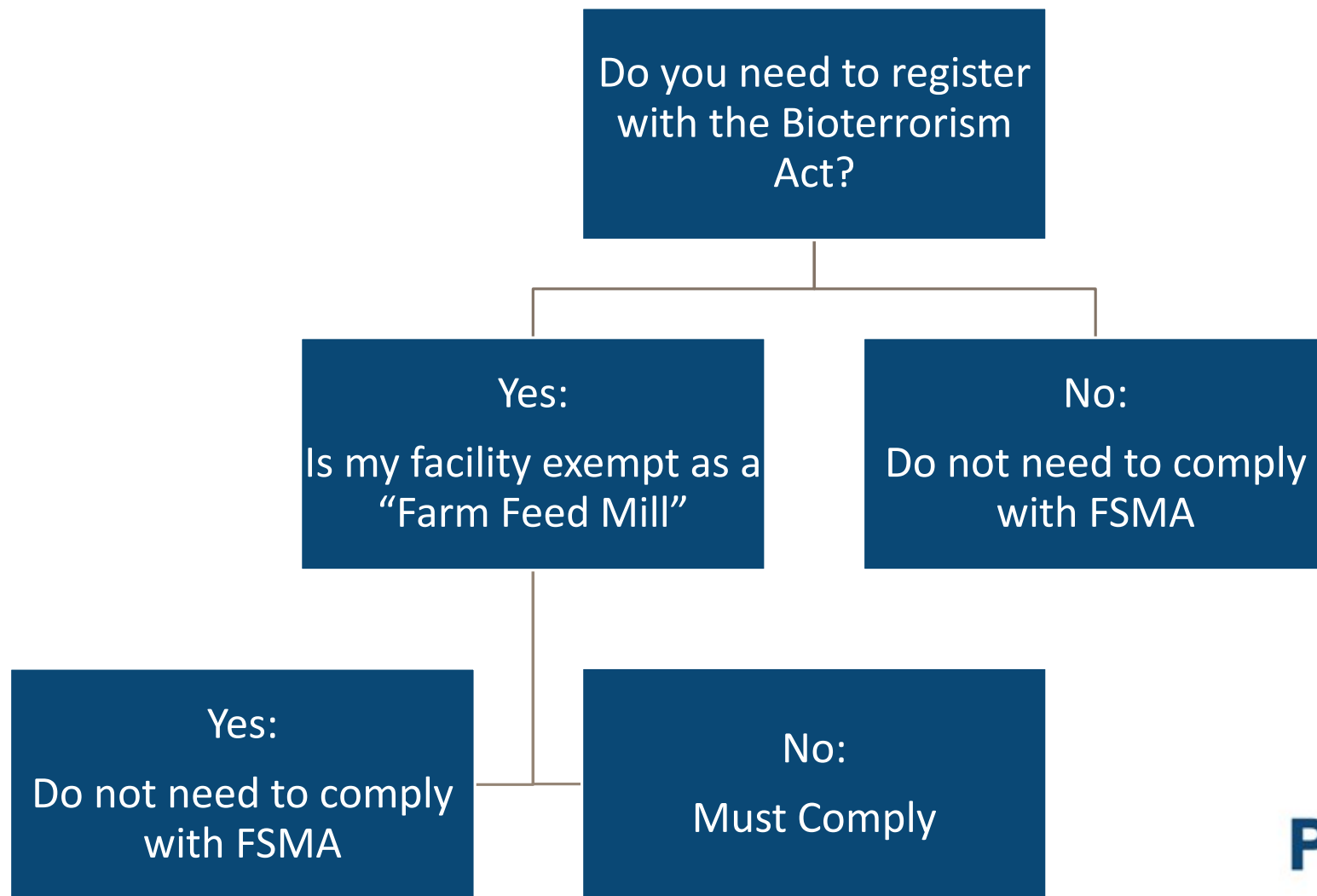


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FSMA Overview

- Food Safety Modernization Act (FSMA) signed into law January 4, 2011
 - “most sweeping reform of our food safety laws in more than 70 years”
 - GOAL: “Aims to ensure the U.S. food supply is safe by shifting the focus of federal regulators from responding to contamination to preventing it.”
 - According to the Federal Food, Drug, & Cosmetic Act, **animal feed is food**
- Many sub-parts, 3 primary of importance
 - Sub-part A: General Provisions
 - Who must comply with the rule
 - Sub-part B: Current Good Manufacturing Practices
 - What facility changes are necessary (observable practices)
 - Sub-part C: Hazard Analysis and Risk-Based Preventive Controls
 - What company changes are necessary (records required)

FSMA : Who does it affect?



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When must you comply?

- All Others
- Small Business = < 500 full-time equivalent employees
- Very Small Business = < 2.5 Million in gross annual sales/value of feed

Business Size	CGMP	HARBPC
All Others	Sept. 19, 2016	Sept. 18, 2017
Small Businesses (< 500 FTE)	Sept. 18, 2017	Sept. 17, 2018
Very Small Businesses (< \$2.5 million/year)	Sept. 17, 2018	Sept. 17, 2019

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CGMP's

- Required activities to ensure animal food safety that can be observed by an inspector but do not require documentation
 - 507.14: Personnel – Required handwashing, no jewelry
 - 507.17: Plant and grounds – Covered ground piles, shatterproof lights
 - 507.19: Sanitation – Clean so as to not encourage pests
 - 507.20: Water supply and plumbing – Water safe for use
 - 507.22: Equipment and utensils – Brooms and equipment in sufficient condition to not be a source of contamination
 - 507.25: Plant operations – Control of rework and flushes
 - 507.27: Holding and distribution – Inspection of bulk vehicles prior to loading
 - 507.28: Holding and distribution of human food by-products for use in animal food – bakery by-product producers must comply with CGMPs for either human food manufacturing or animal food, but not both

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CGMP's

- Subpart C: Hazard Analysis and Risk-Based Preventive Controls (HARPC)
 - Animal Food Safety Plan Development
 - Layout the process flow and products produced
 - Identify hazards that may occur at each process step or within each end product
 - Evaluate hazards
 - Is the hazard known or reasonably foreseeable?
 - Is it associated with the type of animal food that I manufacture?
 - Does that hazard occur with a high enough probability and/or severity to require a preventive control?
 - Prerequisite programs and CGMPs are allowed to be considered when assessing probability
 - Create control plan for hazards that require a PC
 - Supply-chain, process, sanitation, or other like CGMP (type of control affects the required management components)
 - Develop a recall plan for hazards that require a PC

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Biosecurity – What is the Risk?

- Sows:

- 1 PRRSv break costs ~ \$1 Million
- PEDv ~ \$750 k

- Growing Finishing Swine

- Quarantine – Seneca Valley
- Lost Performance – PRRSv, PEDv, other
- Mortality

Results: Summary of virus survival from batch 4 samples across both models, inclusive of PEDV.

INGREDIENT	SVA (FMDV)	ASFV	PSV (SVDV)	PEDV	FCV (VESV)	PCV	PRRSV 174	BHV-1 (PRV)	IAV-S	BVDV (CSFV)	CDV (NiV)	VSV
Soybean meal-Conventional	Red	Red	Red	Red	Red	Green	Red	Red	Green	Green	Green	Green
Soybean meal-Organic	Green	Red	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green
Soy oil cake	Red	Red	Red	Blue	Green	Green	Green	Red	Green	Green	Green	Green
DDGS	Red	Green	Green	Blue	Green	Green	Red	Green	Green	Green	Green	Green
Lysine	Red	Green	Red	Red	Red	Red	Green	Green	Green	Green	Green	Green
Choline	Red	Red	Green	Red	Green	Red	Green	Green	Green	Green	Green	Green
Vitamin D	Red	Green	Red	Red	Green	Red	Green	Green	Green	Green	Green	Green
Moist cat food	Red	Red	Red	Blue	Green	Green	Green	Green	Green	Green	Green	Green
Moist dog food	Red	Red	Red	Blue	Green	Green	Green	Green	Green	Green	Green	Green
Dry dog food	Red	Red	Red	Blue	Green	Green	Green	Green	Green	Green	Green	Green
Pork sausage casings	Red	Red	Red	Blue	Red	Green	Green	Green	Green	Green	Green	Green
Complete feed (+ control)	Red	Red	Red	Blue	Red	Red	Green	Green	Green	Green	Green	Green
Complete feed (- control)	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Stock virus (+ control)	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

What Should you be Concerned about???

- Incoming Ingredients

- Where did the truck come from?
 - CWG
 - Road Conditions
- How are they unloaded?
 - Dump pit procedures
 - Spilled product
- Country of Origin?
 - High risk country
- What other ingredients are in the mill?
 - Meat and Bone Meal
 - Plasma
- How are ingredients stored?



What Should you be Concerned about???

- Traffic

- Truck Traffic

- What else crosses the scale?
 - What is traffic on site like? Crossover?
 - What else do trucks carry?

- Human Traffic

- Truck drivers....both incoming and delivery
 - Where else does staff work?
 - Are there clean and dirty portions of the mill
 - Footbaths, booties, other



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What Should you be Concerned about???

- Delivery

- Designated trucks
- Biosecurity pyramid
- Delivery driver requirements
- Feed spills
- Truck wash

- Feed/ingredient Storage

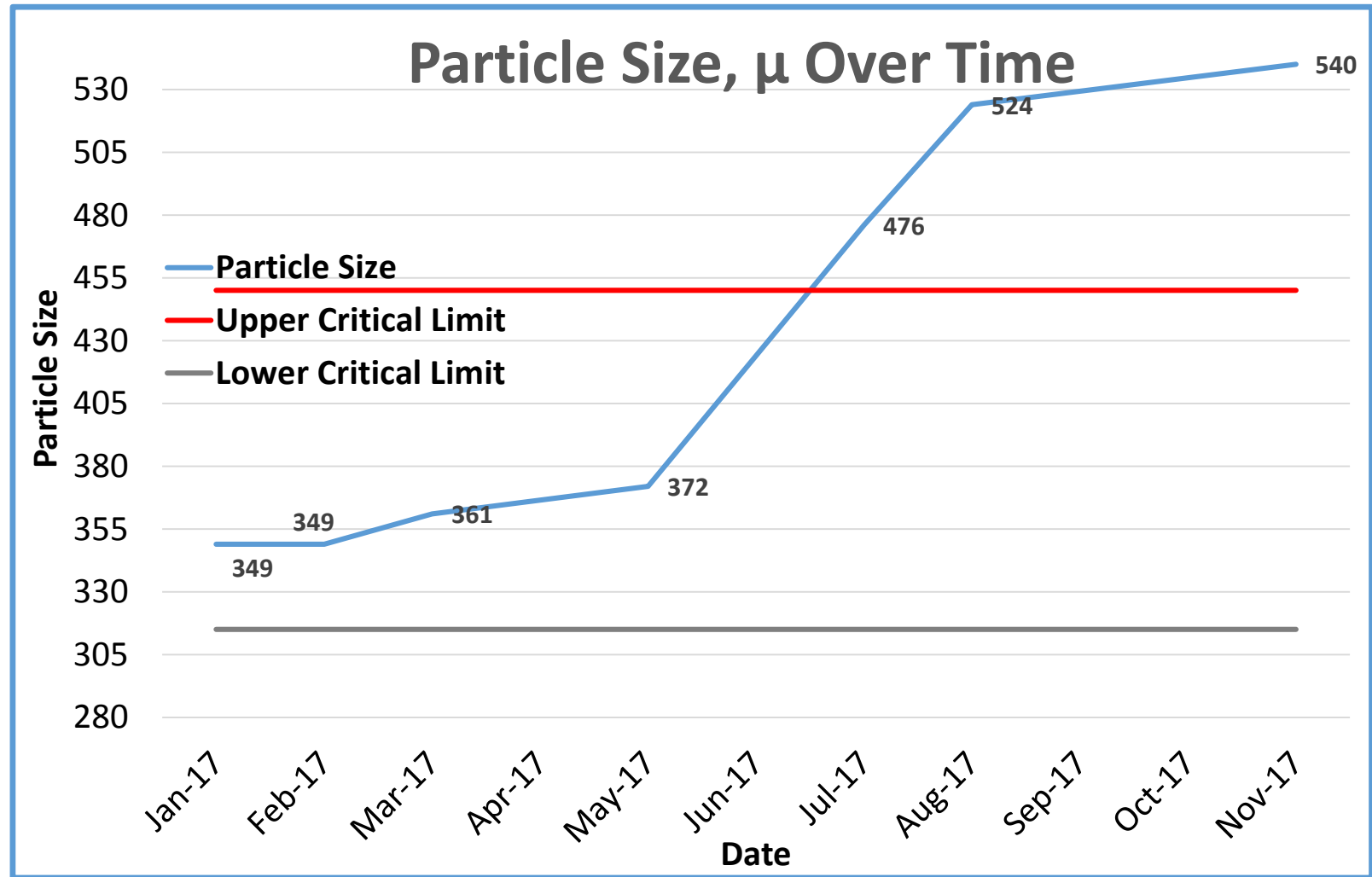
- Indoor/Outdoor
- Bird control



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Feed Quality – Does it matter?

- Corn Quality
 - New Crop
 - Old Crop
- Ingredient Testing
 - SBM
 - CP Content
 - DDGS
 - Oil Content
 - Mycotoxin
 - Corn
 - Particle Size
 - Flowability
 - Ulcers
 - Mycotoxin

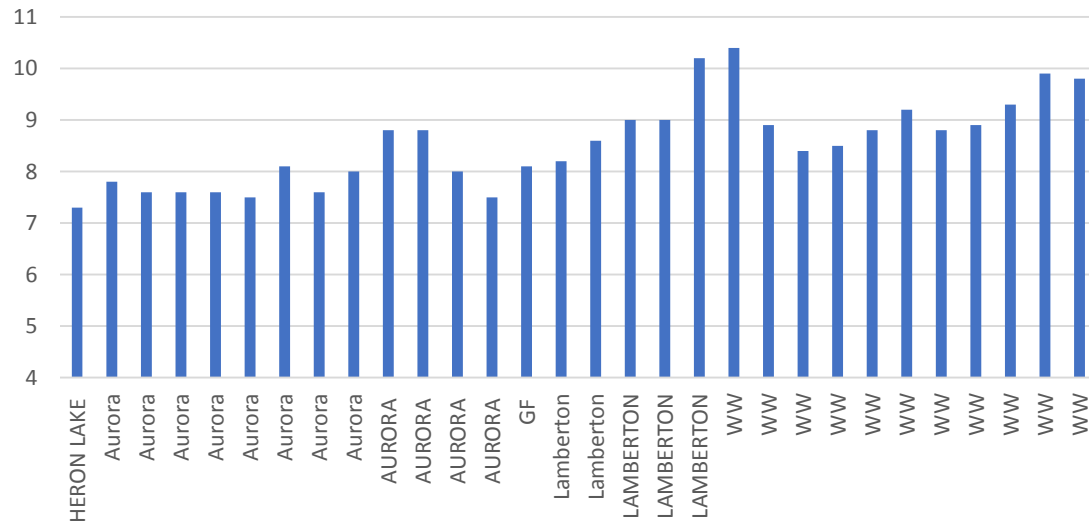


Feed Quality – Does it matter?

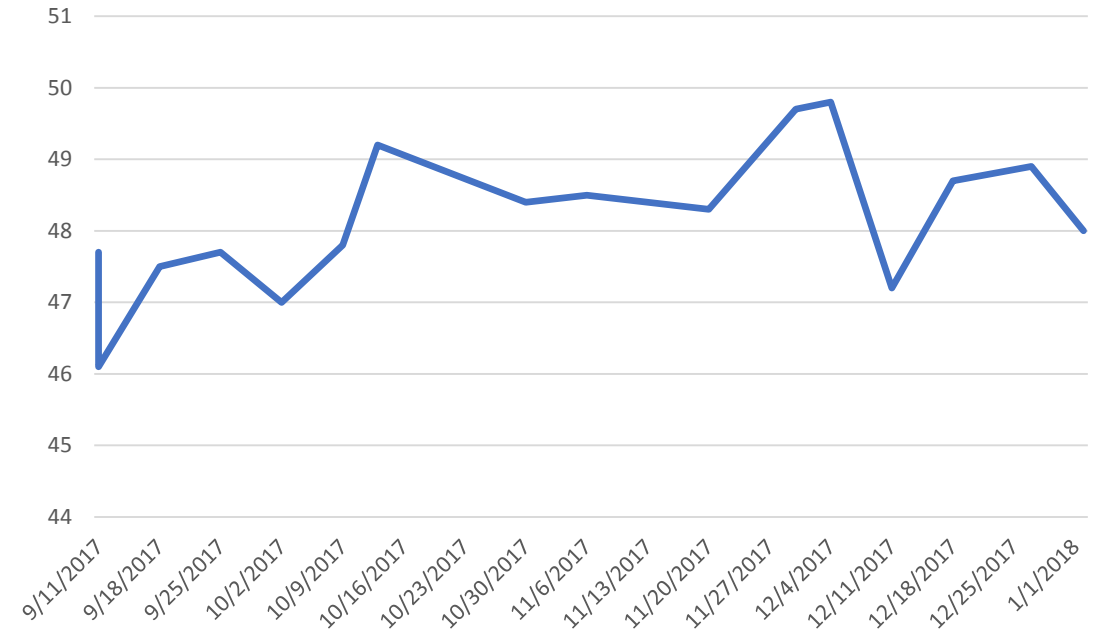
■ Ingredient Testing

- Is not always cheap, but is a small investment in the grand scheme
- Will help improve formulation and buying decisions when evaluating different sources

DDGS Fat (Oil) %



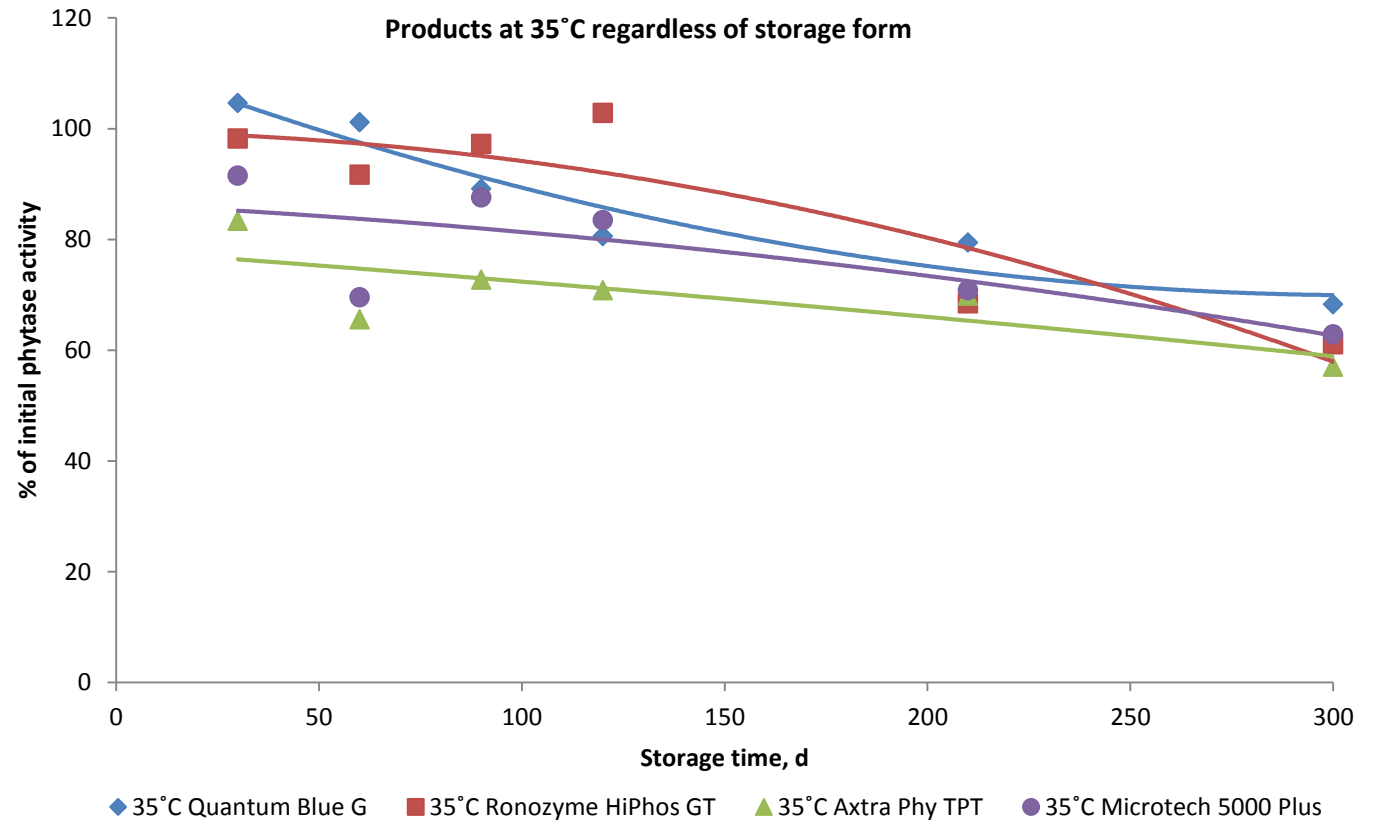
SBM Crude Protein (%)



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Feed Quality – Does it matter?

- Fat Quality
 - Antioxidant addition
- Nursery product turn around
- Phytase Stability
 - Storage Conditions
 - Pelleting
 - Time
- Mixing
 - CV < 10%



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Summary

■ FSMA

- Sweeping reform of food safety laws
- Majority of mills will need to comply

■ Biosecurity

- Millions of dollars at stake
- FAD is biggest risk to the US pork industry

■ Feed Quality

- Work with your toll mill to ensure feed quality
- Take proactive approach

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Questions

