Managing Feed Mills for Success:
A look at Federal Regulations, Biosecurity, and Feed Quality
Helping Farmers Today Create the Farms of Tomorrow
Overview

▪ Who is Pipestone?
▪ FSMA – Who must comply and how?
▪ Biosecurity – What are the risks/how do we manage them?
▪ Feed Quality – Performance matters
<table>
<thead>
<tr>
<th>PIPESTONE SYSTEM</th>
<th>PIPESTONE VETERINARY SERVICES</th>
<th>PIPESTONE INTERNATIONAL</th>
<th>PIPESTONE GROW FINISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sow Management</td>
<td>• 5 Locations in Midwest USA (MN, IA, IL, IN)</td>
<td>• China</td>
<td>• Nutrition</td>
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<tr>
<td>• 450 shareholders</td>
<td>• Pipestone Applied Research (PAR)</td>
<td>• Mexico</td>
<td>• 230K Sows</td>
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<tr>
<td>• 775 team Members</td>
<td>• 35 Veterinarians</td>
<td>• Chile</td>
<td>• 3 M GF Pigs</td>
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<tr>
<td>• 250,000 sows (USA)</td>
<td>• 245 team members</td>
<td>• 25 team members</td>
<td>• Consulting/Mgt</td>
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<td>• 1.7 M Pigs</td>
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<td>• Records</td>
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<td>• 1.2 M Pigs</td>
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<td>• 28 team members</td>
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</table>
Experienced Technical Advisors provide assistance at every stage of growth.

Management packages are customizable.

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

Do you need to register with the Bioterrorism Act?

Yes:
Is my facility exempt as a “Farm Feed Mill”

Yes: Do not need to comply with FSMA

No: Must Comply

No: Do not need to comply with FSMA
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

<table>
<thead>
<tr>
<th>Business Size</th>
<th>CGMP</th>
<th>HARBP C</th>
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<tbody>
<tr>
<td>All Others</td>
<td>Sept. 19, 2016</td>
<td>Sept. 18, 2017</td>
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<tr>
<td>Small Businesses (&lt; 500 FTE)</td>
<td>Sept. 18, 2017</td>
<td>Sept. 17, 2018</td>
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<tr>
<td>Very Small Businesses (&lt; $2.5 million/year)</td>
<td>Sept. 17, 2018</td>
<td>Sept. 17, 2019</td>
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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
• 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
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.

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>SVA (FMDV)</th>
<th>ASFV</th>
<th>PSV (SVDV)</th>
<th>PEDV</th>
<th>FCV (VESV)</th>
<th>PCV</th>
<th>PRRSV 174</th>
<th>BHV-1 (PRV)</th>
<th>IAV-S</th>
<th>BVDV (CSFV)</th>
<th>CDV (NIV)</th>
<th>VSV</th>
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<td>Soybean meal-Conventional</td>
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<td>Soybean meal-Organic</td>
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<td>Moist dog food</td>
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<td>Pork sausage casings</td>
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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
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
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

Particles Size, μ Over Time

- Particle Size
- Upper Critical Limit
- Lower Critical Limit
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

![Graph showing DDGS Fat (Oil) %]

![Graph showing SBM Crude Protein (%)]
Feed Quality – Does it matter?

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