

Show pig health strategies: A roadmap to a Banner

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Fugate Herd History

- Started with 2 hampshire sows in a 3 crate hut
- Bought a bigger hut and increased to 18 sows
- Changed our goals and cut to 5 hamps
- Wife helped me "see the light" sold all sows
 - Theory is – " We can buy them better than raise them
- Must be a sucker for pain....



The New and Improved Fugate Sow Herd

The Fugate Family Core Values



" You can't put a price on a banner"

The Fugate Family Mission Statement



Give Maddie the opportunity to win every show that we participate in

The Fugate Family: Dumbest family in America

Yearly Show Schedule

- Jan- Natl Western /NJSA SE Regional
- March/April- Aquire Summer string
- May- 4 Jackpot weekends- 7 shows
- June- WPX, 4 jackpots
- July- NJSS, Team Purebred nat'l, 4 jackpots & 5 county fairs
- August- 2 State Fairs
- Sept- NJSA SW Reg, NBS
- Oct- NJSA SE Reg, Am. Royal

Collateral Damage from the insanity

- Spend way too much on stock
- Spend way too much on inputs
- Way too much "quality" family bonding
- Neighbors lose us all summer
- Constant flow of pigs into the show barn
- Individual Animal Health is always a struggle

What is the best scenario?

- I don't want the pigs too healthy
- Need a transparent health program
- Don't want them to carry any disease in
 - No "Typhoid Marys"
- Need to be able to treat any problems with antibiotics
- I do not believe in "RECREATIONAL VACCINATION"

Real Life Examples

- Neighbor sells 2 pigs to a good friend
 - Gilt dies of Meningitis and barrow dies of illeitis
 - While posting found both pigs positive for Circo and PRRS
 - Upon discussion discover that pigs were not vaccinated for PCVAD
 - Lesson learned- Vaccinate for every possible scenario

Real Life Examples cont'd

- Fug buys a Landrace for NJSA SE Regional then leaves for a week. Returns home to this!!



Upon Further Review

- Barrow was vaccinated with 2 shots of Circo/Myco/Flu/Ery "bathtub" combo at 3 and 5 wks
- Barrow was diagnosed with Erysipelas
- Aggressive treatment with Penecillin cleared it up
- What is the lesson learned?

What would Fug do???



Vaccine non-negotiables

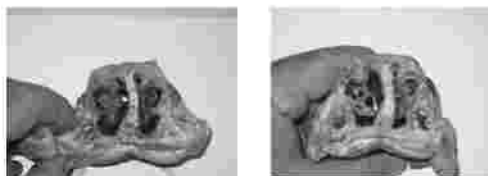
- Mycoplasma
- PCVAD
- Erysipelas
- Internal Parasites
- External Parasites

Vaccine Optionals

- Flu Vaccine- need as many strains as possible
- Strep Vaccine- will aid in reducing joint issues later on
- Rhinitis Vaccine- More in industry than perception
- PRRS

Final Real Life Scenario

- Purchase 20 pigs from various sources in Indiana
 - Placed pigs in a empty barn that had been scraped out
 - Pigs start dying 6 days later
 - Treated all pigs with Ivomec on “a whim”
 - Posted pigs showed white spots on the liver and continued to die
 - Used Safeguard Paste and the deaths stopped



Slaughter Checkshow rhinitis is still out there

Figure 2010: Susceptibility profile of Pasteurella pathogens recovered at OSU VCL in 2010
Data reported as % susceptibility of isolates tested

| | AMP | Kali | Blm | Coli | Oxy | Fluc | HS | PenA | PenD | Sam ¹ | Sam ²⁷ | Su |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|-------------------|--------|
| Agrippa | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Cabala | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Chimneyville | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Clarksburg | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Conestoga | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Delaware | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Franklin | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Genesee | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Hampton | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Highland | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Jefferson | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Lincoln | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Madison | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Marshall | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Meigs | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Monroe | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Morgan | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Muskingham | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Noble | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Ohio | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Portsmouth | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Shelby | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Union | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Washington | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Wayne | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Wetzel | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Wheeling | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Wood | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Wyandot | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Information Needed to Understand for Antibiotic Activity & Use

- Pathogen to be treated-diagnosis
- Treatment options . . . spectrum of activity, delivery route, bioavailability, legal
- MIC of pathogen(s) . . . definition of MIC
- PK/PD parameters of antimicrobial
- Pattern of activity of antimicrobial
- Cost/economics

Antimicrobial Spectrum of Activity

| | Mycobacteria | Gram-negative bacteria | Gram-positive bacteria | Chlamydiae | Rickettsiae |
|---|--------------|------------------------|------------------------|------------|-------------|
| Penicillins | | | →→→→ | | |
| Sulfonamides, Cephalosporins, Quinolones, Carbapenems | | →→→→ | →→→→ | | |
| Spectinomycin | ←←←← | | | | |
| Tetracyclines | | →→→→ | →→→→ | →→→→ | →→→→ |
| isoniazid | ←←←← | | | | |
| Polymyxin | | →→→→ | | | |
| Vancomycin | | | →→→→ | | |

Classes of Antimicrobial Activity

1. Concentration dependent...goal to maximize concentration; fluoroquinolones, aminoglycosides
2. Time-dependent...goal to maximize duration of exposure; beta-lactams & cephalosporins
3. Combination dependent...goal to maximize amount of drug received; tetracyclines

Family Classification Scheme

- Beta Lactams - penicillins and cephalosporins
- Tetracyclines - chlortetracycline, oxytetracycline
- Macrolides - erythromycin, tilmicosin
- Sulfonamides- sulfadimethoxine, trimethoprim and combination sulfas
- Aminoglycosides - gentamicin, neomycin
- Fluoroquinolones - enrofloxacin
- Phenicols - florfenicol

Beta-lactam Family

- Penicillin
- Ampicillin
- Generally Gram + spectrum of activity
- Gram + & Gram – in recent generations
- Bactericidal
- Time dependent
- Safe
- Short $t_{1/2}$ if injected do so several times daily

Tetracycline Family

- CTC
- OTC
- TcHCl
- Broad spectrum of activity
- Bacteriostatic
- Combination pattern of activity

Macrolide Family

- Tylosin
- Tilmicosin
- Tulathromycin
- SOA: Gram negative
- Bacteriostatic
- Pattern of activity: time dependent
- Distinguishing clinical feature: Respiratory tract

Lincosamide Family

- Clindamycin
- Lincomycin
- Inhibit protein synthesis
- Bacteriostatic
- Concentration dependent

Fluoroquinolone Family

- Enrofloxacin
- Inhibit DNA-gyrase
- Bactericidal
- Broad spectrum of activity
- Concentration dependent
- Effects articular cartilage in young animals

Aminoglycoside Family

- Gentamicin
- Neomycin
- +/- Spectinomycin
- Inhibit protein synthesis
- Bactericidal
- Toxicity problems
- Residue problems if injected
- Great with B-lactams

Sulfonamide Family

- Sulfadimethoxine
- Sulphamethoxazole + trimethoprim
- Sulfamethazine
- Broad spectrum
- Bacteriostatic by themselves
- Recycling causes residue potential SMZ

Cephalosporin Family

- Bactericidal
- 4 Generations:
- G1: Cephalexin
- G2: Cefaclor
- G3: Ceftiofur
- G4: Cefquinome
- Important family in human health
- Currently under intense scrutiny in USA

Phenicol Family

- Chloramphenicol
- Thiamphenicol
- Florfenicol
- Broad spectrum
- Bacteriostatic

Pleuromutilin Family

- Tiamulin
- Semi-synthetic diterpene
- Broad spectrum of activity
- Good bioavailability
- Efficacy on enteric & respiratory pathogens
- Synergistic with tetracyclines
- Available as premix, water concentrate, & injectable

The Moral to the Story

We have very little control over the environment after we sell the show pigs

- It is likely that pigs will be mixed from several sources
- It is likely that these pigs will be exhibited at multiple shows
- We need to overvaccinate to cover all the basis