Impacts of 2017 FDA Antibiotic Use Policies on Producers

VFD Implementation Impacted Pig Farmers, Their Veterinarians, and Feed Providers: Perspectives and Lessons Learned

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This material is based upon research that is supported in part by the Economic Research Service through USDA/ERS Cooperative Agreement # 58-6000-6-0064, entitled Economic Effects of Changing Antibiotic Use Preferences in US Livestock Production.
How Do Swine Producers and Veterinarians Expect the VFD to Affect Their Business?
Gary Wynne, Georgeanne Artz, Lee Schulz, and Christopher Rademacher
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ANTIBIOTIC USE in livestock production is a controversial subject in the public eye. Concerns over perceived over-use of antibiotics and antimicrobial resistance has prompted public policy debates. In response, the United States Food and Drug Administration has created new antibiotic-use guidelines in livestock. The new guidelines are: (a) Guidance 209: Judicious Use of Medically Important Antimicrobial Drugs in Food Producing Animals; (b) Guidance 213: Implementation Principles for Guidance 209; and, (c) Veterinary Feed Directive (VFD): Final Rule. The VFD final rule went into effect on October 21, 2019.

- No anticipated difficulties establishing and maintaining a VCPR.
- Complying with the VFD requirements will be moderately burdensome.
- Independent producers, compared to contract producers, will incur more added costs due to the VFD requirements.

https://www.card.iastate.edu/ag_policy_review/article/?a=72

(KSU MAB Thesis in progress) Economic Implications of the Veterinary Feed Directive Final Rule on the Swine Industry
Brittni Lamoreux | Ted Schroeder, Dustin Pendell, Joleen Hadrich, Lee Schulz (Committee)
Assess how well the interviews support or refute possible implications of the new antibiotic use guidelines.

Pre- and post-interviews and existing literature help to develop hypothesized causal relationships, or propositions.

The revised Veterinary Feed Directive (VFD) final rule went into affect on October 1, 2015, and label changes requested in GFIs 209, 213 took affect on January 1, 2017.

ISU swine extension specialists conducted interviews:
- Independents
- Contract growers
- Integrators
- Veterinarians
- Nutritionists

<table>
<thead>
<tr>
<th>Fall 2016 (Pre)</th>
<th>Fall 2017 (Post)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
<td>Actual impacts</td>
</tr>
<tr>
<td>Anticipated and experienced changes in business operations</td>
<td>and adjustments made to comply</td>
</tr>
<tr>
<td>Expected and incurred economic impacts</td>
<td>Impacts on production decisions and management</td>
</tr>
</tbody>
</table>
“Published research data clearly show that the use of antibiotics during all phases of growth benefits the rate and efficiency of body weight gain, reduces mortality and morbidity, reduces subclinical disease, and improves health in pigs.”

“The economic benefits are several-fold greater than the cost of the antibiotic when a cost-effective antibiotic is used for this purpose.”


“… it may be possible for producers to somewhat offset productivity impacts by using improved management techniques…”


More on economic benefits...

“Risk is reduced and profits are increased from use of AGP. Combined impacts of increased average daily gain and decreased variability in live weight increase producer profits by $2.99 per pig marketed.”


“Pig productivity improves with use of AGP. Relative to current use, a complete ban would decrease producer profits by $1,400 per 1,020-head barn, and profits increase $1,992 per barn when fed AGP for 61 to 90 days.”


“Productivity was significantly improved when STA were fed to nursery pigs. Restrictions on feeding STA during the nursery phase would likely impose significant economic costs on U.S. hog producers.”

# Hog Operation Business Arrangements in Iowa, 2012 Census of Agriculture and Interviews

<table>
<thead>
<tr>
<th>Type</th>
<th>Operations w/ Sales</th>
<th>Sales, head</th>
<th>% of Operations</th>
<th>% of Sales</th>
<th>No. of Interview Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent producer</td>
<td>3,550</td>
<td>21,626,145</td>
<td>53.7%</td>
<td>47.0%</td>
<td>26 15</td>
</tr>
<tr>
<td>Contract grower (contractee)</td>
<td>3,012</td>
<td>26,236,425</td>
<td>45.5%</td>
<td>46.1%</td>
<td>16  7</td>
</tr>
<tr>
<td>Contractor or integrator</td>
<td>54</td>
<td>1,493,278</td>
<td>0.8%</td>
<td>7.0%</td>
<td>3    1</td>
</tr>
<tr>
<td>Nutritionist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8    7</td>
</tr>
<tr>
<td>Veterinarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8    6</td>
</tr>
</tbody>
</table>
Anticipated and reported cost impacts of VFD on independent producers

Increase costs?

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Unsure</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

If yes, how much?

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimally</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Significantly</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Unsure</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Increase costs?
- time (labor)
- record-keeping
- veterinary visits
- disease management
Use of antibiotics to prevent disease as reported by independent producers

<table>
<thead>
<tr>
<th>Method</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-feed Yes</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>In-feed No</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>In-Water Yes</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>In-Water No</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Injectable Yes</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Injectable No</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

Prevention or treatment?
Use of antibiotics to prevent disease as reported by contract growers

None interviewed reported using injectable antibiotics for prevention purposes; used only in treatment.
A couple sentiments we heard:

I am concerned with the time needed to complete/file (even electronic) the paper work ... it takes time away from working with pigs and people in the barns ... that is where I earn my keep for my clients.

-- swine veterinarian

The new regulations are helping me develop a closer relationship with clients, they are calling me in sooner when problems arise because they now need me to get the antibiotics they need. It is helping solve disease issues earlier and more effectively.

-- swine veterinarian

I have more communication with company veterinarians and feed mills as a result of changes in requirements.

-- swine nutritionist
Implications

• Practitioners can use this information to perform a benchmark assessment of their individual preparedness and anticipated impacts.

• Preliminary evidence suggests the industry will go beyond simply complying with the federal guidance for judicious use of antibiotics by collectively implementing more completely and stringently suggested herd-health and production plans.

How many visits in year do you think is required for a swine producer and veterinarian to have a VCPR?

In order to fulfil the VCPR requirement for a producer how many sites do you visit?
What are you charging to write VFDs and prescriptions for new and existing clients?

**Per VFD for existing clients**
- $27.46
- $23.75

**Per VFD for new clients**
- $30.38
- $24.19

**Per prescription for existing clients**
- $19.33

**Per prescription for new clients**
- $19.33

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### Provision of VFDs
- **87.5%** Separate Line Item Fee
- **12.5%** Part of a Consultation/Service Fee

### Provision of Prescriptions
- **56.8%** Separate Line Item Fee
- **43.2%** Part of a Consultation/Service Fee
The FDA will require that a record of every VFD be kept for a period of 2 years. How do you plan to meet the additional record keeping requirement?

- No changes, 9.5%
- Used existing staff, 26.2%
- Hired new staff, 2.4%
- Used a third party service (e.g., GVL), 61.9%

Have you used a pre-made VFD form or created your own?

- Created VFD form for your clinic, 15.6%
- Used VFD provided by a drug sponsor, 8.9%
- Used electronic VFD service (e.g., GVL), 75.6%

How do you plan to provide VFDs to producers?

- Whatever the producer prefers
- Whatever the feed supplier prefers
- Third party electronic service (e.g., GVL)
- Fax
- E-mail
- Hard copies
- Other

Percents may reflect multiple answers.
What is the average number of head you write a VFD for?

Avg = 5,916
Med = 2,600
SD = 9,070

At what level of production do you most often write a VFD for?

- Flow, 42.9%
- Site, 28.6%
- Group or lot, 21.4%
- System, 7.1%
By how much has the VFD affected your business cost?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per year for writing and delivering VFDs</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Std. Dev.</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per year for maintaining records for VFDs</td>
<td>2,283</td>
<td>3,561</td>
</tr>
<tr>
<td></td>
<td>(2,830)</td>
<td>(7,663)</td>
</tr>
<tr>
<td>Per year for educating clients and others on the VFD requirements</td>
<td>4,717</td>
<td>1,171</td>
</tr>
<tr>
<td></td>
<td>(7,828)</td>
<td>(1,673)</td>
</tr>
<tr>
<td>Per year to train staff on VFD requirements</td>
<td>1,840</td>
<td>787</td>
</tr>
<tr>
<td></td>
<td>(2,223)</td>
<td>(826)</td>
</tr>
<tr>
<td>Per year for other</td>
<td>6,333</td>
<td>11,800</td>
</tr>
<tr>
<td></td>
<td>(7,522)</td>
<td>(11,597)</td>
</tr>
</tbody>
</table>
How much of a burden do you envision (pre) / think (post) complying with the VFD requirements (will have) has had?

- No burden
- A little burden
- A moderate amount of burden
- Very burdensome

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterinarians</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed Suppliers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consulting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutritionists</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What have you done to prepare (pre) / educate (post) yourself and staff on VFD requirements?

- Attended meetings (including webinars) to learn more about the VFD: Pre 90%, Post 80%
- Read literature on the VFD: Pre 80%, Post 70%
- Created an information bulletin on the VFD to distribute to staff: Pre 70%, Post 60%

What have you done to prepare (pre) / educate (post) swine clients on VFD requirements?

- I have not done any education: Pre 10%, Post 5%
- Sponsored in-clinic meetings (including webinars) to present information and discuss requirements: Pre 30%, Post 20%
- Met in-person with clients to discuss requirements: Pre 40%, Post 30%
- Sent a notice of requirements to clients in a regular newsletter: Pre 50%, Post 40%
- Created an information bulletin to distribute to clients: Pre 60%, Post 50%

Percents may reflect multiple answers.
What % have your swine producers reduced the use of antibiotics in feed as a result of the VFD?

How has the VFD changed the use of antimicrobials in water and injectable in U.S. swine production?
How do you plan to advise your clients (pre) / which changes have your producers made (post) in response to the new antibiotic-use guidelines?

Percents may reflect multiple answers
What percentage of your producers have made the following changes to growth promotion use?

- Elminated some uses of antibiotics for growth promotion
- Moved to non-medically important growth promotants
- Eliminated all uses of antibiotics for growth promotion

![Pie chart with percentages]

- Antibiotics that are already VFD or Rx based:
  - Avilamycin, florfenicol, tilmicosin; or Rx - Tylosin.

- Antibiotics that are not medically important:
  - Ionophores (monensin, lasalocid, narasin (Skycis, etc.)
  - Bacitracin (BMD, bacitracin zinc)
  - Bambermycins (Flavomycin)
  - Carbadox (Mecadox)
  - Tiamulin (Denagard)

- Antibiotics that now require a VFD:
  - Chlortetracycline (CTC)
  - CTC + Tiamulin (CTC + Denagard)
  - Lincomycin (Lincomix)
  - Oxytetracycline (OTC)
  - OTC + neomycin (neo-terramycin)
  - Tylosin (tylan)
  - Virginiamycin (stafac)

- Other drugs (that are not antibiotics), including:
  - Anthelmintics: Coumaphos, Fenbendazole, Ivermectin
  - Beta agonists: Ractopamine, Zilpaterol
  - Coccidiostats: Clopidol, Decoquinate, Diclazuril
Evaluation of AGP alternative trials on growth performance (ADG) responses

Be very wary of antibiotic alternatives without rigorous scientific testing

In your opinion, has the VFD, improved, harmed, or not changed overall animal health in U.S. swine?

- Not changed, 56%
- Improved, 22%
- Harmed, 17%
- I do not know, 5%
VFD in Beef Cattle Sector
Ted Schroeder – Kansas State University

Objectives
• Determine VFD Effects on producers (cow-calf, stockers, feedlots)

• Determine how beef cattle consulting veterinarians adjust business practices and client relations to address VFD requirements

Procedure
• Interviewed 15 producers (cow-calf, stockers, feedlots):
  Pre-VFD: July 2016 (in-person NCBA summer meetings)
  Post-VFD: August 2017 (telephone follow-up same group)

• Surveyed consulting beef veterinarians (138 responses to listserv survey)
  September 2016
Findings – Beef Cattle Producer Interviews

• Producers across all sectors not concerned about VFD either pre- or post-enactment – were uncertain about costs in pre- but said they were minimal in post & required a little time to set up, but easy to keep current once set up

• All had veterinary client relationships in place

• Noted post they had to make sure they had prescriptions in place but that it simply required being more organized

• None found managing VFD prescriptions or documentation requirements of significant cost
Findings – Beef Cattle Producer Interviews

Common producer sentiment we heard:

“The ultimate goal here is to make our U.S. beef the safest it can be for our consumers. If this program has helped in this area, it is a win-win for everyone.”

-Texas cow-calf producer
Findings – Beef Cattle Consulting Veterinarian Survey

# Findings – Beef Cattle Consulting Veterinarian Survey

<table>
<thead>
<tr>
<th>Activity Description</th>
<th>$0-50</th>
<th>$51-$100</th>
<th>$101-$250</th>
<th>$251-$500</th>
<th>$501-$750</th>
<th>$751-$1000</th>
<th>$1001-$1500</th>
<th>$1501+</th>
<th>Average</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$____ total per year for writing and delivering VFDs</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>9</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>20</td>
<td>$2,318.13</td>
<td>$1,070.74</td>
</tr>
<tr>
<td>$____ total per year for maintaining records for VFDs</td>
<td>13</td>
<td>7</td>
<td>4</td>
<td>13</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>7</td>
<td>$674.75</td>
<td>$423.29</td>
</tr>
<tr>
<td>$____ total educating clients and others (nutritionists, feed suppliers, etc...)</td>
<td>11</td>
<td>4</td>
<td>2</td>
<td>14</td>
<td>0</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>$971.85</td>
<td>$256.25</td>
</tr>
<tr>
<td>$____ total to train staff on VFD requirements</td>
<td>21</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>$470.77</td>
<td>$384.15</td>
</tr>
</tbody>
</table>

**Note:** The table reflects the survey findings on various activities performed by beef cattle consulting veterinarians, categorized by cost ranges and their corresponding average costs along with standard deviations.
Changes in farm financial records and key performance indicators is another possible way to examine impact of new antibiotic-use guidelines.

Are antibiotic free premiums driven more by demand or supply? Has this changed post VFD enactment?
NATIONAL WEEKLY DIRECT SWINE NON-CARCASS MERIT PREMIUM

FOR WEEK ENDING   Saturday, September 1, 2018

<table>
<thead>
<tr>
<th>Category</th>
<th>Value Range*</th>
<th>Average*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLUME</td>
<td>0.00 - 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>0.40 - 3.05</td>
<td>1.47</td>
</tr>
<tr>
<td>DELIVERY TIME</td>
<td>0.25 - 3.15</td>
<td>0.83</td>
</tr>
<tr>
<td>BREED</td>
<td>0.00 - 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PORK QUALITY ASSURANCE</td>
<td>0.00 - 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>BETA AGONIST FREE</td>
<td>0.30 - 1.50</td>
<td>0.80</td>
</tr>
<tr>
<td>OTHER **</td>
<td>0.15 - 15.00</td>
<td>3.55</td>
</tr>
</tbody>
</table>

* Prices reported per hundred pounds carcass basis

** OTHER category includes: Animal Welfare, Antibiotic Free, Diet/Feed, Genetics, Meat Quality, Process Verified Program, and Sow Housing

*** Price not reported due to confidentiality, For more information visit: www.ams.usda.gov/sites/default/files/media/ConfidentialityGuidelines.pdf

Source: USDA Livestock, Poultry & Grain Market News Division, Des Moines, IA
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