FARM FOUNDATION® FORUM

ANTIMICROBIAL STEWARDSHIP IN AGRICULTURE: HOW FAR HAVE WE COME AND WHAT'S NEXT?

SEPTEMBER 27, 2022

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#FarmFoundationForum
MARTHA KING
Vice President, Programs and Projects
Farm Foundation
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VISION:
To build a future for farmers, our communities, and our world.
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FARM FOUNDATION® FORUM

ANTIMICROBIAL STEWARDSHIP IN AGRICULTURE: HOW FAR HAVE WE COME AND WHAT'S NEXT?

SEPTEMBER 27, 2022
DR. PAUL PLUMMER
Moderator
Director, National Institute of Antimicrobial Resistance Research and Education
Associate Dean of Research and Graduate Studies, College of Veterinary Medicine, Iowa State University
Coordinating action to combat the global threat of antimicrobial resistance.
VISION
NIAMRRE will be the trusted leader in coordinating One Health efforts that preserve the ability to prevent and treat infectious diseases for generations to come.

MISSION
NIAMRRE drives cross-sector engagement and coordinated action to combat the global threat of Antimicrobial Resistance across humans, animals, and the environment.
Current NIAMRRE Members
DR. WILLIAM FLYNN
Deputy Director for Science Policy,
Center for Veterinary Medicine,
U.S. Food and Drug Administration
Updates on AMR Activities
FDA, Center for Veterinary Medicine

Farm Foundation Forum: Antimicrobial Stewardship in Agriculture
September 27, 2022

William T. Flynn, DVM, MS
Deputy Director for Science Policy
FDA Center for Veterinary Medicine
Supporting Antimicrobial Stewardship in Animals

FDA/CVM’s Key Areas of Focus (Goals of CVM’s 5-year stewardship plan)

• Evaluating use conditions of approved animal antimicrobial products
• Promoting antimicrobial stewardship at the user level
• Collecting data to monitor antimicrobial use and antimicrobial resistance in animals

CVM’s Approach for Implementing Change

• Focusing actions or mitigations on drugs of greatest concern: drugs that are important human therapies (“medically important antimicrobials”)
• Emphasizing collaboration and seeking cooperation from industry to take action voluntarily
Important Milestones

2013
Initiated plan to eliminate production use; bring under vet oversight (GFI #213/VFD rule)

2016
Funded cooperative agreements to develop methodologies for collecting data on antimicrobial use in food-producing animals

2017
Implemented GFI #213 and the VFD Final Rule

2018
Published CVM’s 5-year plan for Supporting Stewardship in Veterinary Settings

2020
2020-2025 NARMS Strategic Plan; enhanced focus on One Health approach

2021
Finalized a process to bring all remaining medically important antimicrobials under vet oversight (GFI #263)
Supporting Antimicrobial Stewardship

Assessing AMR risks for new products

- **Guidance #152** - finalized in 2003, outlines a risk assessment (RA) approach for evaluating AMR risks as part of new animal drug approval process.

- One input to this RA process is the human medical importance of drug in question

  - In **Oct 2020** CVM issued a concept paper outlining a potential approach for updating the current list of antimicrobial drugs ranked by their importance in human medicine (commonly referred to as “Appendix A” GFI #152)
Supporting Antimicrobial Stewardship

Veterinary oversight

Guidance #263 - published June 2021, outlines a 2-year plan for drug sponsors to voluntarily transition to veterinary oversight all medically important antimicrobials that are still available OTC

- Target for completion June 2023
- Approx. 90 approved drug applications impacted
- Ongoing outreach efforts being targeted to most impacted animal production sectors
- When complete, all medically important antimicrobials will be under the oversight of veterinarians.
Supporting Antimicrobial Stewardship

Defining duration of use

- **Concept paper** - In Jan 2021 CVM published concept paper outlining potential framework for how drug sponsors could voluntarily establish defined durations of use for those medically important antimicrobials that currently lack a defined duration of use.
  - affects certain approved feed-use medically important antimicrobial products
  - objective is to optimize use (to better define when and for how long to administer) so that effectiveness is maintained, but extent of exposure is minimized
  - Comment period closed June 2021; over 31,000 received
  - Next steps include developing and seeking input on draft guidance
Assessing the Impact of AMR Activities

• Need for data and appropriate metrics to assess impacts of actions taken and monitor progress of stewardship initiatives

• Ongoing work to enhance collection of data on –
  • antimicrobial resistance
  • volume of antimicrobial drug sales/distribution
  • volume of antimicrobial drug use in animals
The 2020 Sales and Distribution report show:

- Domestic sales decreased by three percent between 2019 and 2020.
- Decreased 33% between years 2016 and 2017
- That is a 38% decrease since 2015, which was the peak year of sales
AMR Trends from the 2019 NARMS Report

Data sources for 2019 NARMS Integrated Summary
Data Collection: Antimicrobial Use (AMU)

FDA Cooperative Agreements

- March 2016 - focused on 4 major food-producing species (cattle, swine, turkeys, chickens)
- Feb 2020 - focused on dogs and cats

FDA issued a two Funding Opportunity Announcements

- Provide detailed data that reflect actual use
- Pilot methodologies for collecting, summarizing, and reporting AMU data
- Foster public-private partnerships/ collaboration
- Leverage existing data systems and minimize burden to collect data
- Incorporate strategies for protecting confidential information

Requested proposals that would:
Challenge: Need for Better Data and Metrics

- Sales data limitations
- Need data that better reflect actual use
- Lack of existing infrastructure

<table>
<thead>
<tr>
<th>Exploring strategies for collection of antimicrobial use data</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Initiated project with Reagan-Udall Foundation for FDA</td>
</tr>
<tr>
<td>- Exploring feasibility of public private partnership model</td>
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<tr>
<td>- Benefits include:</td>
</tr>
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<td>- Enable monitoring of trends; help understand AMR drivers</td>
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<td>- Foster antimicrobial stewardship</td>
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<td>- Inform regulatory and policy decision making</td>
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<tr>
<td>- Enhance transparency regarding antimicrobial use</td>
</tr>
</tbody>
</table>
What’s Next for CVM?

Advance ongoing initiatives in 5-year (2019-2023) AMR plan

• Transition OTC products to Rx (June 2023)
• Update process for ranking importance for human medicine
• Better define duration of use for certain feed use products
• Consider needed measures in companion animal sector
• Building an approach for collecting antimicrobial use information from animals

Have initiated new strategic planning process

• Examining need for additional actions as current AMR plan ends in September 2023
In Conclusion

IMPORTANT CHANGES HAVE BEEN MADE REGARDING ANTIMICROBIAL USE

FOCUS ON ANTIMICROBIAL STEWARDSHIP AND OPTIMIZING THE USE OF ANTIMICROBIALS IN VETERINARY SECTOR

EMPHASIS ON STAKEHOLDER ENGAGEMENT IN DEVELOPING COLLABORATIVE STRATEGIES FOR IMPLEMENTING CHANGE
DR. CHELSEY SHIVLEY
Antimicrobial Resistance Coordinator,
Office of Interagency Coordination for USDA
APHIS Veterinary Services
Antimicrobial Stewardship in Agriculture: USDA APHIS Perspective

Chelsey Shivley, DVM, PhD, DACAW
Veterinary Epidemiologist
Farm Foundation Forum
September 27, 2022
Veterinary Services AMR Activities

Antimicrobial Use & Stewardship Monitoring

Antimicrobial Resistance Monitoring

Education & Outreach

Collaboration with Industry & University Partners
Recent NAHMS Studies
### National Animal Health Laboratory Network AMR Pilot Project

#### AMR | SIR Breakouts

**Note:** If the table is blank, the bacterial species is not tested for the chosen host animal species.

<table>
<thead>
<tr>
<th>Antibiotic Class</th>
<th>Antibiotic</th>
<th>Susceptible</th>
<th>Intermediate</th>
<th>Resistant</th>
<th>No Interpretation</th>
<th>No CID Breakpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>aminoglycoside</td>
<td>spectinomycin</td>
<td>0.25</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>ampicillin</td>
<td>ampicillin</td>
<td>0.12</td>
<td>0.25</td>
<td>0.5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>cephalosporin</td>
<td>cephalosporin</td>
<td>0.01</td>
<td>0.12</td>
<td>0.25</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>macrolide</td>
<td>macrolide</td>
<td>0.5</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>penicillin</td>
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<td>0.25</td>
<td>0.5</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Data last updated: Monday, February 11, 2021

U.S. Department of Agriculture

Veterinary Services  Animal and Plant Health Inspection Service
Swine Industry Collaboration
Dairy Industry Collaboration
Collaboration

Producers

Veterinarians

Diagnostic Laboratories
**Veterinary Services**  Animal and Plant Health Inspection Service

**Communication**

### Year 3 report: 2020

**USDA APHIS VS National Animal Health Laboratory Network (NAHLN) Antimicrobial Resistance Pilot Project**

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**Introduction to APHIS AMR Pilot**

**Participating Laboratories**

**MIC Table**

**5R Breakouts**

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**AMR | MIC Table**

*Data last updated: Thursday, September 1, 2022*

**Susceptible** | **Intermediate** | **Resistant** | **No Interpretation** | **No Breakpoint**
---|---|---|---|---

| **Antibiotic** | **Total** | **≤0.125** | **>0.125 ≤2** | **>2 ≤5** | **>5 ≤10** | **>10 ≤25** | **>25 ≤50** | **>50 ≤100** | **>100 ≤250** | **>250 ≤500** | **>500 ≤1000** | **>1000 ≤2500** | **>2500 ≤5000** | **>5000 ≤10000** | **>10000 <∞** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

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**Note:** If table below is blank, the bacteria species is not tested for the chosen host animal species.

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1. Baseline antibiotic susceptibility results for selected antibiotics. Interpretive values are based on CLSI (MCLSI, 5th ed.). Oct 2020. 2. Table numbers of isolates for each antibiotic reflect a combination of the BAhiP and ReshiP1 plates. Not all antibiotics in the table are present on both plates, leading to differences in total number of isolates. 3. Some bacterial pathogens have been associated with cattle infections for which resistance only for E. coli infections in cattle. 4. Antimicrobial breakpoints have been established for enteric cases only for E. coli infections in cattle. 5.米etaphenyl/acetaminophen (Concentration on BAhiP and ReshiP1 plates = 2.75 mg/L).
Future Antimicrobial Use & Resistance Activities
Thank You!

Chelsey Shivley, DVM, PhD, DACAW
Veterinary Epidemiologist
Antimicrobial Resistance Coordinator
Office of Interagency Coordination
USDA APHIS Veterinary Services
Chelsey.B.Shivley@usda.gov
DR. MEGIN NICHOLS
Veterinary Epidemiologist,
Division of Foodborne, Waterborne, and Environmental Diseases, Centers for Disease Control and Prevention
Antimicrobial Stewardship in Agriculture: How Far Have We Come and What's Next?

Lessons learned from human illness outbreaks linked to animal contact

Megin Nichols, DVM, MPH, DACVPM
Division of Foodborne, Waterborne, and Environmental Diseases
Centers for Disease Control and Prevention

September 27, 2022
What is an outbreak?

- When two or more people get the same illness and investigation shows it came from the same contaminated food or drink, or contact with the same species of animal, the event is called a disease outbreak.
Detecting Outbreaks with PulseNet

- WGS data from illness-causing bacteria uploaded to the PulseNet USA database
- Monitored for temporal and geographic clustering
- When a cluster is identified, PulseNet notifies epidemiologists
PulseNet-confirmed cases represent the tip of the iceberg

*Salmonella* (non-typhoidal)

- Under-reporting/under-diagnosis multiplier: 29.3

Groups at higher risk from enteric zoonoses

- Higher risk for infection
  - Young children (<5 years)
- Higher risk for adverse outcomes
  - Older adults (>65 years)
  - Young children (< 5 years)
  - People with weakened immune systems
Occupational

- Ranchers
- Dairy workers
- Veterinarians
- Slaughterhouse workers
- Postal workers
- Pet store workers
- Zookeepers
What have we learned through investigation of outbreaks linked to livestock?
A new strain of *Salmonella* caused outbreaks of severe illness in dairy calves and people, mostly children.

Laboratory testing detected infections across multiple states from the same strain and identified a new antibiotic resistance gene.

Public health, animal health, environmental, and agricultural experts worked together to track the spread of this strain and teach about infection prevention.
Salmonella Contamination
AND DAIRY CALF PRODUCTION

Outbreaks of multidrug-resistant Salmonella in humans have been linked to dairy calves. CDC supported The Ohio State University and University of Wisconsin-Madison to study contamination in dairy calf production. Percentages of environmental samples with Salmonella. Many were resistant to antibiotics.

97% IN LIVESTOCK MARKET

22% IN BARS

74% IN TRAILERS

93% IN HOLDING PENS

Improving infection control throughout calf production will reduce the spread of antibiotic-resistant Salmonella in people, animals, and the environment.
Antimicrobial stewardship refers to the actions veterinarians take individually and as a profession to preserve the effectiveness and availability of antimicrobial drugs through conscientious oversight and responsible medical decision-making while safeguarding animal, public, and environmental health.

Stewardship Defined

Survey of production animal veterinarians’ prescription practices, factors influencing antimicrobial drug use, and perceptions of and attitudes toward antimicrobial resistance

Daniel D. Taylor DVM, MPH
Jennifer N. Martin PhD
Paul S. Morley DVM, PhD
Keith E. Belk PhD
Alice E. White MS
Elaine J. Scallan Walter PhD

From the Colorado Integrated Food Safety Center of Excellence, Colorado School of Public Health, Aurora, CO 80045 (Taylor, White, Scallan Walter); and Department of Animal Sciences, College of Agricultural Sciences (Martin, Belk), and Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences (Morley), Colorado State University, Fort Collins, CO 80523. Dr. Morley’s present address is the Veterinary Education, Research, and Outreach Center, West Texas A&M University, Canyon, TX 79016.

Address correspondence to Dr. Taylor (daniel.d.taylor@ucdenver.edu).

OBJECTIVE
To assess production animal medicine veterinarians’ prescription practices and identify factors influencing their use of antimicrobial drugs (AMOs) and their perceptions of and attitudes toward antimicrobial resistance (AMR).

SAMPLE
157 production animal veterinarians in the United States.

PROCEDURES
An online cross-sectional survey and digital diary were used to gather information regarding perceptions on AMM use and AMR and on treatment recommendations for production setting-specific disease scenarios. Results were compared across respondents grouped by their selected production setting scenarios and reported years as veterinarians.

RESULTS
The most commonly selected production setting disease scenarios were dairy cattle (96/157 [61.1%]), backgrounding cattle (12/157 [7.7%]), and feedlot cattle (20/157 [12.7%]). Because fewer respondents selected swine (5/157 [3.2%]) or poultry (4/157 [2.5%]) scenarios, those responses were excluded from statistical analysis of AMM prescription practices. Most responding respondents (147/148 [99.3%]) reported that they would recommend AMM treatment for an individual ill animal; however, responses differed for respondents grouped by their selected production setting scenarios and reported years as veterinarians when asked about AMM treatment of an exposed group or high-risk disease-free group. Most respondents reported that government regulations influenced their AMM prescription practices, that the owner and producer compliance was a veterinary-related factor that contributed to AMR, and that environmental modifications to prevent disease could be effective to mitigate AMR.

CONCLUSIONS AND CLINICAL RELEVANCE
Results of the present study helped fill important knowledge gaps pertaining to prescription practices and influencing factors for AMM use in production animal medicine and provided baseline information for future assessments. This information could be used to inform future interventions and training tools to mitigate the public health threat of AMR. (J Am Vet Med Assoc 2020;257:87–96)

https://www.avma.org/sites/default/files/resources/AntimicrobStewardshipDef_Cor
ePrinciplesFlyer_052318.pdf

https://avmajournals.avma.org/view/journals/javma/257/1/javma.257.1.87.xml?tab_body=pdf
Veterinarians can slow antibiotic resistance by implementing disease prevention strategies and improving the use of antibiotics while also guaranteeing high-quality medical care for animal patients.

- Prevent Disease
- Maintain Accurate Records of Treatment & Outcomes
- Stay Current
- Clean Your Hands & Equipment
- Select & Use Antibiotics Appropriately
- Prevent Environmental Contamination
- Commit to Antibiotic Stewardship
Antibiotic Stewardship Education
FOR CALF PRODUCERS

CDC supported The Ohio State University to develop and test antibiotic use decision-making tools and a training program for calf producers.

Dairy calf producers often need to decide whether antibiotics are needed using veterinary protocols. Giving antibiotics when they are not needed contributes to antibiotic resistance.

Antibiotic use knowledge test scores improved by about 20% after introduction of tools and training.

Farms receiving tools and training used fewer antibiotics than control farms. More data is needed to confirm the impacts of these interventions over time.

Educating calf producers on antibiotic stewardship can help reduce unnecessary antibiotic use.
### AVMA/Committee on Antimicrobials

**ANTIMICROBIAL RESISTANT PATHOGENS AFFECTING ANIMAL HEALTH IN THE UNITED STATES**

<table>
<thead>
<tr>
<th>Antimicrobial Class</th>
<th>Aeromonas spp</th>
<th>Campylobacter Jejuni</th>
<th>Edwardsiella spp</th>
<th>Enterobacteriaceae</th>
<th>Enterococcus spp</th>
<th>Pseudomonas Aeruginosa</th>
<th>Salmonella</th>
<th>Staphylococcus spp</th>
<th>Streptococcus</th>
<th>Vibrio</th>
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</thead>
<tbody>
<tr>
<td>Fish &amp; Shrimp</td>
<td>Fish &amp; Shrimp</td>
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<td>Cattle</td>
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<td>Equine</td>
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</tr>
<tr>
<td>Chickens &amp; Turkeys</td>
<td>Chickens &amp; Turkeys</td>
<td>Chickens &amp; Turkeys</td>
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<td>Sheep &amp; Goat</td>
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<tr>
<td>Swine</td>
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*Note: Some of the resistance noted for these organisms has been long established and there are available therapeutic options which may be successfully used for treatment.*
Antibiotic Resistance (AR)

- Bacteria can develop the ability to defeat the drugs designed to kill them.
  - These bacteria can spread between people, animals and the environment
- Antibiotics save lives, but anytime they are used, they can lead to antibiotic resistance.
- AR affect the health of both people and animals.
Want to learn more about enteric zoonotic outbreaks and antimicrobial resistance?

https://www.cdc.gov/healthypets/outbreaks.html

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES

2019

DRUG-RESISTANT CAMPYLOBACTER

PUPPIES MADE PEOPLE SICK

How could an adorable puppy cause her owner to have a month-long hospital stay, including multiple stays in the intensive care unit? That is what happened to Mike, a 67-year-old retired professor with an existing chronic disease. Within a week of bringing home puppy Mabel from a pet store, Mike experienced diarrhea, fatigue, and lower back pain. The pain became excruciating and he was hospitalized with failing kidneys.

Mike was one of 113 people across 17 states identified as part of an outbreak of multidrug-resistant Campylobacter infections linked to pet store puppies. Only one type of antibiotic was able to treat his resistant infection. Due to complications from this infection and his chronic disease, he needed surgery to remove a dead section of stomach. Three months later, Mike finally felt well enough to return to post-retirement work at a bookstore. He still enjoys his pup, but is careful to wash his hands when cleaning up after her.
DR. ALISON ROBERTSON
Professor and Extension Field Crops Pathologist,
Department of Plant Pathology and Microbiology,
Iowa State University
Stewardship of antifungals in crop production

Alison Robertson
Professor and extension field crops pathologist
Iowa State University
alisonr@iastate.edu  @alisonrISU
Plants get sick too!
Why are plant diseases important?

Diseased Plant
- Leaf blight
- Canker
- Leaf spots
- Wilt
- Fruit rot
- Stem blight
- Crown galls
- Root knots
- Root rot

Reduce Yield
- Reduction in profit/income

Impacts Quality
- Food Safety Issues
- Reduction in profit/income

Increase Cost of Production
- e.g. cost of fungicides, fertilizers, etc.
- Reduction in profit/income

Mark Balendres
What causes disease in plants?

- Fungi
- Bacteria
- Virus
- Nematodes
How do we treat plant disease?
How do we treat plant disease?

1. Plant disease resistant cultivars
2. Fungicide applications (seed and foliar)
3. Cultural methods (crop rotation, planting date, manage crop residue, etc.)
How do we treat plant disease?

1. Plant resistant cultivars

2. Fungicide applications (seed and foliar) = Antifungals

3. Cultural methods (crop rotation, planting date, manage crop residue)
Antifungals used to treat field crop disease

45 FRAC (mode of action) groups

Fungicide Resistance Action Committee

3-7 FRAC groups primarily used on field crops

***********iwilltakeaction.com/resources/fungicide-classification-chart
Antifungals used to field crop disease

FRAC Group 3 Demethylation Inhibitors (DMI)

FRAC Group 7 Succinate dehydrogenase inhibitors (SDHI)

FRAC Group 11 Quinone outside inhibitors (QOI)

**********iwilltakeaction.com/resources/fungicide-classification-chart
Antifungals used to treat field crop disease

**Azoles** ↔ FRAC Group 3 Demethylation Inhibitors (DMI)

******iwilltakeaction.com/resources/fungicide-classification-chart******
Is use of DMIs to treat plant disease resulting in azole resistance in human health?
Field crop production in the U.S.

- **Corn**: 92.0 million acres in 2020, $61 billion
- **Soybean**: 83.8 million acres in 2020, $46.1 billion
- **Wheat**: 44.3 million acres in 2020, $9.6 billion

USDA; Statistica.com
Losses due to diseases of corn

2012 - 2021

2018 - 2021

**Tar spot**
- 45.4 – 231.3 mill. bu
- $0.64 - $13.69/ac

**Gray leaf spot**
- 80.4 - 482.4 mill. bu
- $4.17 - $19.89/ac

**Northern corn leaf blight**
- 38.2 – 539.6 mill. bu
- $1.58 - $22.98/ac

**Southern rust**
- 3.1 – 158.6 mill. bu
- $0.13 - $6.08/ac

IOWA STATE UNIVERSITY
Extension and Outreach
Losses due to diseases of corn

2012 - 2021

2018 - 2021

Tar spot
Gray leaf spot
Northern corn leaf blight
Southern rust

45.4 – 231.3 mill. bu
80.4 - 482.4 mill. bu
38.2 – 539.6 mill. bu
3.1 – 158.6 mill. bu

= $0.64 - $13.69/acre
= $4.17 - $19.89/acre
= $1.58 - $22.98/acre
= $0.13 - $6.08/acre

Treatment with antifungals mitigates losses
Plant pathogens also develop resistance

FRAC Group 11 Quinone outside inhibitors (QOI)

Field resistance in ~40 plant pathogens
Plant pathogens also develop resistance

Frogeye leaf spot

3.8–53.4 mill. bu

= $0.56 - $5.34/acre

FRAC Group 11 Quinone outside inhibitors (QOI)

Field resistance in ~40 plant pathogens
How far have we come and what’s next?

Communication and education

- **Corn Disease Management**
- **Soybean Disease Management**
- **Fungicide Efficacy for Foliar Soybean Diseases**
- **Fungicide Efficacy for Control of Wheat Diseases**
How far have we come ....

Communication and education

Fungicide Efficacy for Control of Corn Diseases

Fungicide Efficacy for Foliar Soybean Diseases

Fungicide Efficacy for Control of Wheat Diseases

Fungicides are More Than a Plant Disease Management Tool

Published: 10/11/2021
DOI: doi.org/10.31274/cpn-20211011-000
CPN-4009
.... and what’s next?

Fusarium Head Blight Prediction Center for Wheat

National Prediction Modeling Tool Initiative

***********.wheatscab.psu.edu/

**********agpmt.org/

IOWA STATE UNIVERSITY
Extension and Outreach
Thanks for your attention

What other questions do you have?

alisonr@iastate.edu
@alisonrISU
THANK YOU

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farmfoundation.org/friends

We hope to see you at a future event!

#FarmFoundationForum