

# IT ALL COMES BACK

Prepping for tomorrow's health challenges requires action now.

by Barb Baylor Anderson, field editor

The far-reaching, long-lasting effects of COVID-19 on the world underscore the importance of aggressive public health management. The same is true for animal health. From managing antimicrobial resistance to monitoring for foot-and-mouth disease (FMD), the beef industry faces challenges that can be minimized now with prudent planning and greater biosecurity measures.

## Antimicrobial resistance

“We are increasingly running out of new antibiotics. Research and development dollars are being invested instead in products that are taken every day, and antimicrobial development is being dropped. The pipeline dries up,

which limits treatment options for animal diseases,” says Paul Plummer, veterinarian and executive director with the National Institute of Antimicrobial Resistance Research and Education (NIAMRRE/[niamrre.org](http://niamrre.org)), based at Iowa State University.

NIAMRRE was created to fill the gaps in knowledge related to antimicrobial use, stewardship and resistance. The group has adopted a “One Health” approach to get a better grasp on the issue, and address the U.S. National Strategy for Combating Antibiotic-Resistant Bacteria initiatives that include slowing the spread, better surveillance and new product development.

“One Health is a collaborative concept that covers people, plants and animals and their environment with the goal of achieving optimal health outcomes for all. It is local to global in scope,” says Plummer. “We can mitigate resistance with a One Health approach.”

## Fending off resistance

One Health is a solid line of attack



# TO BIOSECURITY

because bacteria don't know the difference between humans and animals.

"We may be focused on COVID-19, but antimicrobial resistance kills people every year," says Plummer. "If we don't mitigate it now, some predictive models suggest we could have more human deaths from resistant bacteria than from all cancers combined by 2050."

However, no system is in place to track all of the various bodies working on aspects of antimicrobial resistance, whether human, animal or those already under a One Health approach.

NIAMRRE is using a One Health pathway to expand actions to address antibiotic-resistant bacteria.

"NIAMRRE is taking a multipronged effort to address the issue, including research, education, collaboration and advocacy," he says. "It is a broad approach."

When it comes to livestock, Plummer notes today's biosecurity measures already can be used to prevent disease. New precision ag approaches can identify sick animals earlier and lower treatment costs. He says adding another layer to effective biosecurity plans will slow resistance.

## Certification program

One Health Certified is the process-verified program (PVP) that has been created for livestock and poultry producers to demonstrate to customers and consumers they are committed to responsible, sustainable and transparent animal care practices.

One Health Certified programs

exist for chicken and turkeys. Standards remain under development for pork, egg, dairy and beef producers. The standards touch on several critical areas, including disease prevention, veterinary care, responsible antibiotic use, animal welfare and environmental effects.

"One Health Certified for beef is coming in the next year," says Plummer. "Right now, producers have other certified programs, like RWA (raised without antibiotics).

But they only cover one aspect of production. One Health Certified is systems-based and will cover all production areas to improve supply chain consistency. It is open to anyone who passes the audit and has transparent and publicly available standards that are applied."



## Trends in antibiotic use

As more producers become aware of One Health Certified, the hope is that livestock antibiotic use will continue to drop. With so much attention on antimicrobial resistance and a veterinary feed directive (VFD) to use antibiotics judiciously in place, animal antibiotic sales decreased by about one-third in 2019 compared to peak sales in 2015. However, in the last two years there has been a slight rise, partly associated with similar increases in livestock numbers and production.

Likewise, human physicians are working to reduce use. A recent CDC report showed a decrease in antibiotic prescriptions to outpatient children of 16% since 2011 and a decrease in the prescribing of antibiotics to all

outpatients (adults and children) of 5% since 2011.

Plummer encourages beef producers to be ready to become One Health Certified once the standards are complete. Improved practices will include a comprehensive animal health program and expanded biosecurity to help reduce disease entry. Improved livestock waste management, such as composting to reduce bacterial counts and planting grass or prairie strips that can mitigate resistant bacteria getting into waterways, are also steps that can be considered.

"There is increased pressure to reduce antibiotic use even further. We will need other alternatives and drugs to stimulate the immune system and use pre- and probiotics for GI (gastrointestinal) diseases," he says.

## Hurdles to navigate

Other challenges must be overcome. Plummer says most federal funding goes into managing human diseases with a 60-to-1 spending ratio over animal diseases. Regulatory approval paths also are clouded between agencies, and "orphans" fall through the jurisdiction cracks.

Plummer expects to see progress on other fronts. The National Antimicrobial Resistance Monitoring System (NARMS) tracks resistance from human, retail meat and food animal sources and will likely begin looking at groundwater for resistant bacteria soon.

In addition, the Environmental Protection Agency (EPA) is evaluating surface water for

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antimicrobials, while the Food and Drug Administration (FDA) is exploring the risk factors for specific antimicrobial drugs used in animals and durations of their use. FDA has announced it will move all over-the-counter antibiotics to prescription-only within the next two years.

## Prepping for FMD

As beef producers wade into strategies to manage future antibiotic use, foreign animal diseases lurk as constant threats. FMD raises the most alarms with epidemiologists, who believe it will enter the United States at some point, affecting cattle, pigs, sheep and goats.

“FMD is the most contagious viral disease in ruminant animals and could be a bigger disaster than COVID-19 with humans,” says Danelle Bickett-Weddle, lead public health veterinarian for the Center for Food Security/Public Health at Iowa State University. She notes that two-thirds of countries worldwide have identified FMD within their borders. “Immediate cattle movement restrictions would affect food availability, animal welfare and producer economic viability.”

A foreign animal disease, or FAD, according to USDA is an important, transmissible livestock or poultry disease believed to be absent from the United States, but with potentially significant health or economic effects. The highly pathogenic avian influenza outbreak in 2014–2015 in the United States cost \$850 million in indemnity payments and response activities alone.

An FMD outbreak would disrupt international and domestic trade, as well as generate economic losses tied to eradication costs from

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depopulation, indemnity, disposal and virus elimination. The Foreign Animal Disease Preparedness and Response Plan (FADPreP)/National Animal Health Emergency Management System (NAHEMS) Guidelines say additional direct and indirect costs would stem from lost production, related business and unemployment, and psychological and social tolls on producers. The total effect would depend on the length and spread of the outbreak.

## Proactive approach

Since FMD is highly contagious and other pathogens are always present, producers should assume any lapse in biosecurity could create problems for their operations. A proactive approach that includes detect, control and contain tactics will be required to maintain beef industry viability in the event of an FMD outbreak. Bickett-Weddle says that means putting plans in place for stopping cattle movement and stamping out infected animals to get ahead of the disease.

“If FMD is diagnosed in the U.S., there could be a national standstill in cattle movement for 72 hours, similar to airplane grounding after 9/11,” she says. “Control areas would be set up around infected farms to prevent further spread.

Once the national standstill is lifted, livestock in control areas could only move under a permit if they are not infected.”

Bickett-Weddle says trade partners would have to be informed of the outbreak and the United States would have to quickly demonstrate disease control to reassure the public.

Producers in control areas would need an operational permit to obtain feed and a continuity of business permit to move cattle into the supply chain.

“Producers will need to be able to trace cattle movement back at least 14 days, possibly 28 days, which is two incubation periods for FMD,” she says. “As with COVID-19, animals can be asymptomatic.”

## Time to prepare

Bickett-Weddle is part of a national effort to get beef producers to prepare for FMD now. A website has been created to give producers a good starting point. <https://securebeef.org> offers a continuity of business plan and several related tools for producers to cover all their bases.

“Make contingency plans now for movement restrictions,” she stresses. “Increase your awareness of FMD and educate your employees about disease symptoms. The same is true of biosecurity practices. Make sure employees understand why they’re important, not just that they have to follow them. COVID-19 is a practice run. Take a page from the book and apply it.”

Bickett-Weddle adds that producers will also need to get premises IDs from their states. For producers who already have one, it must match where animals actually reside. She also advises setting up a

line of separation — a boundary to protect animals from exposure.

“Just like a moat around a castle protects the kingdom and a drawbridge controls what comes in and out, producers should have a line of separation and be prepared to clean and disinfect anything that comes across it in an outbreak,” she says. “It can be two to four days before you see any clinical signs of disease in cattle with FMD, so routine biosecurity is not enough. The self-assessment biosecurity checklist for feedlots and pasture can help find gaps and strengths.”

Normal routines will still need to take place on ranches and farms, she acknowledges, which is why it is so critical to track “ins and outs.” Veterinarians or regulatory officials will have to make farm visits for inspection and disease monitoring, as well. Animals may be tested via oral swabs, with specimens sent to

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labs for disease confirmation.

Vaccines also will be likely.

“The vaccine is a cold-sensitive, killed vaccine,” she says. “With 23 strains of FMD worldwide, vaccine banks in place for strategic use are overseen by state and federal officials. It does require a booster every six months in cattle, and animals must be traced until death for trade purposes.”

USDA’s Animal and Plant Health Inspection Service (APHIS)

purchased FMD vaccine for the National Animal Vaccine and Veterinary Countermeasures Bank (NAVVCB) in July 2020, which would be used in the event of an FMD outbreak. The new vaccine bank supplements the number of vaccine doses available from the North American FMD Vaccine Bank the United States shares with Canada and Mexico. Vaccinated animals would be allowed to move domestically.

“Packers and processors are essential to keeping food in the supply chain, so we would have to keep markets open and do it safely,” she says. “The increased likelihood of business continuity is the goal for beef producers so they are protected and can help feed the nation.” ■

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Editor’s note: For more about the One Health approach, visit [onehealthcertified.org](https://onehealthcertified.org). A former National Junior Angus Board member, Barb Baylor Anderson is a freelance communications specialist from Maryville, Ill.