STATION 1

BARBER POLE WORM

AKA:
Haemonchus Contortus

Step 1: →

Learn About It! Review the back of this sheet to learn about the Barber Pole Worm.

Scenario: A sheep producer has their flock on irrigated pasture where animals graze in the same area throughout the spring and summer. The sheep are showing symptoms of parasite infection.

Step 2: 🔍 Treatment 1

An oral dewormer is administered to the sheep. The label calls for 4.5 milliliters for a 150 pound ewe. For easier dosing, you administer 4 milliliters per ewe.

1. **Place 19 black worms and 1 red worm in your container and mix together.** This represents a typical parasite population where most are susceptible to medications (black) and a small percentage are resistant (red).
2. **Reproduction.** A population of internal parasites will reproduce. Count your current parasite population and double it for an additional worm of the same color.
3. **Apply First Treatment.** Simulate a parasite treatment with a slight underdose by removing 60% of the susceptible worms from your cup. Place them in the "graveyard."
4. **Reproduction.** All of the surviving parasites will reproduce again. Count how many you have of each color and double each population.
5. **Apply More Treatments.** Simulate 2 more treatments by removing 60% of the susceptible worms and placing them in the "graveyard."

STATION 1

Step 3: Treatment 2

An oral dewormer is administered to the sheep. The label calls for 4.5 milliliters for a 150 pound ewe. This time you are precise and give the full treatment to each sheep according to their weight.

1. **Place 19 black worms and 1 red worm in your cup and mix together.** This represents a typical parasite population where most are susceptible to medications (black) and a small percentage are resistant (red).
2. **Reproduction.** A population of internal parasites will reproduce in their normal life cycle. Count your current parasite population and double it for an additional worm of the same color.
3. **Apply Treatment.** Simulate a full parasite treatment by removing 90% of the susceptible beads from your cup. Place them in the "graveyard."
4. **Reproduction.** All of the surviving parasites will reproduce again. Count how many you have of each color and double each population.
5. **Apply Additional Treatment.** Simulate two more treatments by removing 90% of the susceptible worms again. Place them in the "graveyard."

Step 4: Think About It!

- Underdosing medication leaves more total parasites alive, allowing the population to grow quickly.
- Correct dosing reduces the total number of parasites, helping keep animals healthier —even though resistant worms may still survive.
- In large parasite populations, there are more opportunities for random mutations to occur during reproduction.

Interesting Fact:
Under warm, moist conditions, it takes about 18–21 days (2–3 weeks) for the parasite to go from egg to a mature adult worm capable of reproducing thousands of eggs per day.

Proper dosing and full treatment kill more of the target organisms, preventing survivors from reproducing and spreading resistance.

BARBER POLE WORM

Station 1

About:

The barber pole worm (Haemonchus contortus) is a small parasitic worm that lives in the stomach of grazing animals such as sheep and goats. It gets its name from its distinctive appearance: the worm has a red-and-white spiral pattern that looks like a barber's pole, caused by the blood it consumes and the reproductive organs inside its body. This parasite feeds on the animal's blood, which can lead to anemia, weakness, and poor growth, especially in young or heavily infected animals. Because it is very small and lives inside the digestive system, the worm is not easily seen, but its effects on animal health can be serious if not properly managed.

Causes of Infection:

Animals become infected with barber pole worms while grazing on pasture. The parasite's eggs are shed in the manure of infected animals, where they hatch and develop into larvae. These larvae move onto grass blades, especially in warm, moist conditions. When animals eat the grass, they also ingest the larvae, which then develop into adult worms inside the digestive system. Because this life cycle occurs on pasture, infections can spread quickly within a herd or flock.

Treatment:

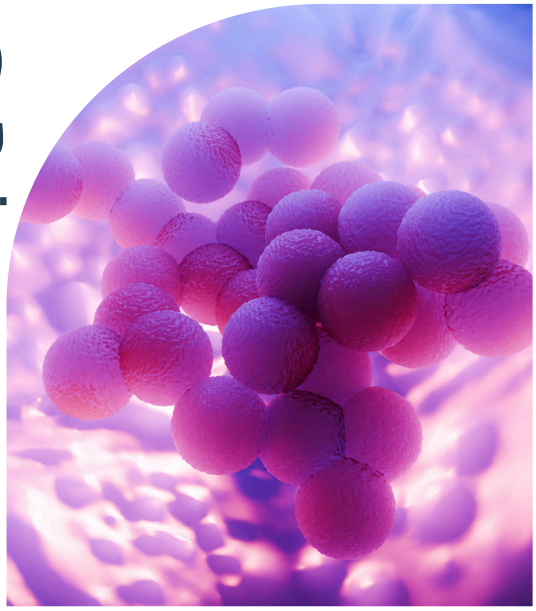
Barber pole worm infections are treated using antiparasitic medications, often called dewormers. These medications are designed to kill parasites living inside an animal. They can be administered in several ways, including as an oral drench (a liquid given by mouth) or as an injectable treatment.

Best Practices

- Use targeted treatment for affected animals rather than deworming the entire herd or flock
- Administer dewormers correctly, using the proper dose and method when needed
- Rotate pastures to reduce exposure to parasite larvae on grass
- Avoid overcrowding, which can increase the spread of parasites

STATION 2

STAPHYLOCOCCUS & STREPTOCOCCUS



AKA: Mastitis

Step 1: →

Learn About It! Review the back of this sheet to learn about mastitis in dairy animals.

Scenario: A dairy farmer has a cow with mastitis, an infection in the udder caused by a mixture of staphylococcus and streptococcus bacteria.

Step 2: 🔍 Treatment 1

The farmer treats the cow with an antibiotic that kills streptococcus.

1. **Place 16 blue strep bacteria, 3 green staph bacteria, and 1 red resistant bacteria in your cup and mix together.** This represents a mastitis infection where most are susceptible to medications and a few are resistant.
2. **Reproduction.** A population of bacteria will reproduce. Count your current bacterial population and double it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment by removing 90% of the blue strep bacteria from your cup and place them in the "graveyard. "
4. **Reproduction.** All of the surviving bacteria will reproduce again. Count how many you have of each color and double each population.
5. **Apply Second Treatment.** Simulate another treatment by removing 90% of the blue strep bacteria and place them in the "graveyard."
6. **Reproduction.** All of the surviving bacteria will reproduce again. Count how many you have of each color and double each population. One of your green staph bacteria mutates during reproduction and become resistant. Add a red bacteria to the population instead of a green staph.

STATION 3

Step 3: Treatment 2

The farmer treats the cow with a broad spectrum antibiotic that kills both streptococcus and staphylococcus.

1. **Place 16 blue strep bacteria, 3 green staph bacteria, and 1 red resistant bacteria in your cup and mix together.** This represents a mastitis infection where most of the bacteria is susceptible to medications and only a few are resistant.
2. **Reproduction.** A population of bacteria will reproduce. Count your current bacterial population and double it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment by removing 90% of the blue strep bacteria and 90% of the green staph bacteria from your cup and place them in the "graveyard. "
4. **Reproduction.** All of the surviving bacteria will reproduce again. Count how many you have of each color and double each population.
5. **Apply Second Treatment.** Simulate another treatment by removing 90% of the blue strep bacteria and 90% of the green staph bacteria and place them in the "graveyard."

*Because fewer total bacteria were exposed to antibiotic, the chance of mutation leading to resistance decreases. That's why you didn't convert a white bacteria to a red bacteria in the second treatment.

Step 4: Think About It!

- Using the wrong medication allows some bacteria to survive and take over.
- Targeted treatment is necessary for effective disease control.
- When bacteria survive treatment they continue to reproduce leaving more opportunities to reproduce and increased potential for resistance to develop.

Using the correct medication is critical because it effectively reduces the infection, while incorrect treatments allow surviving bacteria to multiply and increase the risk of resistance.

MASTITIS IN DAIRY ANIMALS

Station 2

About:

Mastitis is an infection of the udder (mammary gland) that commonly affects dairy animals such as cows, goats, and sheep. Mastitis can be caused by several bacterium. Strains of staphylococcus and streptococcus are common. This infection leads to inflammation, which can cause swelling, heat, and pain in the udder, as well as changes in the milk such as clumps, discoloration, or reduced production. Animals with mastitis may appear uncomfortable, produce less milk, and have lower overall health and productivity. In more severe cases, the infection can spread within the body, making the animal seriously ill and requiring prompt treatment.

Causes of Infection:

Mastitis infections are most often caused by bacteria that enter the udder through the teat opening, especially during or after milking. Poor hygiene, such as unclean milking equipment, dirty bedding, or wet, muddy environments, can increase the risk of infection by exposing the udder to harmful bacteria. Small injuries or cracks in the teat can also make it easier for bacteria to enter. In addition, stress, poor nutrition, or a weakened immune system can make animals more susceptible to infection. Because dairy animals are handled frequently for milking, careful management and cleanliness are important in preventing mastitis from developing.

Treatment:

Mastitis is typically treated using antibiotics to eliminate the bacteria causing the infection. These medications are often administered directly into the udder through the teat or given as injections, depending on the severity of the infection. In addition to antibiotics, affected animals may be milked more frequently to help remove bacteria and reduce pressure in the udder.

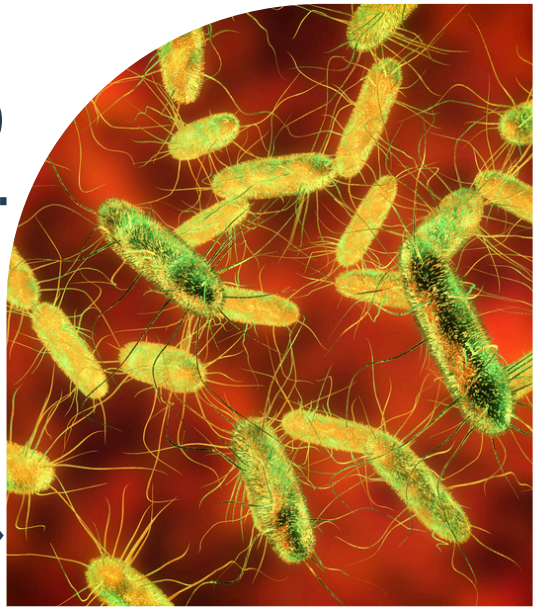
Fun Facts:

- The first veterinary use of penicillin (which was discovered in the 1920s) was for treating mastitis in dairy cows.
- Mastitis is still the #1 reason to use antibiotics on a dairy farm today.

Best Practices:

- Maintain clean milking practices, including sanitizing equipment and cleaning the udder before and after milking
- Provide clean, dry bedding to reduce exposure to bacteria in the environment
- Monitor animals regularly for early signs of mastitis, such as changes in milk or swelling in the udder
- Use proper milking procedures to prevent injury to the teat and reduce the risk of infection
- Support overall animal health with good nutrition and reduced stress to strengthen the immune system

STATION 3



SALMONELLA

AKA: Salmonella Enterica

Step 1: →

Learn About It! Review the back of this sheet to learn about Salmonella.

Scenario: A farm who raises chickens for meat has a new group of chicks who are one week old. Many of them are showing signs illness such as diarrhea, weakness, and poor growth. Testing confirms the presence of the salmonella bacteria.

Step 2: 🔍 Treatment 1

To treat the sick birds AND prevent the disease from spreading further the farmer decides to treat the entire flock with an antibiotic by adding it to the water.

1. **Place 18 orange salmonella bacteria and 2 red resistant salmonella in your cup and mix together.** This represents a salmonella population where most are susceptible to medications (orange) and a few are resistant (red).
2. **Reproduction.** A population of bacteria will reproduce. Count your current bacterial population and double it for an additional bacteria of the same color.
3. **Apply Treatment.** Simulate a flock-wide antibiotic treatment by removing 95% of the orange bacteria from your cup and placing them in the "graveyard."
4. **Reproduction.** All of the surviving bacteria will reproduce. Count how many you have of each color and double each population. Convert 2 orange salmonella to red.
5. **Apply Treatment.** Simulate another treatment by removing 95% of the susceptible bacteria and placing them in the "graveyard."

STATION 3

Step 3: Treatment 2

The birds who are showing symptoms are separated from the rest of the flock who appears healthy. The sick birds are administered antibiotics through their water.

1. **Place 18 orange salmonella bacteria and 2 red resistant salmonella in your cup and mix together.** This represents a salmonella population where most are susceptible to medications (orange) and a few are resistant (red).
2. **Reproduction.** A population of bacteria will reproduce. Count your current bacterial population and double it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment of the sick birds by removing 95% of the orange bacteria from your cup and placing them in the "graveyard."
4. **Reproduction.** All of the surviving bacteria will reproduce. Count how many you have of each color and double each population.
5. **Apply Second Treatment.** Simulate another treatment by removing 95% of the susceptible bacteria and placing them in the "graveyard."

*Because salmonella can be present in a bird and their environment without showing symptoms, more healthy birds become ill and are later treated with antibiotics when symptoms arise. Mutations that change susceptible bacteria to resistant bacteria are less.

Step 4: Think About It!

Pros of Blanket Treatment:

- Stops disease quickly – Treating all birds helps slow or stop the spread of infection.
- Treats hidden illness – Birds that don't look sick may still be infected and get treated.
- Improves flock health faster – Reduces the total number of bacteria so animals recover more quickly.

Cons of Blanket Treatment:

- Increases resistance risk – More bacteria are exposed, giving resistant ones an advantage.
- Treats animals unnecessarily – Even healthy birds receive medication when they may not need it.
- Can make antibiotics less effective over time – Repeated use may reduce how well treatments work in the future.

Blanket antibiotic treatments can quickly reduce disease in a group, but they expose large numbers of bacteria to antibiotics, increasing selection pressure and the risk of resistance developing over time.

SALMONELLA

Station 3

About:

Salmonella is a group of bacteria (most commonly Salmonella enterica) that live in the intestinal tract of poultry such as chickens and turkeys. In many cases, poultry may appear healthy while still carrying and shedding Salmonella, but in other situations—especially in young chicks—the infection can cause diarrhea, weakness, poor growth, reduced egg production, and even high mortality rates. Salmonella also affects poultry production by lowering performance and contaminating meat and eggs, making it a major food safety concern because it can be transmitted to humans who consume undercooked or contaminated products. The disease caused by Salmonella bacteria in poultry is called salmonellosis.

Causes of Infection:

Salmonella infection in poultry is mainly caused when birds ingest the bacteria from contaminated feed, water, litter, or surfaces, or through contact with infected birds or their droppings. The bacteria spread easily within a flock because infected birds can shed large amounts of Salmonella in their feces, contaminating the environment and exposing other birds. Transmission occurs in two main ways: horizontal transmission (bird-to-bird through contact, equipment, or the environment) and vertical transmission (from infected hens to their eggs and chicks). Poor sanitation, overcrowding, and the presence of pests like rodents or wild birds can increase the risk of infection and spread. Because some infected birds show no symptoms, Salmonella can persist unnoticed in a flock, making control and prevention more difficult.

Treatment:

On poultry farms, Salmonella is not treated like a typical disease with routine antibiotics; instead, it is mainly controlled and managed through prevention and flock management practices. Because many infected birds show no symptoms and can carry the bacteria long-term, farms focus on reducing the bacteria's presence through strict biosecurity measures (clean housing, disinfecting equipment, controlling rodents and wild birds) and good sanitation of feed, water, and litter. Some flocks may use vaccination programs or feed additives like probiotics to reduce Salmonella colonization in the gut. In certain cases, especially during severe outbreaks, veterinarians may prescribe antibiotics, but this is limited because of concerns about antibiotic resistance and ineffective long-term control.

Best Practices:

- Maintain strict biosecurity. Limit visitors, require. clean clothing/boots, and control movement between barns
- Keep housing clean and well sanitized.
- Provide clean feed and water
- Reduce stress and overcrowding in housing.

Fun Facts:

- In the 1940s and 50s antibiotics were discovered and used widely in livestock and poultry.
- In the 1960s and 70s scientists began linking antibiotic use to drug-resistant salmonella outbreaks.
- In 2017 Restricts were placed on using medically important antibiotics

STATION 4

MYCOPLASMA HYOPNEUMONIAE

AKA: Bacterial Pneumonia

Step 1: →

Learn About It! Review the back of this sheet to learn about bacterial pneumonia in pigs.

Scenario: A swine producer manages a group of growing pigs housed in a shared barn. Over time, several pigs begin showing signs of respiratory illness, including coughing, slow growth, and reduced feed intake. A veterinarian diagnoses the problem as Mycoplasma hyopneumoniae, a bacterial infection that can spread through the group and lead to pneumonia.

Step 2: Treatment 1

The sick pigs are given an antibiotic injection. A week later the sick pigs were still showing minor symptoms of pneumonia so they gave another injection of the same medication.

1. **Place 18 yellow bacteria and 2 red resistant bacteria in your cup and mix together.** This represents a typical bacterial infection where most bacteria are susceptible to medications and a few are resistant.
2. **Reproduction.** A population of bacteria will reproduce. Count your current bacterial population and double it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment by removing 70% of the susceptible beads from your cup and placing them in the "graveyard."
4. **Reproduction.** All of the surviving bacteria will reproduce again. Count how many you have of each color and double each population.
5. **Apply Second Treatment.** Simulate a second treatment. This time remove 60% of the susceptible worms. Repeated exposure leads to less effectiveness.

STATION 4

Step 3: Treatment 2

The sick pigs are given an antibiotic injection. A week later the sick pigs were still showing minor symptoms of pneumonia so they gave another injection of a different antibiotic.

1. **Place 18 yellow bacteria and 2 red resistant bacteria in your cup and mix together.** This represents a typical bacterial infection where most bacteria are susceptible to medications and a few are resistant.
2. **Reproduction.** A population of bacteria will reproduce. Count your current bacterial population and double it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment by removing 90% of the susceptible bacteria and all of the red resistant bacteria. Placing them in the "graveyard."
4. **Reproduction.** All of the surviving parasites will reproduce again. Count how many you have of each color and double each population.
5. **Apply Second Treatment.** Simulate a second treatment with an antibiotic of a different type. This time remove 90% of the susceptible bacteria.

Step 4: Think About It!

- One bacteria might be resistant to one antibiotic, but susceptible to another antibiotic.
- Different drugs target bacteria in different ways, reducing repeated selection for the same resistant group.
- The same drug becomes less effective over time.

Rotating drug classes changes the selection pressure on bacteria, preventing the same resistant organisms from surviving every treatment and helping slow the development of resistance.

BACTERIAL PNEUMONIA

Station 4

About:

Mycoplasma hyopneumoniae is a small type of bacteria that lacks a cell wall and causes enzootic pneumonia in pigs, a long-term respiratory disease that affects the lungs and airways. It attaches to and damages the cilia (tiny hair-like structures) that help clean the respiratory tract. This damage makes it harder for pigs to clear mucus and germs, leading to ongoing coughing and a higher risk of secondary infections such as Pasteurella multocida. Infected pigs often have a dry cough, grow more slowly, and use feed less efficiently, which makes this disease an important problem in the swine industry.

Causes of Infection:

Mycoplasma hyopneumoniae infection occurs when pigs inhale bacteria from infected respiratory droplets, usually through close contact with other pigs. The disease develops more easily in stressful conditions such as overcrowding, poor ventilation, temperature changes, or mixing pigs from different groups. Once inside the body, the bacteria attach to the lining of the respiratory tract and begin to multiply. Young pigs are especially vulnerable, and the infection often spreads slowly through a herd, becoming a long-term problem. Because infected pigs can carry and spread the bacteria even when they seem healthy, it can be difficult to eliminate and may continue to infect new animals.

Treatment:

Mycoplasma hyopneumoniae infections in pigs are usually managed rather than completely cured because the bacteria can remain in the herd. Treatment often includes antibiotics, such as tetracyclines or macrolides, to reduce symptoms and prevent secondary infections. Supportive care, like improving the pigs' environment and overall health, also helps them recover more effectively.

Best Practices:

- Maintain good ventilation
- Reduce overcrowding
- Minimize stress
- Implement vaccination programs

Fun Facts:

- Pneumonia is usually caused by more than one bacteria at a time.
- Some pigs can carry the bacteria for weeks or months and continue to spread it even after symptoms improve.

STATION 5

MORAXELLA BOVOCULI

AKA: Pinkeye

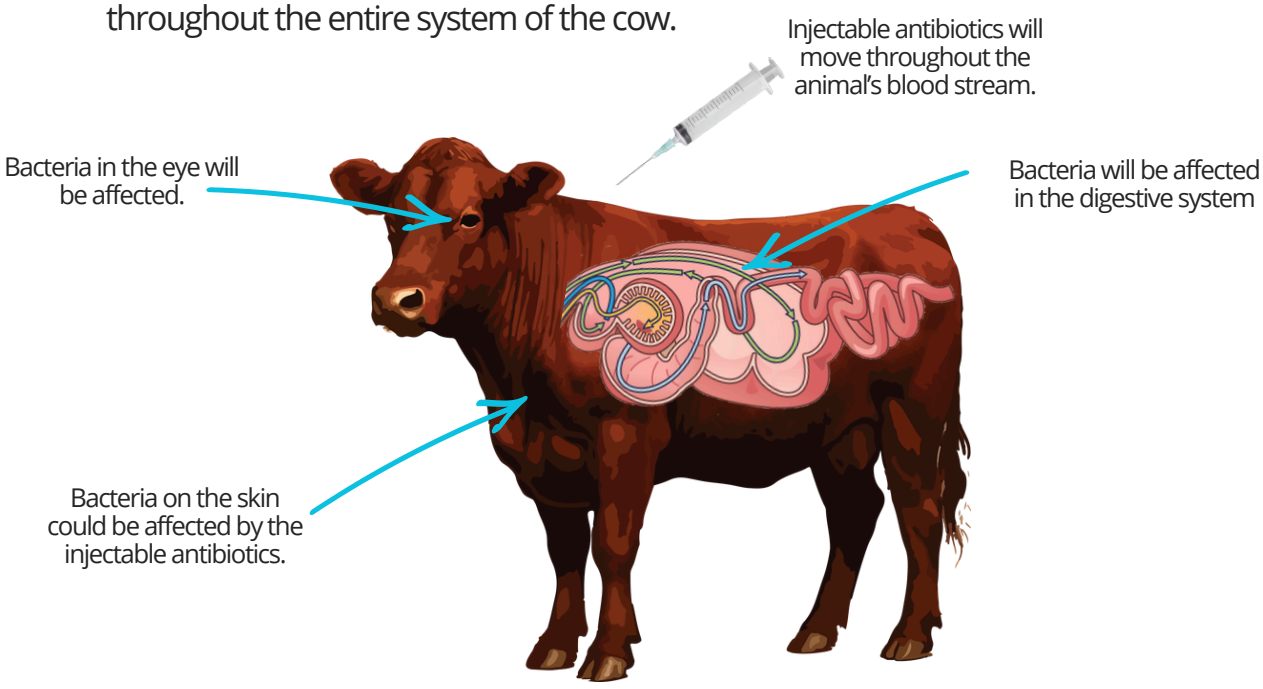
Step 1: →

Learn About It! Review the back of this sheet to learn about pinkeye in cattle.

Scenario: A cattle producer manages a herd of cattle. The weather has been hot and dry which kicks up dust in the corrals. A couple of cows have watery eyes that are irritated and squinting. The infection seems minor so far.

Step 2: 🔍 Treatment 1

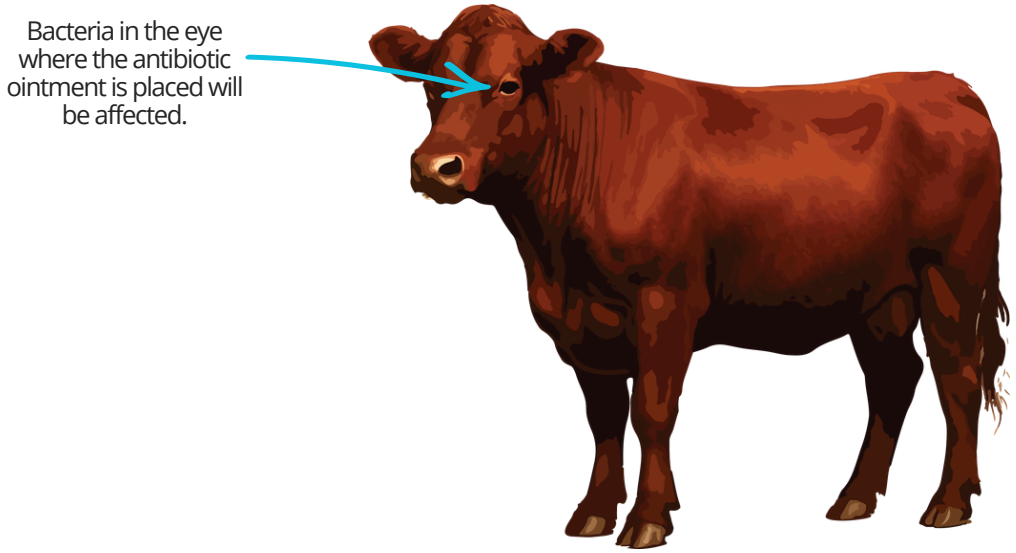
The affected cows are given an antibiotic injection that is effective in killing bacteria throughout the entire system of the cow.



STATION 5

Step 3: Treatment 2

The affected cows are moved to a pasture where there isn't as much dust and treated with a topical antibiotic ointment on the eyes.



Step 4: Think About It!

Systemic Antibiotic Treatment:

- ✚ Works well for severe or systemic infections
- ✚ Ensures medication reaches bacteria that may not come in contact to topical antibiotic.
- ✚ Easy to administer once (long-acting in some cases)
- ▬ Exposes many bacteria to antibiotics... including good bacteria

Local Antibiotic Treatment:

- ✚ Exposes fewer bacteria to antibiotics
- ✚ Targets only the infected area (e.g. eye)
- ✚ Lower risk of developing resistance
- ✚ Avoids killing other bacteria that are not causing the eye infection.
- ▬ May need multiple applications, takes more time to administer treatment

Treating only where needed reduces the number of bacteria exposed to antibiotics, helping prevent resistance from developing too quickly.

PINKEYE (Infectious Keratoconjunctivitis)

Station 5

About:

Pinkeye in cattle, also called infectious bovine keratoconjunctivitis, is a common eye disease mainly caused by the bacteria Moraxella bovis. This disease affects the surface of the eye, leading to redness, tearing, sensitivity to light, and a cloudy appearance that can sometimes result in temporary blindness. While many cases are mild and may heal over time, more severe infections can reduce weight gain and overall health, making pinkeye an important issue in cattle production.

Causes of Infection:

Pinkeye infections in cattle often begin when the eye becomes irritated or damaged, allowing bacteria to enter and grow. Common contributing factors include dust, flies, tall grass, and bright sunlight, which can scratch or stress the surface of the eye. Flies can also spread the bacteria from one animal to another. The disease is more likely to spread in crowded or stressful conditions, especially during warm seasons when flies are active. Cattle with weakened immune systems or poor nutrition are also more vulnerable to infection.

Treatment:

Pinkeye in cattle is usually treated with antibiotics and good management practices. Antibiotics may be given by injection, as an eye ointment, or with an eye patch to fight the infection and help healing. Farmers also reduce irritation by controlling flies, lowering dust, and sometimes covering the eye to block sunlight. In mild cases, pinkeye may heal on its own, but treatment helps reduce pain, prevent serious damage, and limit spread to other animals.

Best Practices:

- Control flies (ear tags, sprays, clean manure)
- Reduce irritation (limit dust, mow grass, provide shade)
- Keep conditions clean (avoid crowding, reduce stress)
- Isolate sick animals to prevent spread

Fun Facts:

- Even though it's an eye disease, pinkeye can cause animals to eat less and grow more slowly.
- Pinkeye is a general term for eye infections, and it can occur in many animals—but the specific bacteria and causes can be different for each species.

STATION 6

AEROMONAS HYDROPHILA

AKA: Hemorrhagic Septicemia

Step 1:

Learn About It! Review the back of the information sheet to learn about hemorrhagic sempticemia in fish.

Scenario: A fish farmer raises a group of fish in a tank-based aquaculture system. Over time, several fish begin showing signs of illness, including red sores, bleeding under the skin, and unusual swimming behavior.

Step 2: Treatment 1

To treat the illness, antibiotics are mixed into the fish's feed so that the fish consume the medication when they eat.

1. **Place 18 purple bacteria and 2 red resistant bacteria in your cup and mix together.** This represents a typical parasite infection where most are susceptible to medications and a few are resistant.
2. **Reproduction.** A population of bacteria will reproduce at an alarming rate if environmental conditions are poor Count your current parasite population and triple it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment by removing 75% of the susceptible bacteria from your cup. Place them in the "graveyard."
4. **Reproduction.** All of the surviving parasites continue to reproduce rapidly in the poor environmental conditions. Count how many you have of each color and triple each population.
5. **Apply Second Treatment.** Simulate another treatment by removing 75% of the susceptible bacteria.

STATION 6

Step 3: Treatment 2

Prior to administering medication the farmer notices that water quality in the tank has declined due to higher waste buildup, lower oxygen levels, and warmer temperatures. The water and environmental quality is corrected first. Then, the sick fish are treated with antibiotics.

1. **Place 18 purple bacteria and 2 red resistant bacteria in your cup and mix together.** This represents a typical parasite infection where most are susceptible to medications and a few are resistant.
2. **Reproduction.** A population of bacteria will reproduce at an alarming rate if environmental conditions are poor Count your current parasite population and double it for an additional bacteria of the same color.
3. **Apply First Treatment.** Simulate an antibiotic treatment by removing 90% of the susceptible bacteria from your cup. Place them in the "graveyard."
4. **Reproduction.** All of the surviving parasites continue reproduce rapidly in the poor environmental conditions. Count how many you have of each color and double each population.
5. **Apply Second Treatment.** Simulate another treatment by removing 90% of the susceptible bacteria.

Step 4: Think About It!

- Poor environmental conditions can cause or worsen disease—factors like low oxygen, high waste levels, and temperature stress make fish more vulnerable to infection.
- Bacteria such as Aeromonas hydrophila are often already present in the environment, so disease outbreaks are strongly influenced by the conditions the animals are living in.
- Improving the environment can reduce disease spread by lowering stress on fish and slowing bacterial growth.

Healthy environments reduce disease and the need for antibiotics, helping slow the development of resistance.

HEMORRHAGIC SEPTICEMIA

Station 6

About:

Aeromonas hydrophila is a bacterium commonly found in freshwater environments like ponds, rivers, and fish tanks. It can infect fish and cause a disease called hemorrhagic septicemia. This disease affects the whole body, causing sores, bleeding, weakness, and sometimes death, especially in farmed fish.

Causes of Infection:

Fish become infected when Aeromonas hydrophila grows rapidly in poor conditions. Stress from overcrowding, low oxygen, poor water quality, or temperature changes makes fish more vulnerable. The bacteria can enter through cuts or damaged skin, and once an infection starts, it can spread quickly through a group of fish.

Treatment:

Treatment for Aeromonas hydrophila infections in fish often includes the use of antibiotics added to feed or water to reduce the bacteria and limit spread. However, because antibiotics may not always fully eliminate the infection, good management practices are also important. Farmers improve water quality, oxygen levels, and stocking density to reduce stress and help fish recover. In severe outbreaks, infected fish may be removed to prevent further spread. Focusing on both treatment and proper management helps control the disease and reduces the risk of antibiotic resistance developing.

Best Practices:

- Maintain water quality (clean water, proper oxygen levels)
- Avoid overcrowding to reduce stress and disease spread
- Handle fish carefully to prevent cuts and injuries
- Remove or isolate sick fish to limit spread

Fun Facts:

- Aeromonas hydrophila is naturally present in many freshwater systems, so outbreaks usually happen when fish are stressed—not because the bacteria suddenly appear.
- It can spread very quickly: In crowded fish farms, an outbreak can spread through a population within just a few days, leading to rapid losses if conditions aren't improved.