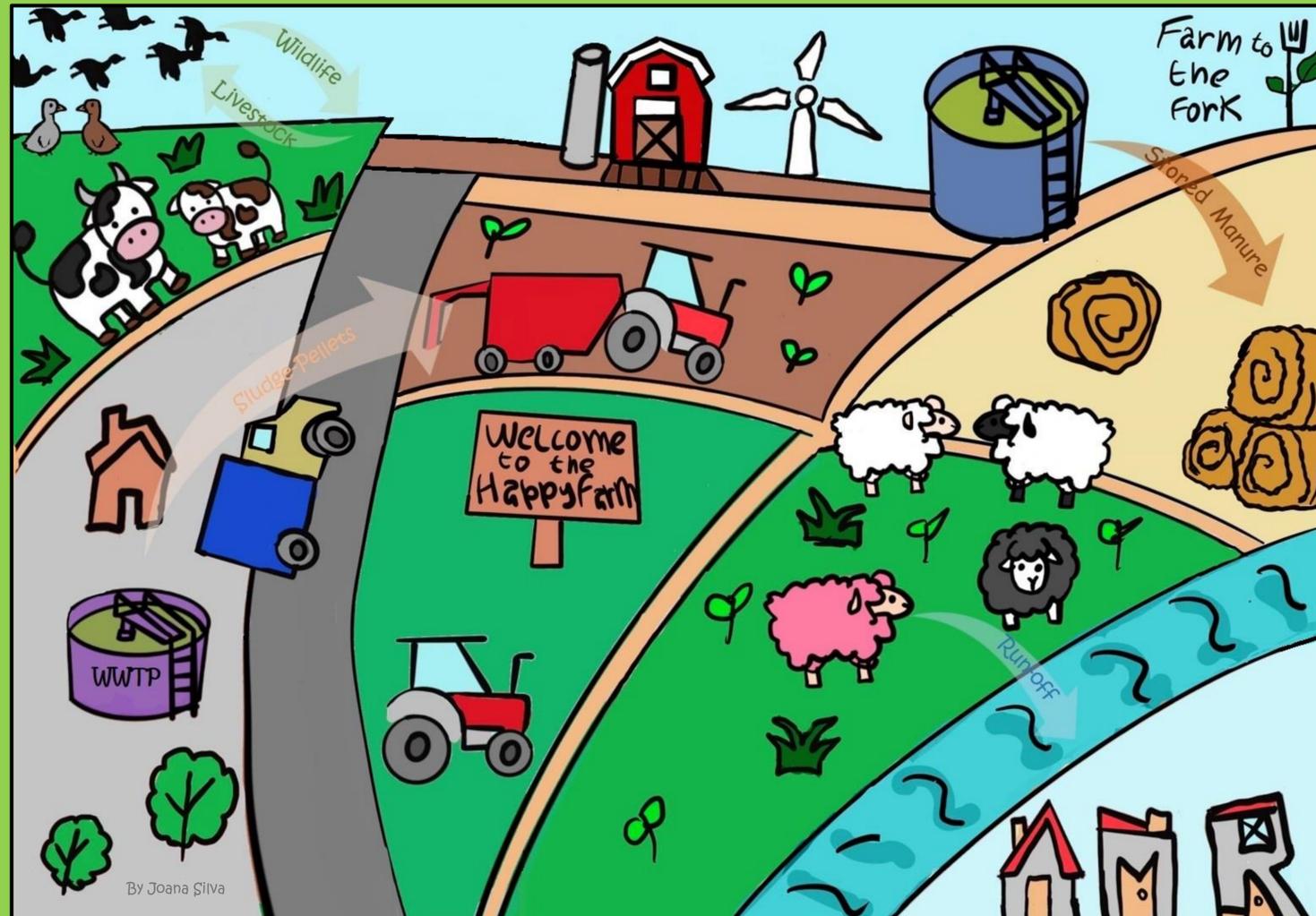


The spread of antibiotic resistance in the livestock farm environment

ANTIBIOTIC RESISTANCE

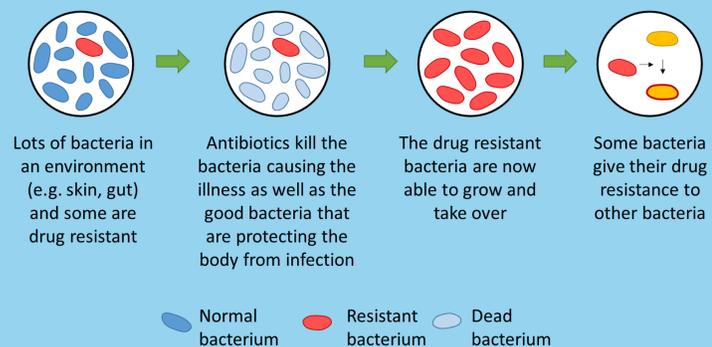
- Antibiotics are medicines that are used to prevent and treat bacterial infections in humans and animals.
- Antibiotic resistance means the bacteria are resistant, not the human or animal that is being treated.
- When antibiotic resistance occurs, antibiotics do not work and some infections can no longer be treated. Resistant bacteria can also persist and be spread to other people or animals.
- Antibiotic resistance is natural but due to the overuse and inappropriate use of antibiotics in humans and animals this has been accelerated.
- Antibiotic resistance is a very important global issue; it is estimated that resistant bacteria could cause 10 million human deaths each year by 2050.



ON THE FARM

- Antibiotic resistance can develop on farms via the use of antibiotics to **treat infectious diseases** in livestock.
- Antibiotics used in **human medicine** can also end up in the farmed environment.
- Resistant bacteria in the farm environment (soil and water) can **spread to livestock**.
- The spreading of **manure** provides a route by which resistant bacteria can pass from livestock to the natural environment, food crops, other animals and people.
- **Antibiotic residues** can be found in livestock manure and slurry, slurry composting and sludge pellets as soil fertilisers and this could drive bacterial resistance in pasture soils.
- Resistant bacteria found on farms can **spread to humans** via the consumption of contaminated **food**.
- **Wildlife** species can introduce and spread antibiotic resistant bacteria between farms.

How antibiotic resistance develops



WHAT CAN WE DO?

- Reduce the need for antibiotics by improving animal health. This includes vaccinating animals, parasite control and taking steps to correctly diagnose infections. Good biosecurity and husbandry practices are also important for infection control.
- Only give antibiotics to animals to control or treat infections and these should be prescribed by a vet. They should be used at the correct dose and duration and should be stored appropriately.
- Adapt the best management practices for the use of organic fertiliser as recommended by the Animal and Plant Health Agency (APHA) and Scottish Environment Protection Agency (SEPA).

To find out more about how research at Moredun is furthering our understanding of the spread of antibiotic resistance in the livestock farm environment, contact:
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