How dispensers can support vaccination and disease control

With farms across the country facing challenges to remain financially strong, preserving animal health and maximising production has increasingly become a priority among farmers.

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Farm bankruptcies went up 50% in the Northwest between 2018 and 2019, and more than half of all farmers have lost money every year since 2015. As a result, most farmers are taking additional steps especially in the area of animal production to preserve their livelihood.

To safeguard their flocks, farms use antibiotics to prevent illness from spreading among animal flocks, as disease can greatly hinder farm outcomes and may even result in the death of poultry. Some farms also use antibiotics in low doses to promote flock growth, in order to produce a higher output of meat in a shorter amount of time.

However, attitudes toward antibiotic use are shifting. Thankfully, there are ways to reduce reliance on antibiotics with the right approach and reliable equipment.

Battling bacteria

Overusing antibiotics poses problems for both humans and animals. When farmers give animals low doses of antibiotic drugs to promote growth, this process fosters the development of drug-resistant bacteria, also known as 'superbugs'. The Centers for Disease Control and Prevention (CDC) defines this process as 'inappropriate antibiotic use' because of the health risks it creates for humans.

A 2019 Food and Drug Administration (FDA) report found a 9% rise in the amount of medically important antibiotics sold for use in food-producing animals between 2017 and 2018, after a three year decline. If animals are treated with antibiotics frequently enough to be carrying drug-resistant bacteria, they can pass these germs onto humans.

This can happen if humans eat meat containing drug-resistant bacteria that has not been cooked properly. Humans are also at risk for transmission if they consume food crops that have been sprayed with animal manure containing resistant bacteria.

FDA research found that at least two million Americans fall ill with an antibiotic-resistant infection each year. Nearly 23,000 people die as a result of these infections, making drug-resistant bacteria a significant problem in the United States. While not all these infections originated from animals over-treated with antibiotics, it is important to reduce the number of these drug-resistant infections in any way possible.

The importance of antibiotic alternatives

Understanding the concern around antibiotic overuse, some consumers and other stakeholders are calling for farms to look for alternative ways to preserve animal health. A majority of consumers (86%) think that meat raised without antibiotics should be provided at their local supermarket. Additionally, 61% of these consumers said they would be willing to pay higher costs for antibiotic-free meat.

This concern has even spread into the fast food industry. Several major fast food chains – including McDonalds, Chipotle, and Wendy's – are refusing to purchase animal products treated with medically-important antibiotics to align with consumer preferences and expectations.

As a result of this market shift, farms are increasingly turning to highly aggressive chemicals (HACs), specifically organic acids, as a safer way to promote animal health. Organic acids deliver efficacy and safety, address specific feeding requirements and can even protect against reactivated salmonella.

Organic acids present in drinking water reduce the level of pathogens in the water, regulate gut microflora and increase feed digestion to improve growth performance in animals.

Dispensing success in an 'anti-antibiotic' era

Not all farm equipment is up to the challenge of working with these new chemicals. Much of the existing dilution equipment for farms was designed to deliver growth medication and vaccines. Thankfully, newer equipment has the capability to deliver harsh chemistries such as HACs.

Utilising water-driven pumps (WDPs) can help support cleanliness and protect water lines and equipment by ensuring proper dilution. Chemical dispensers deliver essential medications, vitamins, electrolytes, probiotics, organic acids and vaccines to poultry through drinking water systems.

Farms can find the right WDP by considering the following features:

- **Compatibility with HACs:**
Confirm that the pump can be used with HACs like sodium hypochlorite, chlorine dioxide, and hydrogen peroxide, which are commonly used to treat or medicate water lines. It is also ideal if the pump can handle liquid chemicals and wettable powders.

- **Water pressure and flow rate regulation:**
Water pressure can fluctuate throughout the day on the farm. Find a dispenser that uses pressure-regulation technology to help eliminate dilution variances. Avoiding 'leaning out' or over-dilution is important to maintain animal health.

- **Accurate delivery of desired injection ratios:**
Medications, chemicals and vitamins require different dilution ratios. Look for reliable and precise dispensers that can manage ratio changes to eliminate the risk of over- or under treatment.

- **Simple installation and maintenance:**
The simpler the installation process, the quicker a dispenser will be ready for use. A dispenser should also require minimal maintenance – there are even units that offer tool-free maintenance – to reduce downtime and improve productivity.

Some farms even opt for electric diaphragm pumps instead of peristaltic pumps. These offer longer life and do not use squeeze tubes, thereby eliminating the need to replace these parts every several months.

- **Safe operation:**
Look for pumps that can overcome high water pressure conditions and operate safely without breaking down.

A healthier future

Controlling disease on farms is key, but the means of achieving the goal is changing. Rather than over-using antibiotics and potentially contributing to the spread of drug-resistant bacteria, farms are opting for HACs.

HACs improve animal growth performance, while simultaneously decreasing pathogenic bacteria. However, not all farm equipment is suited to dispense these chemicals effectively. Selecting the right WDP is essential to promote animal growth. By picking the right WDP, farms can adapt to changing markets and help keep people safe from drug-resistant infections. ■