

## **Innovation in Animal Health**

• 1910s

1st US veterinary licence issued for production of antihog-cholera serum. • 1950s

1st veterinary antibiotics licensed in the US and Europe.

Development of rinderpest vaccine.

Brucellosis virtually eliminated in the US.

• 1970s

Discovery of avermectins revolutionising parasite—control in veterinary and human medicine. • 1990s

Intense development of modern veterinary therapeutics: better pain management, better anaesthetics for surgery and 1 behavioural medicine for pets.

Probiotics are gradually introduced to help maintain and improve animal health, and prevent and control enteric pathogens, and improving their wellbeing.

2005

1<sup>st</sup> authorised cancer treatment for pets.

1st DNA vaccine authorised, pioneering a new technology now also used in human medicine. · 2017

Monoclonal antibodies are first marketed in EU for treatment of dogs with atopic dermatitis, a common allergic skin disease, and later approved in cats for monthly pain treatment for osteoarthritis.



1761

1st veterinary









1930s

1st brucellosis vaccine

1st foot and mouth

disease vaccine

developed.

developed.



















2010

New vaccine technology

saw ongoing development

of mRNA vaccines offering

high potency, capacity for

rapid development and

administration potential.

lower costs with safe

2011

Rinderpest officially

eradicated - only

2<sup>nd</sup> disease eliminated

by global programmes.







• 1880s

1st anthrax vaccine and rabies vaccine developed.

• 1960s

Rabies vaccine widely available in Western world, leading to effective control of disease.

Discovery of thiabendazole, the 1st benzimidazole anthelmintic • 1980s

Breakthrough in vaccine technology saw development of DIVA vaccines allowing for differentiation between infected and vaccinated animals, offering an alternative response to outbreaks without widespread culling. Successful in eradication of Aujeszky disease in pigs in Europe.

Development of modern foot and mouth disease vaccine.

Development of new mechanisms for antiparasitics for livestock and pets as well as products for reproduction management. 2000s

Revolutionary animal health technologies know collectively as Precision Livestock Farming using sound sensors and digital monitoring via smart ear tags and collars, amongst others, now allow for continuous monitoring of an animal's wellbeing and providing real—time data to farmers and veterinarians.

Development of avian flu vaccine in response to human and bird flu pandemic.

Development of west nile virus vaccine for horses.

• 2015
New technologies are

developed for microfluidic diagnostic devices offering point-of-care veterinary diagnostics.

**2019** 

Next generation diagnostic tools using Artificial Intelligence are greatly enhancing disease prediction and further support the value of preventive care.

Stem cell therapy now developed to treat lameness and degenerative joint disease in horses, offering advanced therapy for improved animal wellbeing.