# AGA2tech pioneers peracetic acid to combat antimicrobial resistance in livestock



AGA2tech has taken significant strides in combating the escalating issue of antimicrobial resistance (AMR) within livestock farming through pioneering non-antibiotic technologies. AMR presents a multifaceted challenge, impacting animal health, business viability, and sustainability in agriculture, with resistant bacteria threatening both animals and humans by spreading through food, water, and the environment.

The company is advancing the ‘One Health’ initiative by introducing an innovative oxidative solution based on peracetic acid (PAA), designed to target a broad spectrum of harmful bacteria and viruses in livestock without encouraging resistance development. This approach aims to support animal health, protect human wellbeing, and promote sustainable farming practices.

Research funded by Innovate UK and conducted at Scotland’s Rural College (SRUC) involved two key studies evaluating PAA’s potential as an antibiotic alternative in broiler chickens. The first trial administered precursor-derived PAA via water to 96 Ross birds between days 7 and 14. Results demonstrated a significant reduction in bacterial concentrations in the crop, correlating with improved growth performance. Specifically, dosages of 20, 30, and 40 parts per million (ppm) of PAA led to increased body weight and feed intake relative to control groups. The treatment also modulated gut microbiota, reducing populations of Lactobacillus and Flectobacillus in the upper digestive tract.

The second trial tested encapsulated PAA delivered through feed to 375 Ross 308 broilers over 28 days, housed on reused litter to simulate commercial conditions and assess its impact on antimicrobial resistance development. Birds receiving 30 mg/kg of PAA exhibited enhanced body weight gain alongside notable shifts in gut bacterial communities, including decreases in Firmicutes and increases in Proteobacteria in the jejunum, as well as rises in beneficial bacteria such as Bacillus and Flavonifractor in the caeca. Importantly, the presence of tetracycline resistance genes was significantly lower in birds housed on reused litter treated with PAA compared to those on clean litter, suggesting a reduced risk of AMR proliferation.

Building on the poultry trials’ promising outcomes, AGA2tech secured seed funding from the Centre for Innovation Excellence in Livestock (now UK Agri-Tech) to explore the technology’s application in managing post-weaning diarrhoea in piglets. A 14-day trial involving 48 weaned piglets compared control (0 ppm), zinc oxide (ZnO at 3,100 mg/kg), and two PAA dosages (50 ppm and 150 ppm). Piglets treated with PAA showed notable reductions in faecal diarrhoea severity and decreased stomach pH, with the 150 ppm dose performing particularly well. The findings indicate PAA as a viable, environmentally friendly alternative to ZnO, which poses environmental concerns despite its efficacy.

These experimental successes paved the way for commercial farm trials to verify real-world applicability. In a series of four nine-month trials conducted on two broiler farms managing flocks of 200,000 and 160,000 birds respectively, PAA was administered through the water supply in one experimental shed while control sheds followed standard protocols. Throughout the trials, despite outbreaks of Gumboro disease and Coccidiosis in control sheds requiring antibiotic interventions, the experimental sheds receiving PAA treatment demonstrated improved chick health without the need for antibiotics. Performance metrics including body weight, feed conversion ratio (FCR), and margin-over-feed cost (MOFC) matched or exceeded those of control groups.

Meanwhile, commercial pig trials are ongoing, with early farmer reports indicating effective reduction in post-weaning diarrhoea among treated piglets.

AGA2tech’s work exemplifies progress towards a more sustainable, responsible livestock farming future by enhancing animal health, reducing pathogen load, and decreasing antibiotic dependence. Continued research and collaboration with the industry are set to further validate and expand the use of PAA technology in animal agriculture.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.innovationnewsnetwork.com/aga2tech-ltd-transforming-livestock-care-for-healthier-farms/57510/> - This article corroborates AGA2tech's pioneering efforts in combating antimicrobial resistance using non-antibiotic technologies, specifically highlighting their oxidative solution based on peracetic acid. It also mentions the company's involvement in research at Scotland’s Rural College to evaluate PAA as an alternative to antibiotics.
2. <https://aga2tech.com> - This webpage supports AGA2tech's mission to combat antimicrobial resistance through innovative non-antibiotic solutions. It emphasizes the company's role in advancing animal welfare and sustainability while promoting environmentally friendly practices.
3. <https://aga2tech.com/case-studies/> - The case studies section of AGA2tech's website further details their success stories and research findings, particularly in managing antimicrobial resistance in poultry and other livestock.
4. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11016740/> - This scientific article underscores the global health risks posed by antimicrobial resistance, which is central to AGA2tech's mission to develop effective non-antibiotic solutions for livestock.
5. <https://agananotech.com/news/> - Although not directly related to AGA2tech, this news page mentions efforts to combat antimicrobial resistance, aligning with AGA2tech's goals and highlighting broader efforts in the industry.
6. <https://www.noahwire.com> - The original source for the information about AGA2tech's advancements in combating antimicrobial resistance and their application of peracetic acid technology in livestock management.
7. <https://news.google.com/rss/articles/CBMiqAFBVV95cUxQbldrdTNpTjdSU042bjQtM1cwZThxOTZGT1dyQzJpTzZFZ2QxOUpjbEZiMGM3bzlUMkRHVWt1a0JjT3BIVDdSUVROMlNnS1A2LTZnbHlHa3RFSHJ4QlkydU5wN2VZWUgxRU1lQS1USkpqWlhWcEN2U1ZnaUVkN2tmUUJEa0Z0MURQWk1aZkVWTzA0M19mbzdUNzVrQmpqQ2hnSVRJMXEyM3M?oc=5&hl=en-US&gl=US&ceid=US:en> - Please view link - unable to able to access data