Resistance is futile: ‘vets must engage with innovation or be left behind’

New technologies have the potential to revolutionise animal health and welfare, and it is time for vets to embrace them, reports Emma Dahm.

‘PRECISION farming is helping farmers achieve better sustainability, environmental protection, productivity and economic benefits. There’s no reason we can’t do the same for animal welfare at slaughter.’

That is the view of Rebeca Garcia, researcher and Defra adviser on animal welfare, who was speaking at the joint conference of the Association of Government Vets (AGV) and Veterinary Public Health Association (VPHA) earlier this month.

She used the term ‘precision slaughter’ to describe how data gathered in real time in abattoirs could benefit the welfare of both animals and slaughterhouse workers, she told the conference.

Smartphones, she suggested, could be developed to accommodate sensors to collect real-time data on CO₂, ammonia and temperature levels in slaughterhouses, for example. Keeping tabs on environmental conditions would allow early intervention if any became suboptimal – say, if the temperature rose, something that could negatively affect animals and staff.

Monitoring data to protect the welfare of the staff and the animals together could lead to overall improvements in welfare standards, she said.

‘Look at the holistic picture; technology is a tool we can develop and innovate with to achieve this.’

Garcia described another area where technology is being used to improve welfare at slaughter. A project at Bristol university has developed a new captive bolt technology, whereby a microchip is placed inside a captive bolt. This automatically measures the kinetic energy that the bolt delivers into the skull of an animal at stunning before slaughter.

The chip produces data that can be monitored in real time and any change in kinetic energy can be detected. If the velocity of the bolt is found to be reducing (meaning its ability to stun an animal effectively would be impaired), action can be taken to clean or maintain the equipment, to ensure optimal slaughter conditions.

‘Instantly we know whether the captive bolt is working well, delivering the right energy or not, so we can predict when it needs to be changed, so this is a great improvement for monitoring welfare,’ said Garcia.

Applying technology to disease control

Reflecting practices used in precision crop farming, the APHA is testing new technology that could be used to investigate disease outbreaks in animals and crops. Drones feature widely and are being trialled in the surveillance of topography and notifiable disease zones. This process is usually carried out on foot by staff and involves a significant amount of time and cost.

APHA’s Andy Paterson is working on a ‘people versus drones’ project and comparing the pros and cons of each. Also speaking at the conference, he said people were currently cheaper to use, more flexible and readily available. Video recorded by drones, however, could be checked remotely, scanned quickly, and multiple devices could be used simultaneously.

On the downside, he said drones had a restricted duration of operation, their noise could scare livestock, their regulation was unclear and they did ‘fall out of the sky at times’. If that happened when a drone was over a disease zone, it could not be retrieved if people were barred from entering the area – for example, during an anthrax outbreak on-farm. Paterson said the devices were also difficult to clean and disinfect – a clear disadvantage if used in infected areas.

Lack of internet coverage in rural areas – which is where many applications that rely on data usage would need to be used – is a significant barrier to the adoption of the technology, he said. Looking at where the 3G signals are and correlating that with areas where animals are kept shows they are almost mutually exclusive, although this is improving.

Disruptive innovation

‘Disruptive innovation’ was the central theme of the AGV/VPHA conference and many presentations at the meeting were given by people working outside the veterinary profession, in areas where innovation and technology is developing more rapidly.

The opportunities arising from disruptive innovation are huge and the conference showcased many innovative technology projects that could potentially be used to complement the role of vets and offer real-time results and more rapid diagnosis to improve welfare and outcomes.

Time to engage

The importance of vets engaging with new technology was emphasised by Chris Tufnell, RCVS senior vice president. The profession, he said, was vulnerable to disruptive

WHAT IS DISRUPTIVE INNOVATION?

Disruptive innovation describes a process by which a product or service takes root within a market, beginning initially with simple applications at the bottom of the market before moving upwards, eventually displacing established competitors.
WHAT ARE THE BARRIERS TO THE ADOPTION OF TECHNOLOGY?

- Concern that a technology might not be reliable or be complicated to use
- Disempowerment – perception that business owners may lose personal control of their business if they invest in digital management processes
- High level of risk aversion within the profession
- Mismatch in mobile internet access and where data are required (i.e., in fields)
- Reluctance to give away and share data
- Disillusionment and distrust if new technologies don’t satisfy the promises made about them
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