

'New vaccines are needed but given the severity of avian flu this year, the UK should be ready to use them. The EU too is looking at reversing its ban on vaccination after the worst year on record for the disease. Birds can be vaccinated via an injection into the egg or sprayed onto chicks, but currently its only allowed for birds in zoos.'

Why?

'The problem is that the vaccine that's licensed is very poorly matched to the current H5 viruses. There's great uncertainty. Work that we have done has shown that it is actually so mismatched that immunity to [from?] the vaccine would unlikely protect the birds against infection with this new bird flu H5N1.

There is a considerable body of work underway across Europe at the moment. There is a change in thinking in terms of having vaccination as a possible option.

That means there are a number of vaccine candidates being actively tested to see what their suitability might be for use in vaccination programs against these current viruses that have been afflicting many countries across Europe, including the UK in the last few years.'

'At the moment you are not allowed to vaccinate. We should be clear, vaccination can only be one arm of the control program. The base line of any control program has to be prevent the virus entering your farm or your birds. So good biosecurity is critical for that. But if that system is stretched, vaccination may offer another layer of assistance and that's why its being actively considered now, given the scale of this problem.

'Many countries have been vaccinating against this H5 virus for some years. I'm bound to say though they sometimes lack the rigour to be fully successful. It's probably only China that have applied a rigorous program with frequent updates to the vaccine. Its very important, if you vaccinate birds, that you don't assume that that's the job done. You actively have to look for virus, in vaccinated flocks, because it may go underground. It may not be seen. It may be silent infection. So you need to look very hard at vaccinated birds to prove the virus is not entering.

We know influenza can change, on a regular basis, and that enables it to escape the immunity that comes from the vaccine. A bit like we're seeing with the COVID variants.'

If birds are vaccinated, how do we monitor the spread of the disease and differentiate between vaccinated and infected?

'This has been one of the key reasons why vaccines that are being used today have not perhaps always achieved the desired outcomes. So that differentiation is important. These next-generation vaccines that are being examined right now, offer that possibility. There are other things you can do. This is a virus infection, so you can actively test and sample birds for the virus itself. So if they are vaccinated, you can regularly sample your birds and check that they

are not infected. So there are other ways round this problem, but it does require rigorous surveillance, which can be quite costly.'

Part transcript of Professor Ian Brown, Head of Virology for APHA, from BBC Farming Today, 3rd October 2022