



9. Tracking gene edited animals through the generations would require strict record keeping. A DNA sample will show whether or not an animal has a particular trait, but not whether that trait (or lack thereof) occurred naturally or through gene editing. The Precision Breeding Act prohibits the introduction of foreign DNA, which would be the only way a genetic marker could be left.
10. The working group concluded it would be ethically acceptable to use gene editing where there is an obvious benefit to an animal's health. Risks such as off-target effects would form part of the assessment as with any medical procedure. The case would have to be stronger for a germline change, as opposed to treatment of an individual animal.
11. The group was strongly against using gene editing to make changes to animal's appearance with no obvious health benefit (to select a "fashionable" colour, or "correct" a deviation from a breed standard.) As with selective breeding, the key is educating clients and the public.

Performance

12. The group felt a distinction should be drawn between enhancements (e.g. to increase speed) and correction (e.g. to reduce a genetic predisposition to fracture). Making such a distinction could be challenging if correction had the side-effect of improving performance. It would be ethically acceptable to use gene editing with the prime intention of reducing disease and injury, but not to use gene editing primarily to improve performance. Even when the main aim is to reduce disease and injury, gene editing (with its associated risks of harm) should not be the first port of call, nor should it be a substitute for good management and care of the animal.
13. Issues of fairness of competition between animals that have, and have not, been gene edited is outside the scope of this group's work.
14. There is a risk of illegal gene editing ('gene doping') that is not declared or recorded in an animal's microchip or record. This is different to other illegal procedures such as pharmaceutical doping as it is potentially much more difficult to detect and prove (the group noted that there is research into detecting 'gene doping' in racehorses) A system for extended monitoring will be needed, and systems will need revision to cope with registrations and approvals at commercial scale

Conclusions and Next Steps

15. The group agreed to meet next on 21st December, subject to outside experts being available, as agreed above. The group agreed to carry over the following points:

- How ASPA will be scaled up to meet commercial demand for approls 3.0imv6.5 323.21 Tm0 g0 G[st]