

Appendix A: Progress on FAnGR National Action Plan Recommended Actions as of 30 March 2011

Recommended Action

Summary of Progress

- The National Steering Committee should be constituted as a **UK standing committee**, to provide a permanent forum for advising Government and other stakeholders on issues relating to FAnGR, and to oversee implementation of, and further develop, the National Action Plan.

This recommendation was accepted by Defra and Devolved Administration Ministers and the UK National Standing Committee on Farm Animal Genetic Resources was established as a Non-Departmental Public Body in 2007. Members were appointed in late 2007 and early 2008, and the Committee met for the first time in March 2008 and quarterly thereafter.

Four sub-groups were established with particular responsibility for pursuing relevant Recommended Actions:

 - Identification and Monitoring (I&M);
 - Conservation & Sustainable Use (C&SU);
 - Research & Development (R&D);
 - Education & Communication (E&C).

The membership and remit of the committee can be seen at <http://www.defra.gov.uk/fangr/>

On 22 October 2010 following a review of Non-Departmental Public Bodies, the Government confirmed that the Committee would be reclassified as an Expert Committee.
- Defra and the Devolved Administrations should commission a series of **Breeding Structure Reports** for each UK livestock sector, and update these every six years.

The first of these reports covers poultry, as the need was deemed greatest here, because of lack of previous studies and potential new disease risks to poultry FAnGR. The Poultry Structure Report can be found on the FAnGR website at

<http://www.defra.gov.uk/fangr/documents/uk-poultry-faw.pdf>

There have been relatively recent studies on pigs and sheep:
<https://statistics.defra.gov.uk/esg/reports/pollott2003.pdf>. The pig report is available from the FAnGR Secretariat fangr@defra.gsi.gov.uk.

A report on cattle, which was completed as an extension to a PhD project, will be published shortly. We intend to commission surveys next on horses, sheep and goats.

3. The existing UK National Breed Database should be upgraded into a web-based **UK National Breed Inventory** using the European Farm Animal Biodiversity Information System (EFABIS), as appropriate, to ensure compatibility with and links to European and UN Food and Agriculture Organisation (FAO) Domestic Animal Diversity Information System (DAD-IS) databases. Clear links with the Livestock Register in Defra and equivalent databases (including the National Equine Database) in the Devolved Administrations should be established.

Please note that Recommended Actions 3/4/7/8/9/10 are interrelated and should be read together.

The EFABIS system has been installed and ADAS has been appointed to maintain it. Links have been established with European and FAO DAD-IS databases

FAO: <http://dad.fao.org/>

EU EFABIS: <http://efabis.tzv.fal.de/>

UK EFABIS: <http://efabis-uk.adas.co.uk/>

The Livestock Register has not proceeded as previously envisaged, but there is on-going work within Defra and Devolved Administrations on livestock registration. The need for links with other databases will be kept under review.

However, the problems of quality assurance of the data going into the breed database and updating the data have not been solved due to lack of funding.

4. The UK National Co-ordinator with guidance from the NSC (with additional expertise as necessary) should **populate and maintain the UK National Breed Inventory**, identifying which breeds should be classified as mainstream or at risk, native, exotic or feral etc. The use of the term breed within the inventory should be consistent with definitions of inter-governmental bodies such as the EU and FAO.

Further, the NSC should:

- provide guidance for UK Government on the appropriateness of any proposed EU definition of a breed, and the implications such a definition may have for UK policy, industry activity and FAnGR management; and
- keep under review the scope of the inventory and its use of terms to ensure it is relevant to the management of FAnGR.

The I&M have identified ways of providing more routine monitoring procedures for FAnGR stakeholders which would also provide more quality control and regular updating of data. The Committee put a business case to Defra on 21 January 2010 proposing automated data gathering through SME service providers. The outcome is awaited.

If funding can be found, the I&M sub-group is planning to work with a wide range of 'data owners' or umbrella organisations to encourage regular provision of electronic data. A workshop would be held with stakeholders to discuss data availability and formats, and steps to encourage regular electronic updates.

There are variations in names of breeds in use, in their attributed countries of origin and in their risk status. The I&M sub-group has worked with other stakeholders to identify synonyms, whether native or exotic, and agreed lists of breeds at risk, including correcting some omissions in the National Country Report.

The lists of Native Breeds to be included in the Breeds at Risk Register (BARR) have been agreed for all species. These are available on the FAnGR website

<http://www.defra.gov.uk/fangr/breeds-risk.htm>

The list of breeds eligible for support under EU agri-environment schemes has also been agreed. These use the higher thresholds set out in EU legislation.

Further updated breeds lists will be circulated for the following categories once they have been agreed: Exotic and other Non-native Breeds at Risk (resident in the UK), UK Native Breeds in Development, UK Native Mainstream Breeds, and Exotic and other

Non-native Mainstream Breeds (resident in the UK).

As part of the poultry structure report, updates on the populations of individual breeds of poultry have been assembled: See Recommended Action 2.

The Chairmen of I&M and C&SU sub-groups met with representatives of Scottish Government and bee keeping organisations on 11 May 2010 to consider issues relating to the genetic resources of farmed honey bees. The Committee will endeavour to help with bee issues as requested by Government.

5. There is a need for greater, but cost-effective, **scientific characterisation** of those breeds to be incorporated into the UK National Breed Inventory - e.g. through EU initiatives and partnership with conservation programmes, but ensuring sound comparisons of resources in the same environment - with priorities on:

- disease resistance;
- quality of meat and/or other products;
- behavioural or physiological differences leading to increased 'fitness' for specific environments or management regimes e.g. conservation grazing.

More research is needed on effective targeting of breed characterisation studies.

Defra has funded research as follows:

IF0180: Review of molecular characterisation studies relating to UK Farm Animal Genetic Resources. Start 03/2009 – End 09/2009.

[Warwick University]

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=16592&FromSearch=Y&Publisher=1&SearchText=IF0180&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

The final report was discussed at the NSC meeting in March 2010. Molecular characterisation studies (see recommended action 6) may provide guidance on design or prioritisation of future characterisation studies (e.g. on how molecular studies might help target these). The omission of equidae should be corrected via the commissioning of a small additional piece of work.

The final report can be found at:

http://randd.defra.gov.uk/Document.aspx?Document=IF0180_8608FRP.doc

IF0183: Review of nutrient efficiency in different breeds of farm livestock. Start 03/2009 – End 11/2009. [SAC]
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=16595&FromSearch=Y&Publisher=1&SearchText=IF0183&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

The draft report was discussed in September 2010. The Committee provided feedback to Defra.

See also related Defra and Scottish Government/QMS (co) funded research on:

AC0204: A study of the scope for the application of research in animal genomics and breeding to reduce nitrogen and methane emissions from livestock based food chains. Start 06/2007 – End 01/2008. [SAC]
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=14662&FromSearch=Y&Publisher=1&SearchText=AC0204&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

Development of a National Genotyping Service to Deliver Key Benefits for the Scottish Sheep Sector. [SAC]
<http://www.sac.ac.uk/news/newsarchives/08n71genetic>

Research projects previously identified as important have yet to be commissioned on:

- Definition of a nucleus (see Recommend Action 13).
- Cost-benefit of FAnGR to the UK rural economy.
- Cost effective in-situ and ex-situ national FAnGR conservation

strategy.

6. A short **review of molecular characterisation studies** on UK livestock should be commissioned, including their adequacy in relation to Molecular Domestic Animal Diversity (MoDAD) procedures and advising on priorities for any future studies. Studies should be commissioned to address the priorities identified. See Recommended Action 5
7. The NSC should oversee the development of a suitable **Standardised Template** to monitor breeds for incorporation into the National Breed Inventory and ensure that information is collected to help assess the risk posed to our national FAnGR. The EFABIS template for each species is now available. However, the I&M sub-group recommended revising this approach (see Recommended Action 4).
8. The NSC should ensure that the **GRFA Information Portal** being developed by Defra fulfils the needs of FAnGR stakeholders by: GRFA portal in place but needs further development. See Recommended Action 4.
- Advice provided to Government on cloned farm animals in September 2010 is available on the NSC website.
- linking the web-based UK National Breed Inventory (in Recommendation 3) to the web portal;
 - ensuring the uploading and updating procedures can facilitate monitoring of FAnGR;
 - obtaining accurate and objective information on

breeds, activities and issues in relation to FAnGR as described in the Standardised Template in Recommended Action 7.

9. The NSC should review and **update ‘monitoring data’** in the UK National Breed Inventory in a 3 yearly cycle with sequential reviews of: (i) sheep and goats; (ii) cattle, pigs, and horses; and (iii) poultry.

This action is on hold, pending population of the National Breed Inventory. See Recommended Action 4.
10. The **procedure for obtaining information** from breed societies and breeding companies and the content of the information should be reviewed by the NSC, in the light of the needs of the Standardised Template recommended above (Recommended Action 7) and the opportunities offered by the GRFA Information Portal.

See Recommended Action 4. There are some ongoing discussions on equidae and disease risk/outcomes.
11. **Breed societies should be encouraged to make all herd books electronic** to facilitate the uploading of monitoring information, as defined in the Standardised Template, to the National Breed Inventory via the GRFA Information Portal.

See Recommended Action 4. We have recommended that much more use is made of the available electronic data and proposed a mechanism for achieving this.
12. **Procedures for quantifying resources not included within herd books** should be formalised by the NSC.

Some data for poultry are included in the Poultry Structure report <http://www.defra.gov.uk/fangr/documents/uk-poultry-faw.pdf> and the Sheep report <http://www.defra.gov.uk/evidence/economics/foodfarm/reports/documents/pollott2003.pdf>
Data for cattle have also been included in the cattle report. See Recommended Action 2.

13. A project – to be steered by NSC - should be commissioned, to build on and define:
- Defra commissioned work on geographical concentration with The Sheep Trust and partners. The report highlights the geographical concentration of some sheep breeds
<http://www.york.ac.uk/org/cnap/tst/endemism/PublishedArticle.pdf>
- **robust qualifications for a breeding nucleus** essential to the survival of a breed, with or without cryopreserved genetic material as a backup, and particularly when the breed is geographically concentrated;
 - how best to quantify **degree of concentration** and thresholds for preservation action;
 - the **feasibility and practicality** of the necessary data collection, namely the population size and location of holdings; and
 - **breeds at risk** as a result of geographical concentration, using the preferred measures defined above.
- A revised specification for work to define a breeding nucleus for breeds that are subject to geographical concentration was agreed in March 2010. Funding is being sought. Pending further research The Sheep Trust recommendations have been applied in identifying breeds at risk due to geographic concentration. See Recommended Action 4.
14. Industry and Government stakeholders should work together: (i) to **improve the recording of livestock breed data** before finalising the requirements of the Livestock Register, and (ii) to speed the development of routine linking (through common formats for animals and holdings) of key databases containing information important for the sustainable management of the UK's FAnGR.
- See Recommended Action 4. The original plans for a Livestock Register (a single database holding all livestock information) have been dropped.
- The Livestock Partnership (owned by Animal Health and GB wide) is now looking at how to improve data on animal locations through the County Parish Holding Programme and also how to improve the efficiency and effectiveness of livestock movement reporting. There

will not be a central database which would hold e.g. livestock breed information, but data provided by cattle keepers is available through the Cattle Tracing System (CTS).

15. The prioritisation of **native breeds** for conservation should continue as at present, but **exotic breeds** in the UK which are extinct in their country of origin and severely endangered globally, or which make an important economic contribution to UK agriculture, may also need conservation action. More work is needed to identify exotic FAnGR that fall into these categories.

This Recommended Action is concerned with priority being accorded to native breeds – Recommended Action 17 deals with prioritisation among them.

The NSC agreed a revised working definition of a native breed in September 2009. In the light of that definition, it further agreed in September 2009 that Dexter cattle and Irish Moiled cattle qualified as both UK and Irish native breeds (and are eligible for any relevant UK funding under agri-environment schemes) but that Kerry cattle, Galway sheep, Connemara pony, Irish Draught horse and Kerry Bog pony were native to Ireland but not to the UK.

Native breeds with populations below certain thresholds continue to be prioritised for support under agri-environment schemes and identified as needing special consideration in the context of an outbreak of exotic disease.

Papers on exotic breeds were considered at the Committee meeting in September 2009 but the Committee decided that any contact with these breeds should be made in the context of an overarching approach to all breed societies in the context of updating data on numbers etc (see Recommended Action 4)

Data on exotic breeds are included in the Poultry Structure Report, an earlier sheep report, and the cattle report – see Recommended Action 2. Data on cattle are also available from the Cattle Tracing System.

NSC has agreed new working definitions of “native breed” and “exotic breed”. These will be used when the UK Country Report, which will include a list of breeds, is updated.

16. Defra and the Devolved Administrations should commission a **cost-benefit analysis of FAnGR** to the rural economy. The study should be steered by NSC, link to that in Recommended Action 19, and include the roles of FAnGR of all farmed species in agribusiness, leisure and tourism. The results should be used as a guide to prioritisation for conservation action.
17. The NSC should establish and keep under review the thresholds and **priority levels for conservation action** of breeds using scientifically robust criteria, further developing these as necessary. Thresholds for geographical concentration, local adaptation and breed distinctiveness, including a measure of genetic introgression, need to be more clearly defined.

A final specification for this work was agreed by the Committee in March 2010 and has been submitted to Defra for urgent funding.

BBSRC sponsored a workshop held in September 2009, and organised by Genesis Faraday Partnership, on biological questions related to biodiversity in livestock. The programme contained sessions on conservation. The presentations from the workshop can be found on The Biosciences KTN website <https://ktn.innovateuk.org/web/biosciencesktn/document-library> in a folder called Post-Genomic Farm Animal Biodiversity Workshop 2009. Please register (free) to view the presentations.

The thresholds for special treatment in the event of a disease outbreak or for agri-environment scheme funding were agreed by the Committee in September 2010.

Pending further research, the Committee agreed in September 2010 to use The Sheep Trust’s definition of geographical concentration (95% or more of the breed animal numbers are clustered within a 65km radius of the breed’s mean geographic centre). This definition was included in research which has been subject to peer review and

was published in Livestock Science in 2009 (The definition is slightly wider in scope than the definition used by RBST based on work at the University of Worcester.)

18. We recommend that the NSC should **advise on strategies for genetic conservation actions** as part of risk management in **mainstream breeds**, and **highlight corrective actions** that may be needed in mainstream breeds or strains where selection strategies appear to be producing unfavourable consequences for health, welfare or 'fitness' of animals.
- The C&SU sub-group has produced a draft set of recommendations on risk management in mainstream breeds which was considered by the Committee in December 2009. The Committee agreed to defer action because it wanted to avoid multiple approaches to mainstream breeds (see Recommended Action 15). Once agreed, these will be posted on the NSC website, and mainstream breed societies will be alerted via the NSC newsletter.

More progress will be made once research on definition of a breeding nucleus is complete, and the National Breed Inventory is populated.

We will also continue discussions with the Farm Animal Welfare Council on issues of mutual interest (see Recommended Action 35).

Defra published some biodiversity indicators for two species of farmed livestock (native cattle breeds and native sheep breeds) in May 2009. These may be useful at the individual breed level to monitor changes.

http://www.jncc.gov.uk/pdf/Biyp_2009.pdf

Genesis Faraday Partnership (now the Biosciences KTN) launched an Industry Club on inherited diseases in farm livestock in 2009. This will produce guidelines on dealing with single gene disorders. The RIDGENE project has been led by The Roslin Institute R(D)SVS, University of Edinburgh and includes the Animal Health Trust and SAC. The 18-month project is funded by EBLEX, QMS and the Biosciences KTN Animal sector subscriber members. The final event

for the Industry Club is open to these subscriber members and will be held 19 May 2011.

See <https://ktn.innovateuk.org/web/biosciencesktn/overview> for more details. The final guidelines will be widely available after this event.

A four-year €8m EU Framework 7 Project called Quantomics started in June 2009. The project, coordinated by Genesis Faraday Partnership, includes a work package on the use of dense DNA marker information in the management of diversity in mainstream populations under selection.

Input has been given to Scottish Government with regard to the conservation of the genetic resources in the Knocknagael herd of Shetland cattle.

19. A project – to be steered by the NSC - should be commissioned to develop a **co-ordinated in situ and ex situ National FAnGR Conservation Strategy** for breeds at risk, and mainstream breeds that qualify for priority action, taking into account the conservation work already being carried out by NGOs and breed societies. The project should include an evaluation of the costs and benefits of alternative approaches, and link with Recommended Action 16.

A project specification on costs and benefits was agreed in March 2010. The Committee urges that this work be funded as soon as possible

A short paper on *in vitro* cryopreservation options was provided for consideration by the NSC at the June 2009 meeting. The paper is available at <http://www.defra.gov.uk/fangr/pdf/briefing-090703.pdf>

The European Commission is funding a small collaborative project (€3m grant) called NextGen coordinated by CNRS (University Joseph Fourier), Grenoble. The project is now underway and involves the development of tools for the characterisation, conservation and management of biodiversity in farm animal species.

20. Defra and the Devolved Administrations should identify opportunities within existing and developing national and EU legislation, such as European Agricultural Fund for Rural Development (EAFRD), to **encourage the use of FAnGR** that are fit for purpose in delivering complementary policy objectives. “Stand alone” genetic resource measures to support owners of at-risk FAnGR who do not qualify for any other complementary scheme should also be considered (See Recommended Action 29).
- A short report on FAnGR schemes supported by the Rural Development Fund is available on the website (<http://defra.gov.uk/fangr/documents/nsc-survey.pdf>).
- A letter highlighting differences between RDP programmes and suggesting ways of further supporting FAnGR was sent on 10 August 2010 to key UK officials (including Defra officials developing the RDP for 2013 onwards) and to National Co-ordinators in European Countries <http://www.defra.gov.uk/fangr/documents/nsc-survey.pdf>
- The NSC is emphasising the need to develop and implement ‘Approved Breeding Programmes’, with support provided through RDPs, in order to address the ‘at risk’ status of FAnGR species and breeds which have little or no chance of being supported through habitat grazing payments.
- The conservation of FAnGR is a key component of ‘Agricultural Biodiversity’ within the international Convention on Biological Diversity (CBD) and the NSC is actively promoting the incorporation of FAnGR conservation and diversity into all core UK Biodiversity Action programmes and initiatives. This is reinforced by the CBD Strategic Plan for Biodiversity 2011-2020 agreed in October 2010. Strategic goal C: “To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity” includes:
Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
21. The NSC, with other partners and external A Communication Plan was agreed by the E&C sub-group and NSC.

communications expertise, should develop a
Communication Plan to:

An activity grid was developed to monitor progress.

A FAnGR leaflet has been produced as an awareness tool, this is now available on the FAnGR website:

<http://www.defra.gov.uk/fangr/documents/fangr-leaflet.pdf>

- create wide awareness of the information resources available on FAnGR; and

- develop future FAnGR information provision in a way that is most helpful to decision-makers.

Resources to obtain specialist communication expertise were included in the request for additional funding sent to Defra on 21 January 2010. Newsletters were sent to a wide range of stakeholders in July 2009, January 2010, July 2010 and January 2011.

FAnGR representatives met key policy staff from Welsh Assembly Government (June 2009); Scottish Government (November 2009) and the Northern Ireland Government (March 2010), along with industry stakeholders. A meeting with Defra staff is being arranged for 2011.

22. The NSC should identify and publicise ‘success stories’ where commercial activities (e.g. speciality food marketing) or environmental management programmes have been developed around the use of non-mainstream FAnGR
- Success stories have been published at http://webpages.lincoln.ac.uk/sthall/fangpres_files/frame.htm Products from Gloucestershire Old Spots pigs were awarded EU Traditional Speciality Guaranteed (TSG) status on 29 July 2010.
23. The NSC should seek resources to develop and repackage material on the GRFA Information Portal to facilitate its **use in schools, colleges and universities**, as part of taught courses, or via distance learning. The material should be updated regularly. The availability of this material should then be publicised widely.
- This action is closely aligned to Recommended Action 23 above. Several discussion papers have been produced looking at aims, objectives and options. The Grazing Advice Partnership <http://www.grazinganimalsproject.org.uk/> and LANTRA are possible ‘models’ for FAnGR training courses. The Committee concluded that the main training need was to ensure that breed societies were aware of the requirements of EU Zootechnical legislation and had access to advice on breeding programmes. The Committee did not think that there was a compelling need for the development of new training courses which would require significant additional funding. The Committee preferred to build on courses that were currently available.
24. The NSC should work with industry stakeholders to identify a programme of relevant **training courses relating to FAnGR**, to identify possible funding opportunities to develop such courses, and to identify appropriate groups to deliver them.
- See above.
- Genesis Faraday Partnership provides a half-day course on Genomics for Beginners and SAC and the University of Edinburgh offer an MSc course module on “Principles of Genetic Improvement” as a distance learning CD, the development of which was funded by BBSRC and Genesis Faraday Partnership. See www.pgi-portal.com for more details.
- The EU Globaldiv project (<http://www.globaldiv.eu/Index.htm>) provides a range of relevant information and links.

25. The NSC should help to **identify research and development needs** and priorities to support the protection and sustainable use of FAnGR, help to identify relevant funding routes, and to disseminate R&D results.
- Several of the R&D needs identified in the National Action Plan have been met by commissioned work mentioned above. Current R&D priorities not yet funded are listed above (see Recommended Action 5).
- An updated list of R&D priorities has been developed and is on the website; it will be revised as necessary.
- The website is being used to disseminate relevant R&D results.
- Preliminary work has been carried out to progress the development of a schools area on the website. Initially focussing on Scotland where the new curriculum for excellence has a specific area covering biodiversity and inheritance. Also the associated activities through GLOW SCOTLAND.
- (See attached file for curriculum for excellence)
<http://www.ltscotland.org.uk/glowscotland/index.asp>
26. The **National Action Plan should act as the linking framework** on which to identify and collate resource sharing from a wide range of stakeholders, some of whom may have conflicting priorities.
- Work is in progress to establish the NSC Website as a first port of call for all interested in FAnGR, and to create links to other bodies with an interest in FAnGR such as RBST, Sheep Trust, Cobthorn Trust, species umbrella bodies, the Farm Animal Breeding and Reproduction European Technology Platform, Biosciences KTN, FAWC, levy bodies and others.
27. The NSC should engage policy makers implementing **post CAP Reform livestock strategy**, at central and regional level, on the importance of **mainstreaming FAnGR policy into all sustainable food and farming strategies**. Sustainable use of FAnGR is the starting
- A series of informal meetings was held to update policymakers in Defra and Devolved Administrations on progress with Recommended Actions, and other NSC issues and to exchange information – see Recommended Action 21. The next round of CAP reform, for 2014-2020, will be critically important for the mainstreaming of FAnGR into

point for all sustainable livestock production chains. The NSC should monitor the impact of CAP reform on FAnGR and alert the relevant policy makers to any corrective action needed.

all Biodiversity Action Plans and their practical implementation.

See recommended action 20 for EAFRD/RDP support.

28. The NSC should continue to **monitor the impact of the National Scrapie Plan (NSP) and the Northern Ireland Scrapie Plan (NISIP) on genetic diversity in sheep breeds**. The findings of research on the impact of the NSP should be fed into policy development of the NSP and future breeding scheme design.

Defra-funded research has shown that breeding for scrapie resistance is unlikely to have had adverse effects on the 'genetic health' of mainstream or rare breeds of sheep. <http://collections.europarchive.org/tna/20080915101357/http://defra.gov.uk/animalh/bse/othertses/scrapie/nsp/pdf/nspupdate10.pdf>

As a result of advice in 2006 from the Spongiform Encephalopathy Advisory Committee (SEAC) that the prevalence of BSE in the UK sheep population was likely to be either zero or very low if present at all, the NSP Ram Genotyping Scheme ended in March 2009. The National Sheep Association and the RBST took ownership of the National Scrapie Plan Semen Archive in December 2008.

29. The UK National Co-ordinator for FAnGR should: See RAs 17 and 20.
- **Monitor closely the progress of the new EAFRD proposals**, intervening where necessary in the negotiations and liaising with policymakers on the inclusion of 'stand alone' genetic resource measures (other than headage payments) into national rural development plans in support of flexible actions to conserve and utilise FAnGR. Amendments to European Agricultural Fund for Rural Development (EAFRD) etc were discussed at the September 2009 NSC Meeting. – The NSC make recommendations to relevant officials on 10 August 2010 (see Recommended Action 20
 - Liaise with policy makers to ensure that **payments supporting endangered native breeds** provided for under agri-environmental measures in the new EAFRD regulation are incorporated into new rural development plans. Input has been made to the Brian Pack Inquiry in Scotland (<http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/inquiry/tor>) regarding support of endangered native breeds
See Recommended Action 20 for EAFRD/RDP support.
30. The UK National Co-ordinator for FAnGR should **monitor legal action taken under Countryside Rights of Way (CROW)** in England and Wales and any negative impact on the willingness of livestock keepers to conserve FAnGR on their land. A Committee member is monitoring developments under access to the countryside legislation. Supporting grazing with native breeds at risk through agri-environment measures is a particularly useful mechanism to offset both actual and perceived disadvantages relating to public access. Removal or substantial amelioration of the 'strict liability' for livestock in the Animals Act 1971 would be especially helpful in this regard.
31. The UK National Co-ordinator for FAnGR should commission publicly co-funded R&D to model/characterise breeds for their lifecycle nutrient efficiency and to investigate **the incorporation of lifecycle nutrient efficiency traits into breeding programmes** in all livestock species. Defra commissioned three pieces of work relevant to this RA:
- a review of breed and within-breed genetic differences in nutrient utilisation (see details of this research IF0183 under RA5).
 - a project examining the scope for incorporating environmental objectives in ruminant livestock breeding goals.
IF0182: Would livestock breeding goals change if carbon and

nitrogen efficiency, rather than economic efficiency, were the priority objectives? Start 03/2009 – End 11/2009 [SAC]
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=16594&FromSearch=Y&Publisher=1&SearchText=IF0182&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

- a project examining the potential role of genomic selection in beef and sheep breeding, and the need for a ruminant Genetic Improvement Network to help achieve environmentally sustainable breeding of ruminants.

IF0149: Determining strategies for delivering environmentally sustainable production in the UK ruminant industry through genetic improvement. Start 03/2009 – End 02/2010.
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=15846&FromSearch=Y&Publisher=1&SearchText=IF0149&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

See also Recommended Action 5.

32. In respect of the **Foot and Mouth Disease (FMD) Directive**, the NSC should advise Government on a scientifically and legally **robust definition of a nucleus unit** essential to the survival of the breed, with or without cryopreserved genetic material as a backup, particularly where that breed is not numerically rare but is geographically concentrated. See Recommended Action 13.

33. When the new EU **Avian Influenza Directive** is implemented in the UK, the special provisions to protect rare poultry breeds should be transposed into UK The I&M Sub Group has drafted a Memorandum of Understanding to guide animal health professionals on protecting FAnGR in the event of a notifiable disease outbreak.

legislation. This will require an improved data set on UK poultry breeding holdings. The NSC, in consultation with relevant species associations, should have a key role in advising policymakers on applying these special measures and be involved in the subsequent implementation process.

Initial advice was provided to Defra's exotic disease team on 25 January 2010. I&M and C&SU sub-groups met the Defra team and Animal Health staff on 29 March 2010. Defra has confirmed its intention to apply special measures to protect FAnGR (subject to adequate biosecurity) to all species and all exotic diseases. Defra has also removed numerical thresholds from the Breeds at Risk Register so that individual animals of high genetic merit can be protected. Further advice was provided on 17 December 2010.

The Poultry Structure Report has identified native poultry breeds at risk (see Recommended Action 2).

34. The UK National Co-ordinator should monitor and contribute to the development of **livestock disease control policies that may impact on FAnGR** and be involved in any changes to parent legislation where appropriate.

See Recommended Action 33

Preliminary discussions have been held with key stakeholders to consider issues associated with vector-borne diseases in equines. Presentation made to the Horse Trust Working Group, January 2010.

35. In response to the **2004 Farm Animal Welfare Council (FAWC) Report on the Welfare Implications of Animal Breeding and Breeding Technologies in Commercial Agriculture**, Defra should trigger regular, formal exchanges of views between the NSC and FAWC on livestock breeding technologies and programmes and their impact on animal welfare.

The FAWC and NSC chairs and members of the Secretariats of the two committees held a conference call in September 2008. It was agreed that the two committees should:

- Provide input to consultations of mutual interest run by either of the committees.
- Have further conference calls as needed.
- Alert each other with items of mutual interest.

A FAWC member, Dr Joanne Conington, gave a presentation on FAWC priorities relevant to NSC at the March 2009 meeting.

The Committee responded on 9 September to the FAWC

consultation on welfare and disease, highlighting the contribution that could be made by genetics. A copy is available on the website. The Committee response was discussed with Dr Conington at the 15 September 2010 NSC FAnGR meeting.

The Committee produced a briefing paper on cloning in September 2010 <http://www.defra.gov.uk/fangr/documents/100914-cloning-statement.pdf>

36. The NSC, through the UK National Co-ordinator for FAnGR, should carefully **monitor developments in zootechnical legislation**, encourage deeper integration between zootechnics and FAnGR policy owners and develop better communication with other stakeholders such as breed societies.
- The NSC considered a paper on zootechnical legislation affecting cattle, sheep, goats and pigs at its meeting in June 2009 and a paper on equines in September 2009.
- A review of the various breed lists under the various EU zootechnic provisions is underway to ensure they are up to date.
37. NGOs and research providers should be encouraged to participate in **trans-national FAnGR projects** under the new **European Genetic Resources Regulation 870/2004**. Defra and the Devolved Administrations should, wherever possible, make match funding available for suitable projects.
- UK has been involved in the GENRES-funded Heritage Sheep and EFABIS projects.
- http://heritagesheep.eu/EAAP%20Vilnius%20brochure_0808%20ver%203.pdf
- Members of NSC contributed to a Rare Breeds International / RBST supported workshop in February 2010. The workshop discussed definitions of 'breeds at risk', 'native' and other terms relevant to EU Zootechnical regulations. It also considered FAO and other thresholds and how risk status should be defined.
38. The UK National Co-ordinator for FAnGR, should continue to play an **active part at global and European regional level**, through existing FAO
- There has been ongoing activity for the Secretariat.

structures such as the European Regional Focal Point for FAnGR (ERFP), in the development of a sustainable policy on farm animal genetic diversity.