



Sustaining the UK's native and rare breeds

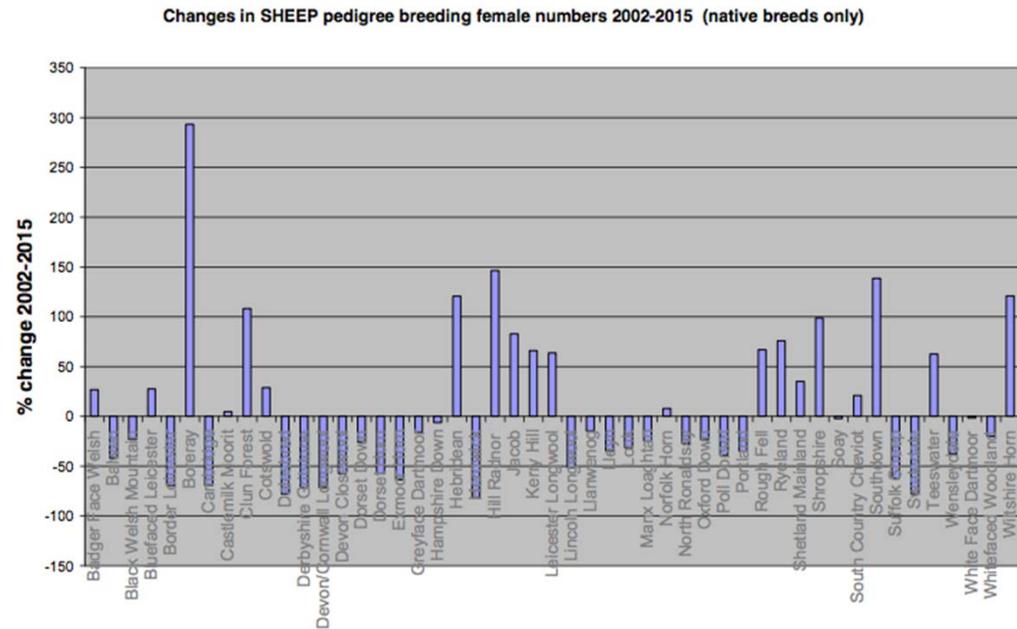
UK Native Breed extinction

- Between 1900 and 1973, the United Kingdom lost 26 of its native breeds including:
 - Cattle: Alderney, Suffolk Dun, Sheeted Somerset, Castlemartin, Caithness, Irish Dun
 - Sheep: Limestone, St Rona's Hill, Roscommon, Rhiw
 - Pigs: Ulster White, Small White, Yorkshire Blue & White, Dorset Gold Tip, Lincolnshire Curly Coat, Cumberland.
 - Horses: Manx, Cushendale, Tiree, Long Mynd, Galloway, Goonyhill
 - Chickens: Lincolnshire Buff
- Since the formation of the Rare Breeds Survival Trust in 1973 no other native livestock breed has become extinct in the UK
- **But....**



Numbers and genetic diversity in many breeds are falling

- In 2013 RBST classified 57 breeds as rare - by 2015, that number had grown to 62.
- Defra's most recent inventory emphasised this trend
- Pig and equine native breed pedigree registrations have halved since they reached their peak a few years ago.
- Numbers of utility native breeds of poultry are critically low
- Registered numbers of native cattle are stable, but it is critically important that genetic diversity is maintained.
- Populations of native sheep are stable but the number of breeds categorised as rare is growing
- Numbers of our only two native breeds of goat remain critically low
- Genetic diversity within all our breeds is in decline



UK Farm Animal Genetic Resources (FAnGR) Breed Inventory
Changes in numbers of pedigree farm animals 2002- 2015

RBST Strategy

- A huge inventory
- Global and national pressures
- Finite and small resources
- Focus is needed

 **RBST** has three tasks:

Monitor

-  **We monitor the numbers of rare and native breeds.** Each year RBST collects data from breed societies and uses the number of animals registered in a year to calculate the effective population, to produce the annual Watchlist.
-  **We monitor threats to breeds.** Other factors, such as inbreeding and geographical concentration, can threaten our breeds. We monitor and act to try to reduce these threats.

Save

-  **We save genetics in our National Gene Bank.** We collect and store genetic materials from animals, in the form of semen from males and, where practical, embryos from females. This is our insurance policy. If a breed were to become extinct, we can use this store to reinstate a breed.
-  **We save animals.** In emergencies RBST will buy genetically important stock and place it in approved breeding centres.

Promote

-  **We promote the breeding and registration of rare and native breeds.** Together our staff, members and support groups provide a network of knowledge to support and encourage breeders.
-  **We promote the use of rare and native breeds** for food, fibre, conservation grazing and to represent our cultural heritage.

Responding to challenges



We've set ourselves goals in three areas:

- 1. Financial Security**
- 2. Monitoring and Saving Rare and Native Breeds**
- 3. Promoting Rare and Native Breeds**

- Developing the organisation
- Increasing outreach
- Using the science

	2016-2020 Targets	2020-2050 Direction
1. Financial Security: Balancing the Books		
£: Operational (core) funding	Take RBST's core business to a positive cash position by the end of 2017	From then on deliver an ongoing cash positive operation
£: Fund Reserves	Maintain and grow our £2m emergency endowment fund as an insurance against an unforeseen disaster involving our farm livestock biodiversity	Grow this fund in line with inflation
£: Project funding	Secure sufficient project funding to enable us to complete the building of our national farm livestock Gene Bank and for all other projects monitoring, saving and promoting rare and native breeds	
2. Livestock Genetics: monitoring and saving		
Breeds classed as rare In-Situ	Today 62 of the 115 of the UK native livestock breeds are classified as rare and the trend is upward. In the short to medium term continue to highlight trends & issues	In the medium to long term: reverse this trend by increasing the demand for native breeds to ensure genetic diversity maintained
National Gene Bank Ex-Situ	Short term: evaluate the completeness of our existing National Gene Bank	Short to medium term: build partnerships across the sector in order to deliver a completed National Gene Bank over the long term
3. Valuing Native Breeds: promoting		
Use them or lose them! Education Food Fibre Conservation grazing Cultural heritage	Demonstrate ongoing progress year on year, not least: <ul style="list-style-type: none"> • Media cover • Public engagement at events • Improved results at RBST shows and sales • Caterers and retailers selling rare and native breeds • Stakeholder engagement: Government, Society and Industry • Increased membership • Well managed Support Group network to cover all parts of the UK 	

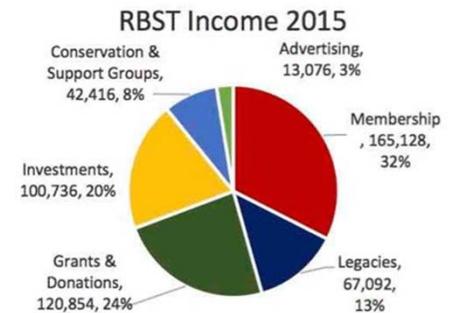
Developing the organisation

- Long term financial stability
- Developing staff and trustee expertise
- Wider engagements with breed societies and Government

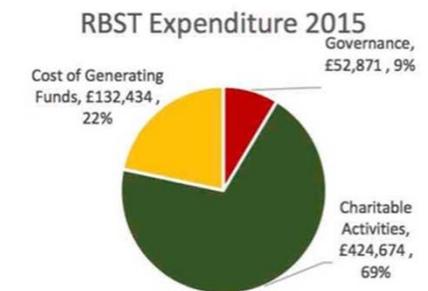
Resulting in an operating loss of £105,100, included:

- £4,423 exceptional Gift Aid interest repayment
- £7,430 on cattle semen splitting and North Ronaldsay sheep projects
- £12,586 planned Gene Bank project spend down from restricted funds.

The underlying trading loss was £80,661 compared to £158,434 in 2014.



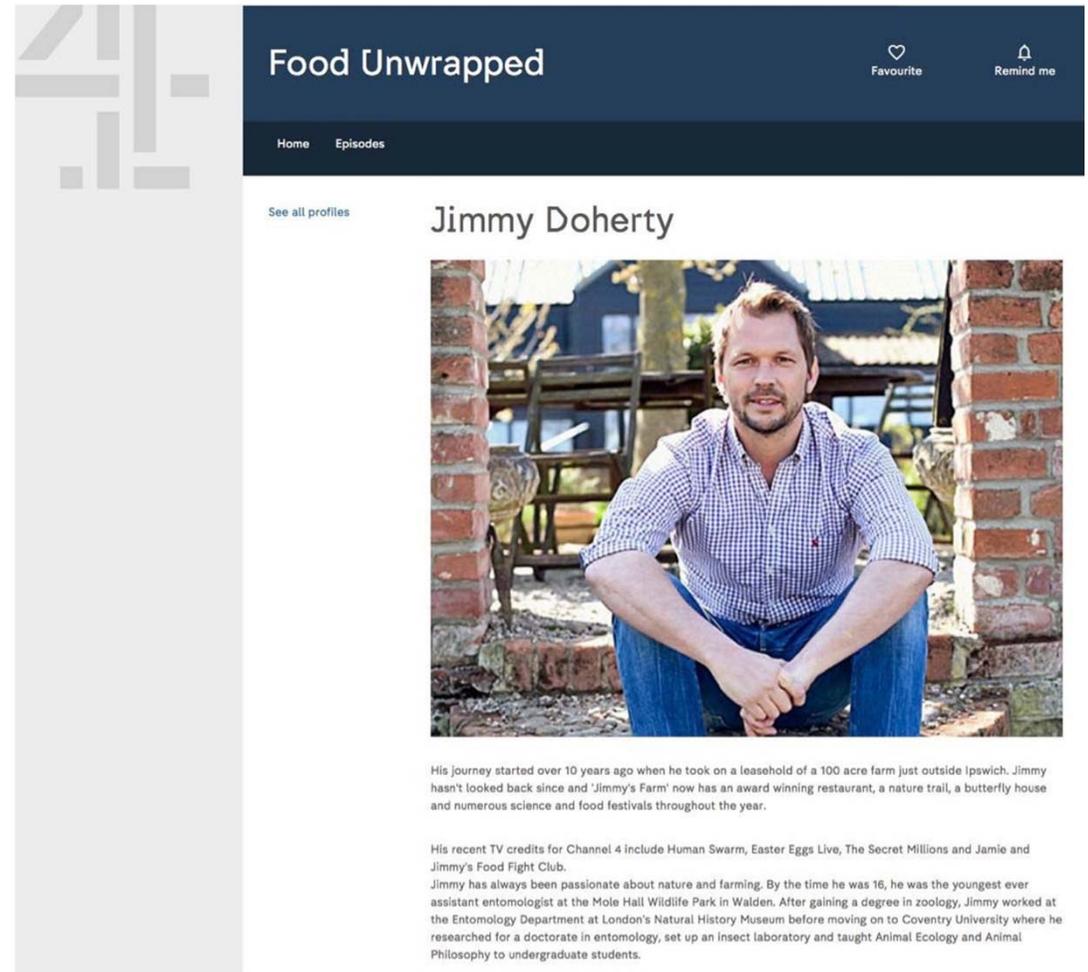
Income	2015	2014
Membership	165,128	148,332
Legacies	67,092	19,870
Grants & Donations	120,854	114,763
Investments	100,736	107,178



Expenditure	2015	2016
Charitable Activities	132,434	150,859
Cost of Generating Funds	424,674	412,142
Governance	52,871	45,633
Exceptional Item (Gift Aid)	4,423	57,295

Developing the organisation

- Trustee experience
- Patron
- President
- Vice Presidents



The screenshot shows a website profile for Jimmy Doherty on the 'Food Unwrapped' platform. The header includes the site name 'Food Unwrapped' and navigation links for 'Home' and 'Episodes'. There are also icons for 'Favourite' and 'Remind me'. Below the header, there is a 'See all profiles' link and the name 'Jimmy Doherty'. A large photograph shows Jimmy Doherty, a man with a beard wearing a checkered shirt and jeans, crouching in front of a brick wall. Below the photo, there are two paragraphs of text describing his background and career.

Food Unwrapped

Home Episodes

See all profiles

Jimmy Doherty



His journey started over 10 years ago when he took on a leasehold of a 100 acre farm just outside Ipswich. Jimmy hasn't looked back since and 'Jimmy's Farm' now has an award winning restaurant, a nature trail, a butterfly house and numerous science and food festivals throughout the year.

His recent TV credits for Channel 4 include Human Swarm, Easter Eggs Live, The Secret Millions and Jamie and Jimmy's Food Fight Club.

Jimmy has always been passionate about nature and farming. By the time he was 16, he was the youngest ever assistant entomologist at the Mole Hall Wildlife Park in Walden. After gaining a degree in zoology, Jimmy worked at the Entomology Department at London's Natural History Museum before moving on to Coventry University where he researched for a doctorate in entomology, set up an insect laboratory and taught Animal Ecology and Animal Philosophy to undergraduate students.

Increasing outreach

- Moving from a core base of Rare Breed enthusiasts
- Engaging with a wider group of supporters
- Using print, broadcast and social media
- Messages including use, conservation, landscape, heritage, economics, biodiversity
- Parliamentary and Government support

MEET THE FARMER ON A MISSION TO REVIVE THE GLOUCESTER BREED

VP | 07 MAY 2016 | BY ALICIA CRIDER | SHARE

There might be only 700 Gloucester cattle in the country but they are definitely not a rare breed, says Clifford Freeman. Alistair Driver finds out how his drive to revive one of Britain's oldest beef breeds is based on taste, traceability and, he hopes, commercial sense.



SHARE THIS

🐦 One farmer and his mission to revive one of Britain's oldest breeds! #farming #history

Gloucester cattle were all the rage in the 18th century. Hailed as strikingly beautiful, the multi-purpose breed, renowned for its milk and beef and 'for providing strong, draught cam', was popular across the country.

But things started to go downhill as Gloucesters struggled to compete with the bigger breeds of the agricultural revolution.

By the early 20th century, numbers had seriously dwindled and, although dedicated breeders tried to keep going, the last herd of Gloucesters, at Wick Court Farm, Arlingham, was sold in 1972.

Smallholder Special

The best in breed?

What are the best breeds for life on a smallholding? Guy Whitmore finds out

SO YOU'VE PURCHASED the best that will bring you something, but he's needed a business plan and decided how best to use the land.

If this includes livestock through, what are the most suitable breeds for the smallholder?

Here, Countryfile's very own Andy Cartwright joins Matt Fisher, Gail of one of the Rare Breeds Survival Trust (RBST) and Liz Shillington, who runs another corner at Kase Heath's rural skills school, in giving advice on which breeds are ideal for smallholdings. Liz is also the author of three books on smallholding and livestock, and becomes an agriculturalist, not just a

SHEEP

Rabon Welsh Mountain - Tough, small and easy to manage for the beginner. This breed has a reputation for being resistant, with good feet, and is easy to manage, having few health problems and can be associated with some larger breeds. It rarely needs help during lambing and the ewes make excellent mothers, providing plenty of milk for lambs. What its most lacks in size, it makes up for in taste, and its wool is graded as well as medium.

YOUR VIEW

What are your favourite breeds, and why? Email us at smallholders@bbc.com or write to us at: 90 PM, Stoneleigh Park, Warwick, CV8 2PE

'No other sheep' - A few breeds, such as the Whiteface Mountain, don't have naturally so they don't need crutching. Unlike the other breeds, the Whiteface Mountain and the Exmoor have been recorded which are shed, but are harmless.

Smallholder Special 3

Breed it, OR WEEP...



Exmoor Pony Genome Talk

Friday 12th August, 12noon
Exmoor House, Dulverton, TA22 9HL



Speaker: Dr Sarah Blott, University of Nottingham, School of Veterinary Medicine and Science.

Title: How genetic science can help conserve and sustain the Exmoor Pony.

Summary: This talk, by one of the country's leading experts, will give an introduction to DNA, genes and genomics, then describe a project which is being developed to fully characterise the genetic profile of Exmoor's iconic native ponies.

Tea and coffee will be provided.
Booking is essential - please contact Ellie Woodcock on ewoodcock@exmoor-nationalpark.gov.uk or 01398 32231 to book a place.
Hosted by: Exmoor National Park in partnership with: The Rare Breeds Survival Trust, Exmoor Pony Society, Exmoor Moorland Pony Breeders Group, Rare Breeds Survival Trust.

Using the science

- Semen collection 1940's technology
- Collect ova, embryos, genetic materials
- Continual addition and removal needed
- Link to information resources
- Use in context of breed conservation and improvement



Livestock Genetics: monitoring and saving in the Gene Bank and in the field

We'll engage across all stakeholders: Industry, Government and Civic Society
Securing the future of our rare and native breeds of farm livestock.

Our policy for saving native breed livestock genetics, breed by breed!

Gene Bank**	25 unrelated 'animals'*		DNA	In the field
	Semen	Embryos		
Cattle	1 animal = 90 doses	1 animal = 8 embryos	Review what and when we should collect more Priority ovaries, easiest hair/blood?	Breeding Programmes ongoing +AI +IVF: under review +Cloning: under review
Sheep & Goats	1 animal = 55 doses	1 animal = 8 embryos		
Equine	1 animal = 100 doses	Twemlows Stud & Liverpool University 2-10 years until freezing practical (single embryo per collection)		
Pigs	1 animal = 50 doses	Is any work being undertaken in this area?		
Poultry	Cryogenic storage and collection options under review			In-situ under discussion Review registered flocks & individual unique ID

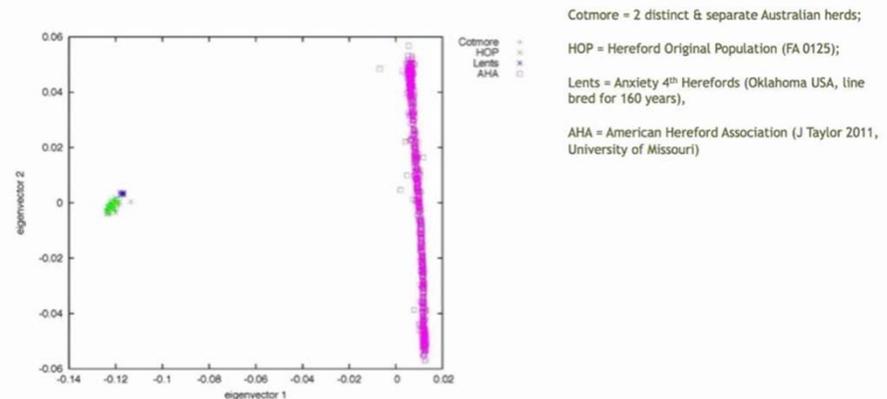
* Ideal ratio of semen:embryos under review. Suggested embryos >30% of cattle Gene Bank and > 20% of sheep and goat Gene Bank.

** National Gene Bank policy will be regularly reviewed in line with present knowledge and best practice.

Using the science

- Genomic technologies catching up with genomic science
- The sub £750/€1000 (whole) genome
- We can now use genotype as much as phenotype
- Raises questions and challenges

Cattle Genomics Project to date: Traditional Hereford Breeders Club
Principal component analysis of Traditional Hereford populations and American Hereford cattle



Three Challenges: In-situ conservation

- Genetic diversity versus numbers of animals
- Ensuring fit for purpose
- Accommodating breed improvement
- Wider criteria for inventories
- Using genomics as well as phenotype
- Rare <> Native
- Poultry identification and recording
- Economic sustainability
 - Meat
 - Fibre
 - Pasture and land management
 - Tourism

Dairy Shorthorn (Original Population)

Characteristics

are long lived, fertile and maternal. Cows produce calves at up to 14-17 years old. are docile and easy to manage.

History

The Shorthorn breed of cattle evolved in the 18th Century, from Teeswater and Durham cattle found originally in the North East of England.

In 1822 the first Herd Book containing 710 bulls and 850 cows was published, and Coates's Herd Book became the first pedigree herd book for cattle in the world.

After the formation of the Shorthorn Society of Great Britain and Ireland, in 1874, they have published their Herd Book ever since.

The breed was used in the early part of the 20th Century, primarily as a dual purpose breed.

During this time all bulls used were licensed by MAFF and in 1937/38 the Dairy Shorthorn bulls numbered 23,730 against a total of 12,917 bulls of all other cattle breeds.

The specialisation for beef or milk led to the Beef Shorthorn having their own section of the herd book in 1958.

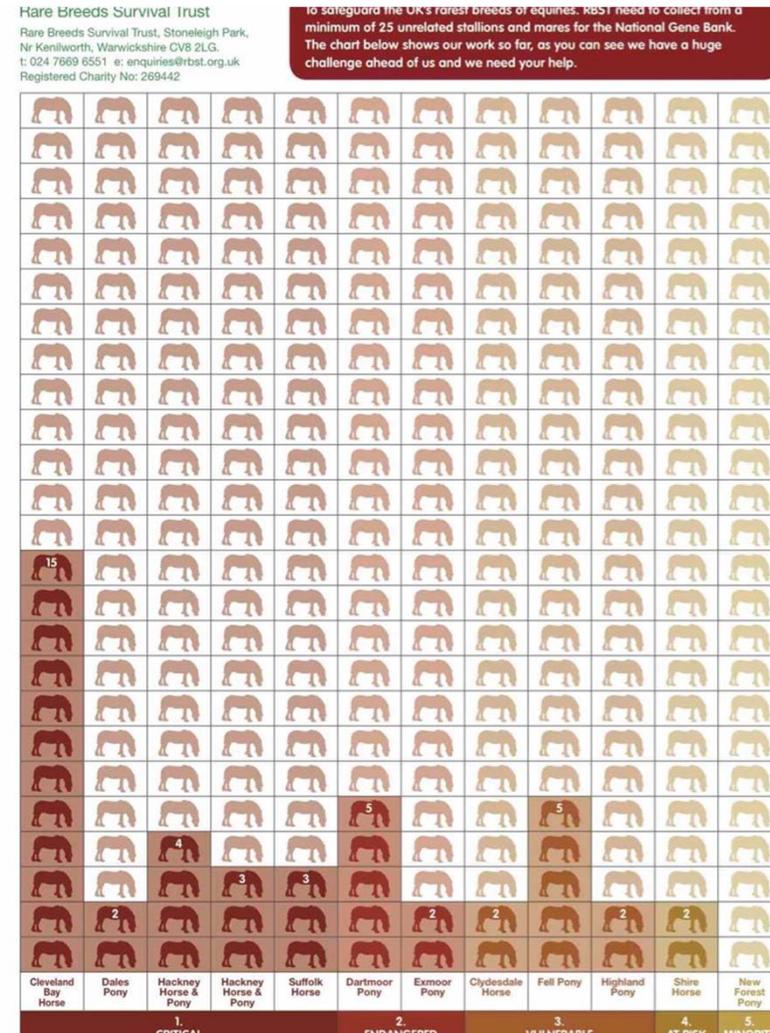
A scheme to introduce outside breeds was introduced in 1970 within the Dairy Shorthorn. It is the aim to maintain animals without any of this cross breeding which are seen as the Original Population by the RBST.



Three Challenges

Ex-situ conservation

- Filling a huge gap
 - 115 sheep, goat,cattle,pig and equine native breeds
 - 75 chicken,turkey, duck and geese breeds
- £millions needed
- New genetic sample types
- From 1940's to 2050 storage technologies
- On farm collection to reduce costs
- Poultry collections
- Linking genetic resources to users with pedigree and performance data





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