

Centre for Genetic Resources, the Netherlands

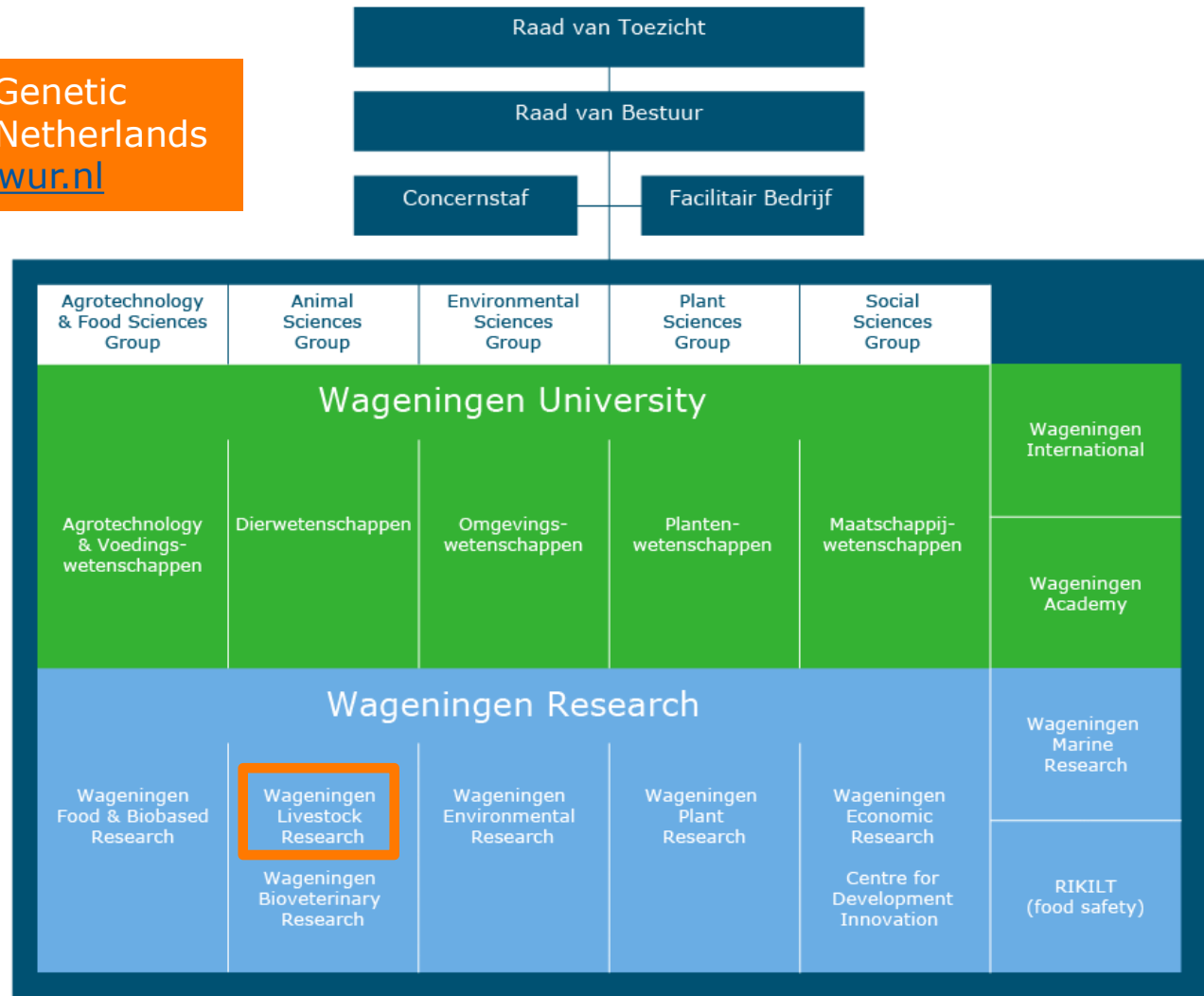
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Part of Wageningen University & Research

Centre for Genetic
Resources, the Netherlands
www.cgn.wur.nl



Centre for Genetic Resources, the Netherlands (CGN)

- Conduct statutory research tasks for the Dutch government → 1992 Convention on Biological Diversity
- Plant Genetic Resources
- Animal Genetic Resources (AnGR)
- Forest Genetic Resources
- Conserve and use vegetable crops, farm animal breeds and autochthonous forest species



Why do we want to conserve AnGR?

Insurance for the future!

Conserve flexibility of the genetic system: food security

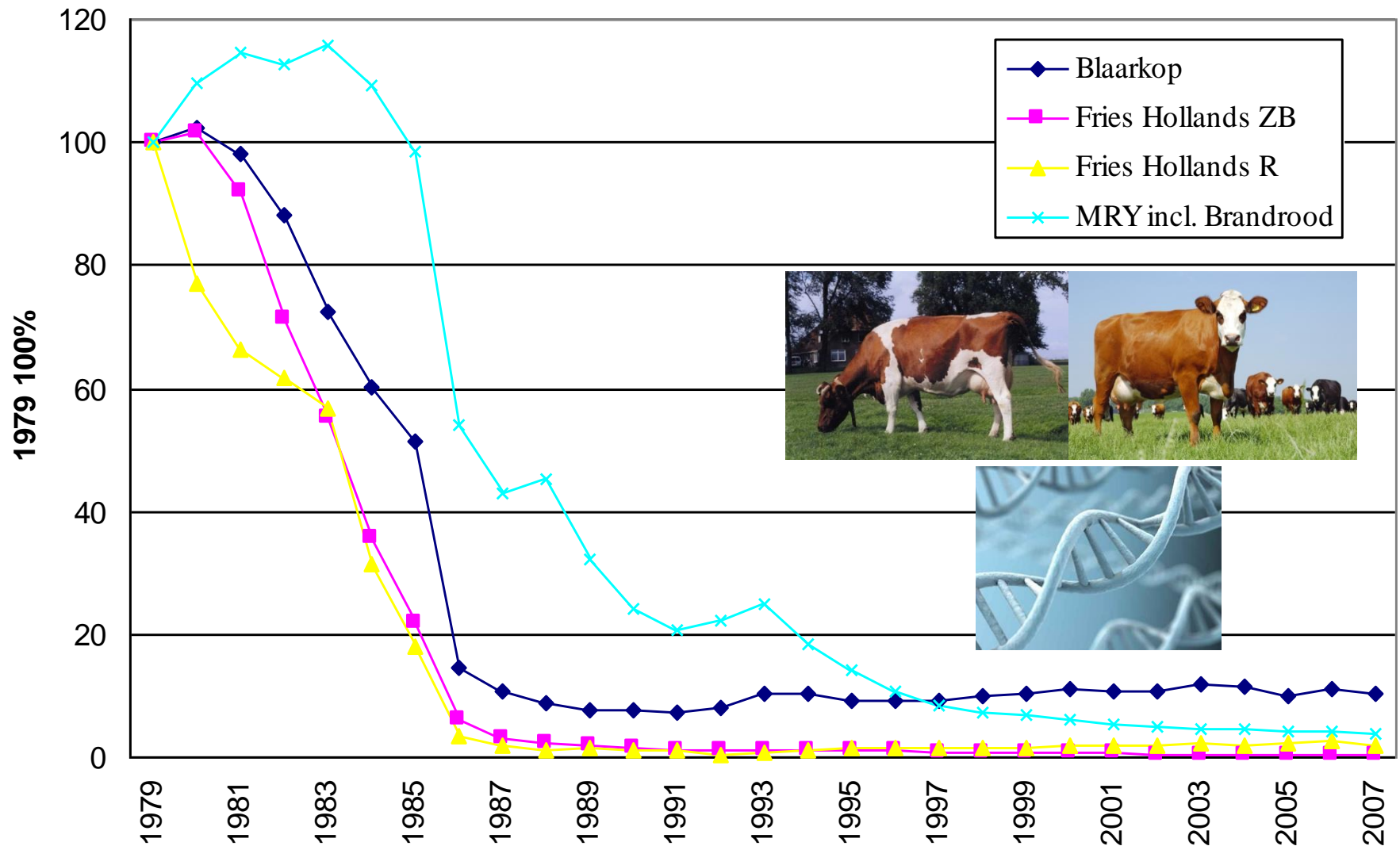
- Risk of change in environment, market demands and disasters (e.g. diseases)

(Farm) animal breeds of Dutch origin are a valuable part of our cultural heritage

- Breeding programs are expensive, many breeds are set aside



% change in population size 1979 - 2007



How do we conserve and use AnGR?

Conserve and use (farm) animal genetic resources

- Compose and manage gene bank collections
- Advise about genetic management of rare breeds
- Policy advice (national and international level)
- Scientific research: population genetics, genomics, breeding, cryobiology, reproduction



Aim of Dutch AnGR gene bank (*ex situ*)

Long term

- To safeguard all rare/native/endangered breeds of farm animals in the gene bank
- To promote and facilitate conservation of back-up samples of all (commercial) breeds in the gene bank

Short term

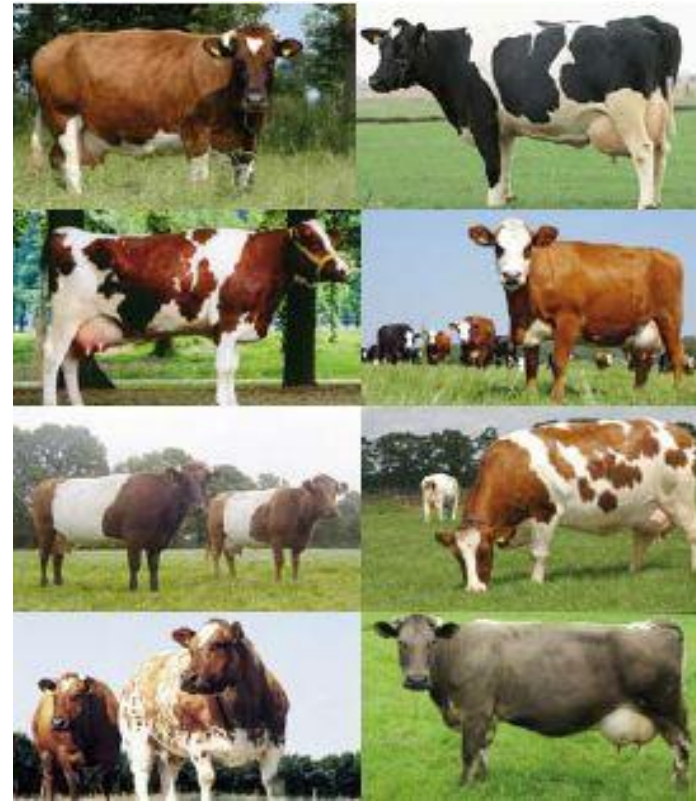
- To support breeding programs of endangered breeds - by distribution of gene bank semen



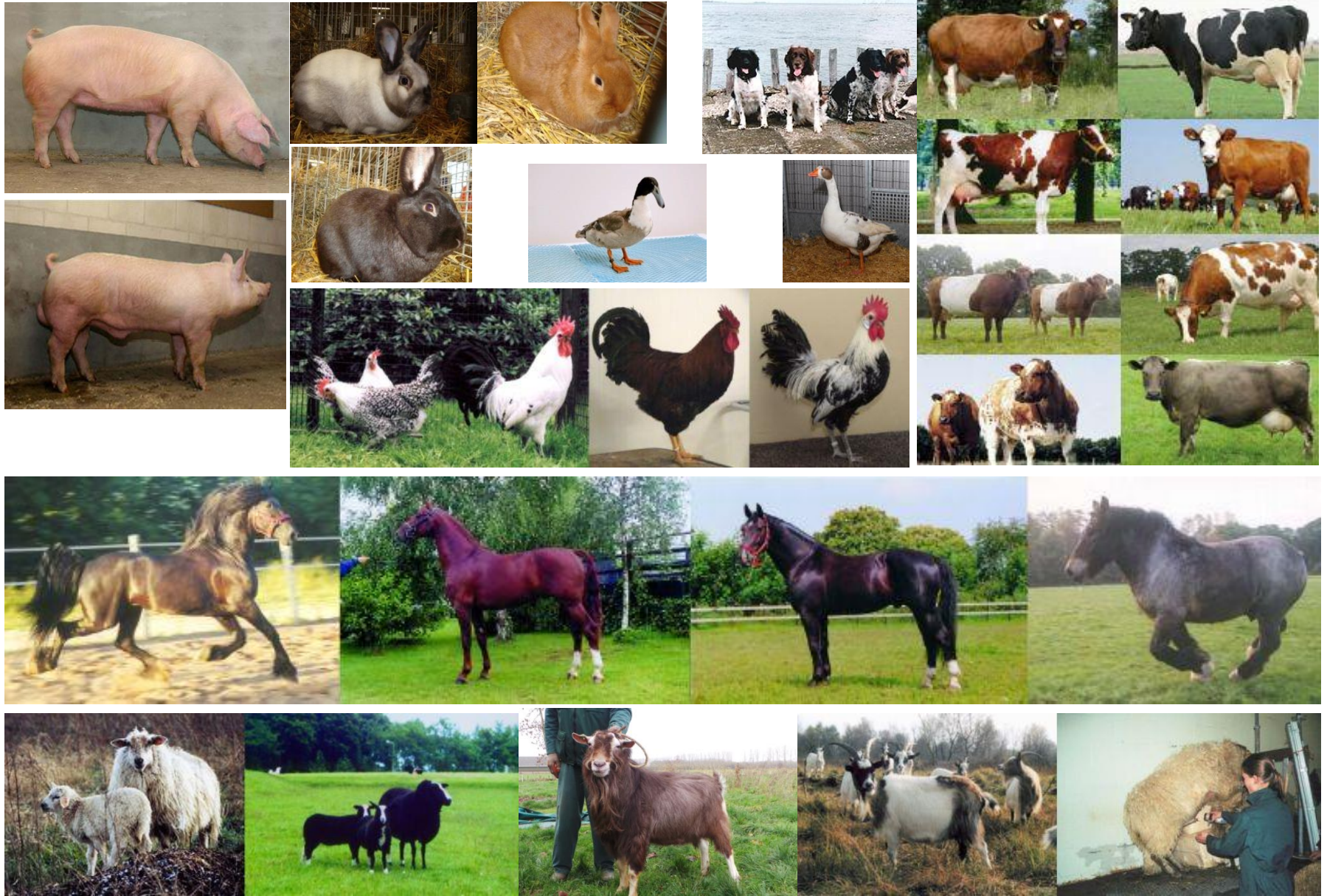
Not only rare breeds in the gene bank

Cattle

- Groninger Blaarkop
- Brandrood
- Roodbont Fries
- Witrik
- Fries Hollands
- Lakenvelder
- MRIJ
- Holstein Friesian



Species and breeds in the gene bank



Material in the gene bank



Compose and manage gene bank collections

- Mostly semen, but also embryos, egg cells and DNA

Species	# Breeds	# Males per breed	# Doses
Cattle	18	1 – 5,223	239,793
Sheep	10	8 – 71	31,154
Goat	5	5 – 33	6,590
Horse	9	1 – 41	3,307
Pig	28	1 – 56	20,464
Chicken	31	1 – 20	18,828
Duck	3	14 – 34	1,588
Dog	5	1 – 8	410
Rabbit	8	3-12	1,957



Storage of genetic material in gene bank

Wageningen University & Research Campus and
duplo location at the Faculty of Veterinary Medicine



Information on material in the gene bank


www.genebankdata.cgn.wur.nl

http://www.genebankdata.cgn.wur.nl/cgi-bin/nl/mydump2.php

Zoeken in genenbank collectie landbouwhuisdieren

Overzicht

Diersoort	Ras	Aantal donoren	
Cattle	unknown	1	Toon
Cattle	Belgisch Blauw	12	Toon
Cattle	Blonde d'Aquitaine	3	Toon
Cattle	Brandrood	19	Toon
Cattle	Brown Swiss	2	Toon
Cattle	Fleckvieh	1	Toon
Cattle	Fries Hollands (FH) zwartbont	168	Toon
Cattle	Fries Hollands fundam. foklijn	9	Toon
Cattle	Fries Roodbont	49	Toon
Cattle	Groninger Blaarkop	77	Toon
Cattle	Heidekoe	6	Toon
Cattle	Holstein Friesian (zwartbont en roodbont)	4717	Toon
Cattle	Jersey	2	Toon
Cattle	Lakenvelder	30	Toon
Cattle	Maas-Rijn-IJssel	244	Toon
Cattle	Marchigiana	1	Toon
Cattle	Montbéliarde	3	Toon
Cattle	Piemontese	1	Toon
Cattle	Verbeterd Roodbont	13	Toon
Cattle	Witrik	12	Toon



How do we conserve and use AnGR?

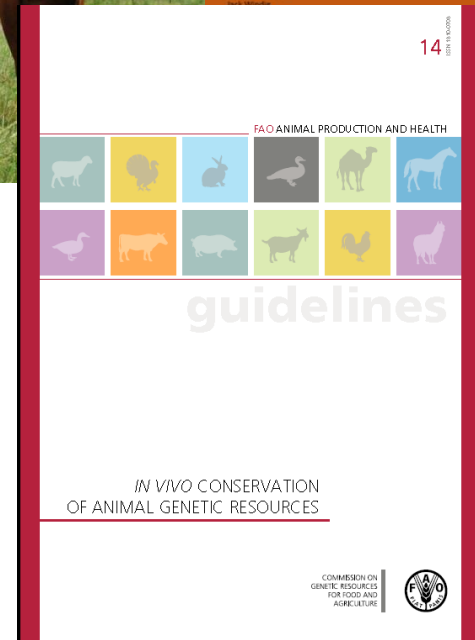
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CGN: advice and knowledge exchange

Advice about genetic management of rare breeds and knowledge exchange



Effective population size and increase in inbreeding:

→ risks of genetic disorders

Effectieve populatiegrootte	Inteelttoename	Beoordeling risico's
<50	>1%	Uitsterven door opeenstapeling erfelijke gebreken
50-100	0,5% - 1%	Erfelijke gebreken gaan vrijwel zeker voorkomen
100-200	0,25% - 0,5%	Er kunnen erfelijke gebreken optreden
>200	< 0,25%	Kleine kans op erfelijke gebreken

Thank you!

CGN-team (farm) animals

gene bank – policy advice – research –
breeding

