Beyond sperm

Next steps for the development of CGN livestock gene bank

April 20th 2023 – Annemieke Rattink

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Animal genetic resources (livestock breeds)

- Maintenance and further development of genebank collections

- Advising breed societies and breeding organisations
  - Sustainable breeding programs

- Genebank database and genomic database

- European collaborations

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ERFP EUGENA

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Aim of Dutch AnGR genebank *(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

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Current collection - Semen

Species	Breeds	Donors	Doses	Birth years donors
cattle	26	6,682	269,811	
sheep	12	364	34,672	
pig	36	802	22,614	
chicken	31	270	18,652	
goat	6	100	7,037	
horse	15	148	5,449	
rabbit	8	62	1,889	
duck	4	67	1,569	
dog	7	20	257	
goose	1	11	102	
	146	8,526	362,052	1959 ---------------------------- 2022

Status July 2022

Annual targeted growth:

- 2% targeted growth in number of donor animals per year

Approaches to expand collection:

- Regular back up

- Offers from individual breeders and breeding organisations

- Targeted collection of genetic material

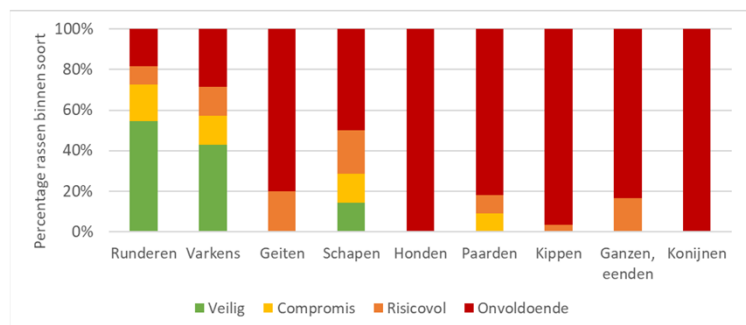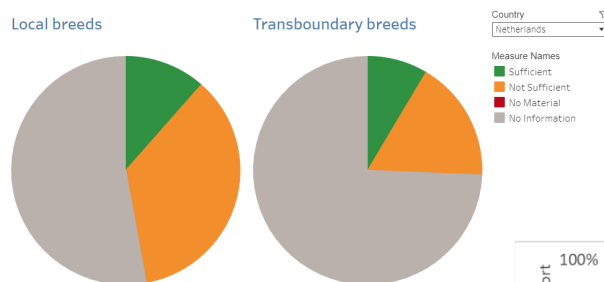Prioritization of activities and decisions what to add

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Rationalization of gene bank strategies – questions:

- What have we done so far (achievements) ?
- Are we doing the right thing (objectives) ?
- Stakeholder perspectives ?
- Genetic diversity captured in collections ?
- Sufficient material stored ?
- Can we improve efficiency and cost-effectiveness ?
- Priorities for further development ?

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Is material sufficient for reconstruction breed?

Local breeds   Transboundary breeds

Country
Netherlands

Measure Names
■ Sufficient
■ Not Sufficient
■ No Material
■ No Information

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Domestic Animal Diversity Information System (DAD-IS) | https://www.fao.org/dad-is/en/   6

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Current collection - Embryos

Cattle:

Brandrood – 15

Fries Roodbont - 42

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Beyond sperm....

Somatic cells
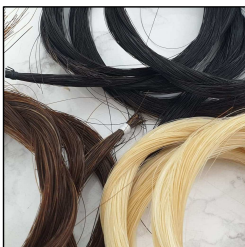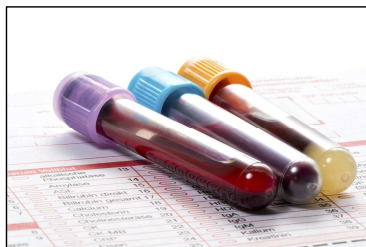
Reproductive cells

Oocytes
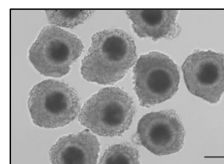
Ovarian tissue

Embryos

Primordial germ cells

PGCs

Hairs

Blood

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