



IS THERE A FUTURE
FOR THE EUROPEAN
HAMSTER IN
BELGIUM?

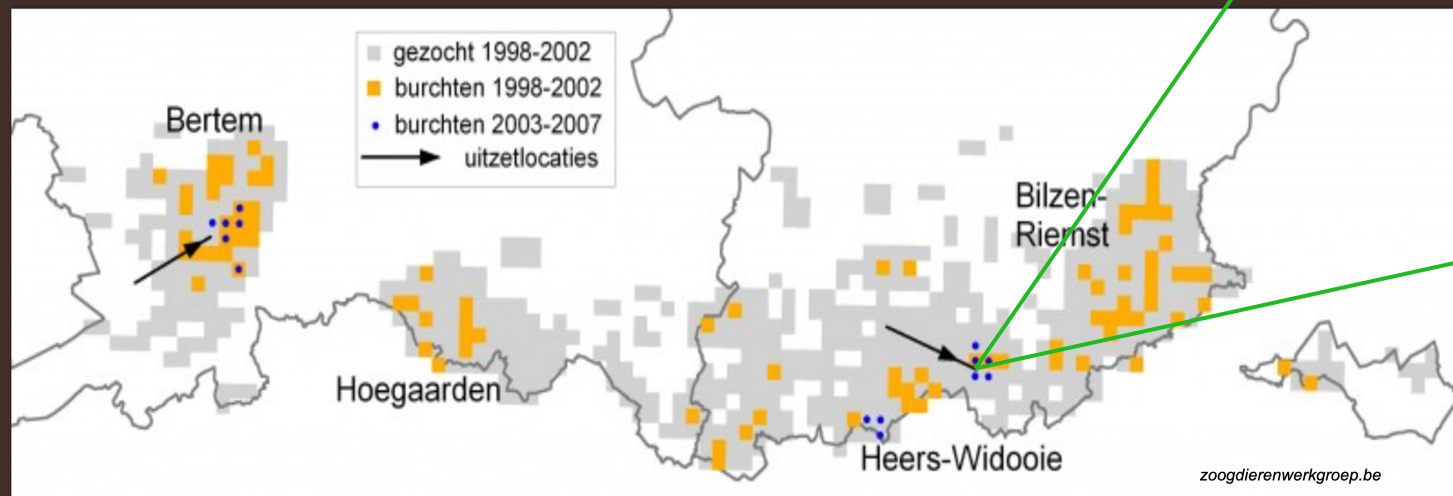
*Results of the introductions of 2019-
2021 and future perspectives*

Sarah Descamps



HISTORY OF THE POPULATIONS IN BELGIUM

- Pre-2002: several locations with hamster burrows in 2 provinces
- 2003-2007: 3 remaining locations
- 2007-2008: Supplementations Bertem and Widooie
- 2007-2012: 2 remaining locations
- 2012-2022: 1 remaining population in Belgium – Widooie (T)



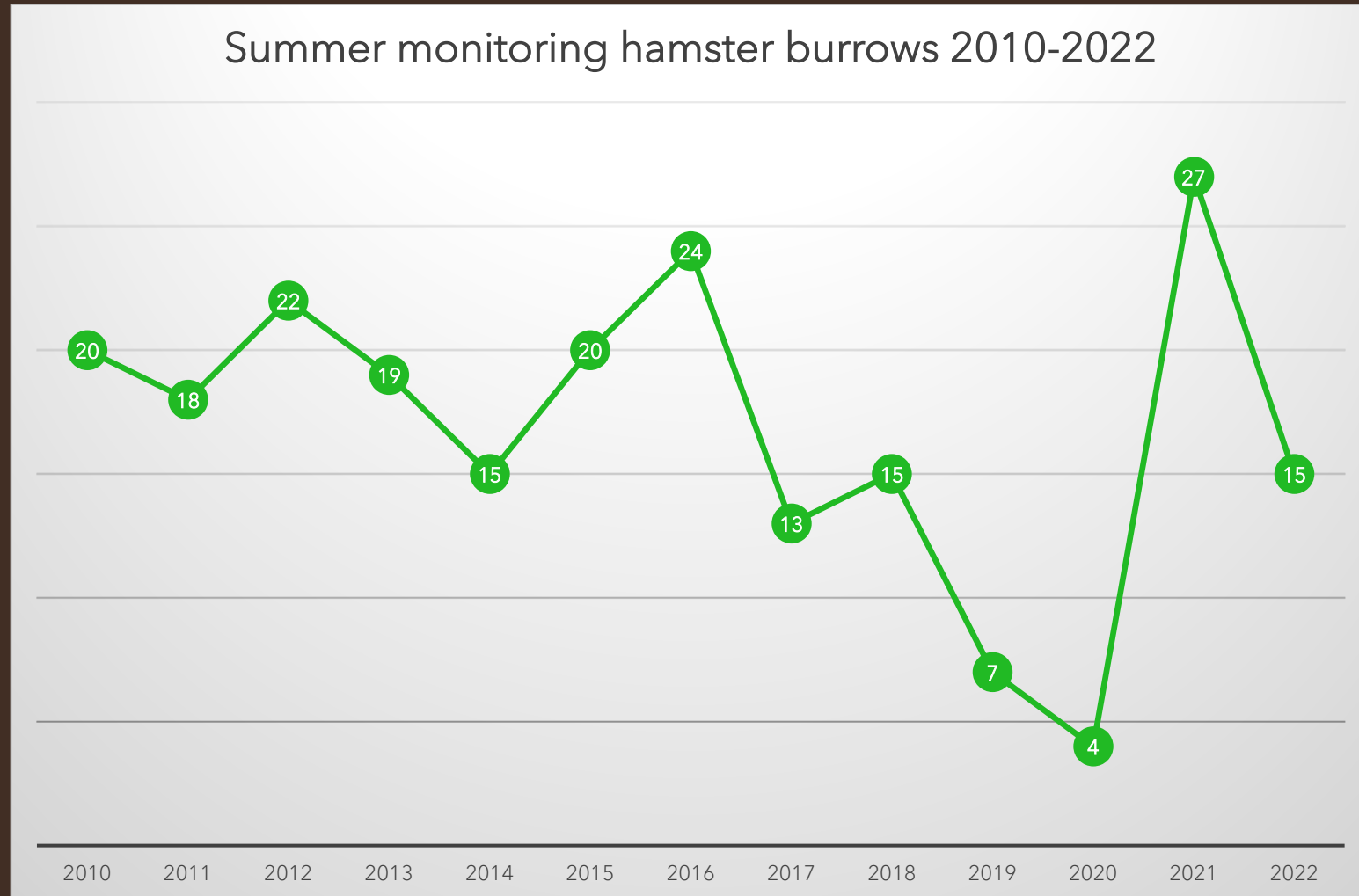
ACTIONS 2016-2021

- Flanders: Species Protection Program SPP1- European hamster
 1. *Providing sufficient favourable habitat*
 2. *Introduction individuals Dutch breeding program*



EVOLUTION SUMMER MONITORING BURROWS

- Natuurpunt vzw – LIKONA



MONITORING INTRODUCTIONS

YEAR	# INDIVIDUALS	# MALES TRANSMITTER	#FEMALES TRANSMITTER
2019	42	4	6
2020	54	8	14
2021	69		20
	165	12	40



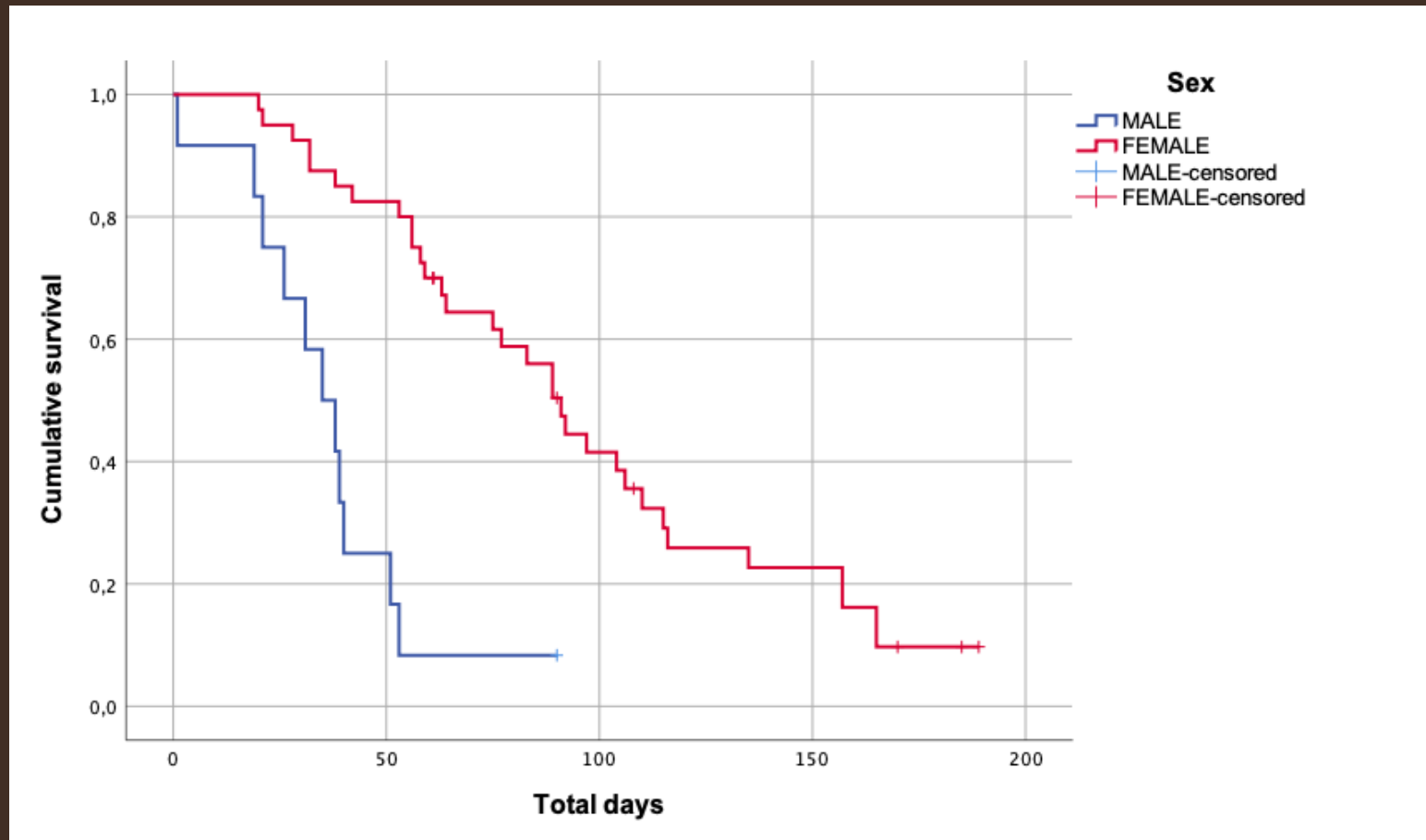
SURVIVAL INTRODUCED MALES & FEMALES

95% CONFIDENCE INTERVAL:

MALES: 23-47 days

FEMALES: 78-104 days

$p < 0,001$



REPRODUCTION

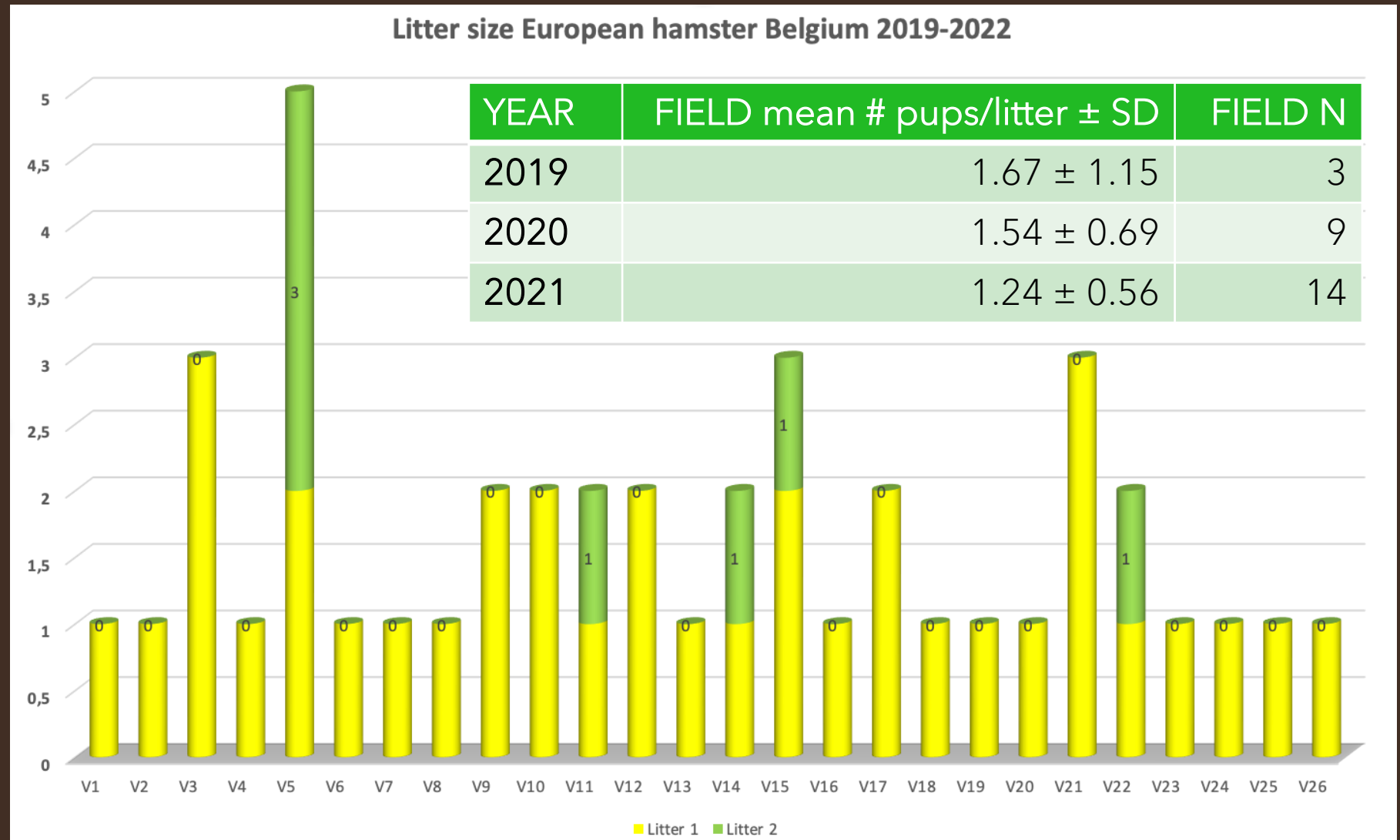
- 65% of females with transmitters reproduced
- Litter range 1-3 pups

Year	% successful	N total
2019	50.00	6
2020	64.29	14
2021	70.00	20
	65.00	



REPRODUCTION

- Successful field reproduction
- 12,5% second litter



REPRODUCTION

OVERALL MEAN \pm SD # PUPS
SPRING INTRODUCTION:

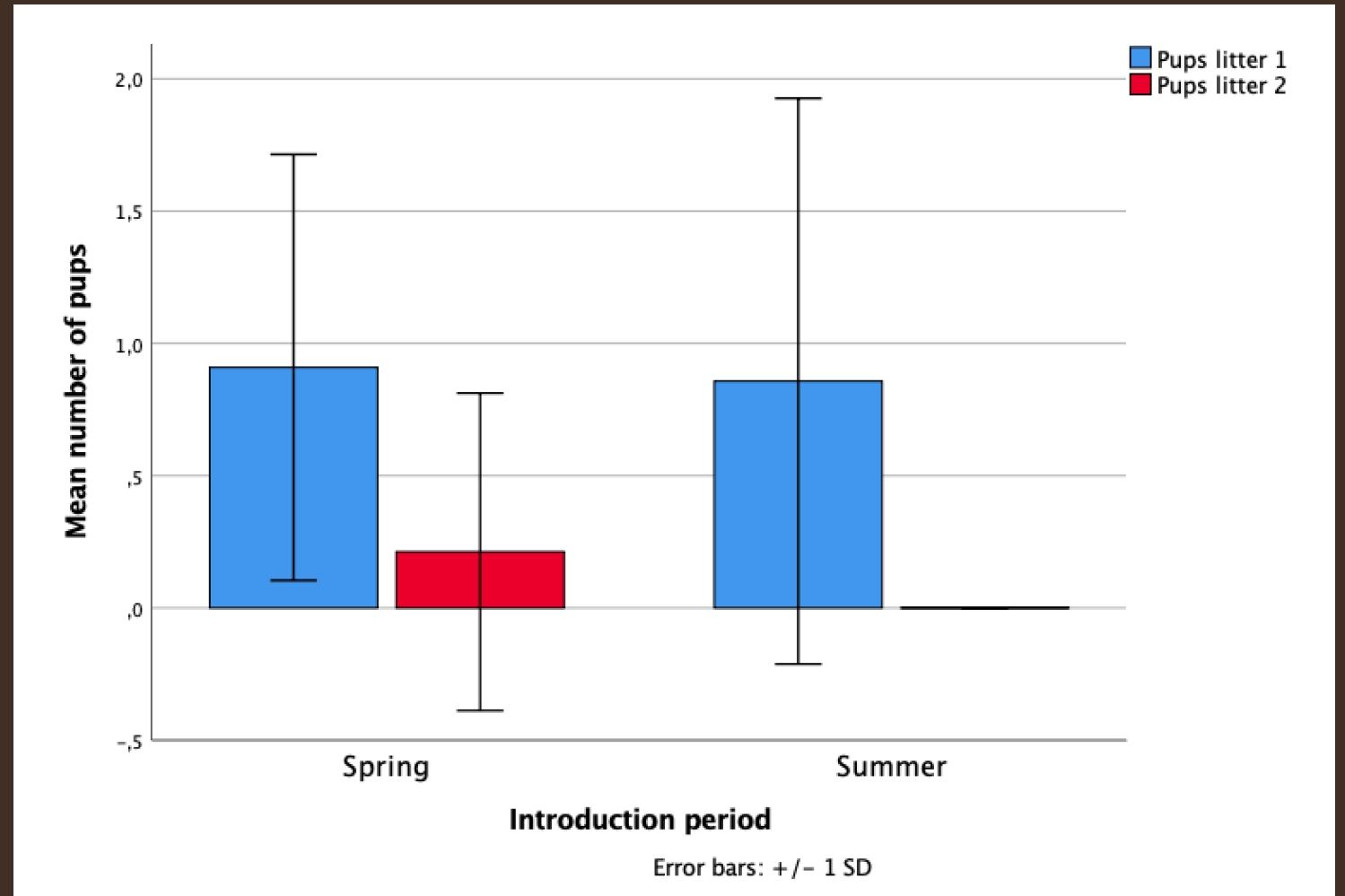
LITTER 1: 0.91 ± 0.841

LITTER 2: 0.18 ± 0.549

OVERALL MEAN \pm SD # PUPS
SUMMER INTRODUCTION:

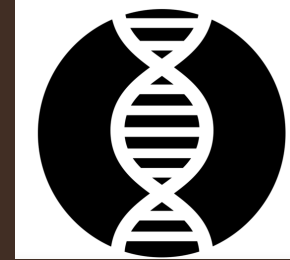
LITTER 1: $0,86 \pm 1,07$

LITTER 2: /

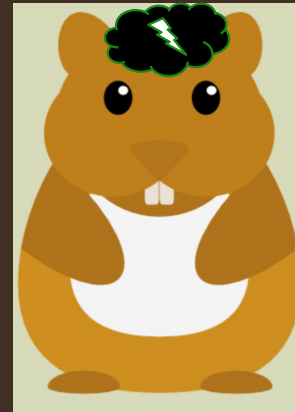


HYPOTHESES LOW REPRODUCTION SUCCES

- GENETICS



- INTRODUCTION STRESS



- AVAILABLE FOOD DURING REPRODUCTION PERIOD:
PLANT-BASED VS ANIMAL PROTEINS



HYPOTHESIS GENETICS

- Genetics BNR-region
- Breeding GAIA-zoo (Netherlands) & Metelen (Germany)
- Reproduction breeding program GAIA-zoo:

YEAR	FIELD mean # pups/litter \pm SD	FIELD N	BREEDING mean # pups/litter	BREEDING N
2019	1.67 \pm 1.15	3	5.65	29
2020	1.54 \pm 0.69	9	5.44	27
2021	1.24 \pm 0.56	14	5.89	19

(Data breeding station: GAIA-zoo)

HYPOTHESIS STRESS

- 17 catching days (April) with each 15 life-traps → 18 hamsters: 17 individuals (11♂ + 6♀)
- Reproduction (n=6):
 - 50% reproduced
 - 2 with 1 pup
 - 1 with 3 pups
 - 16.67% had second litter with 1 pup



HYPOTHESIS FOOD AVAILABILITY

- Site 1 & 2: introduction spring - alphalpa
- Site 2 at burrow supplementation plant proteins during reproduction season (2x/week) - cereals & sunflower seeds
- No statistical significant difference in litter size between females site 1 & 2

→ Availability animal proteins?



GENETIC MONITORING 2019-2021

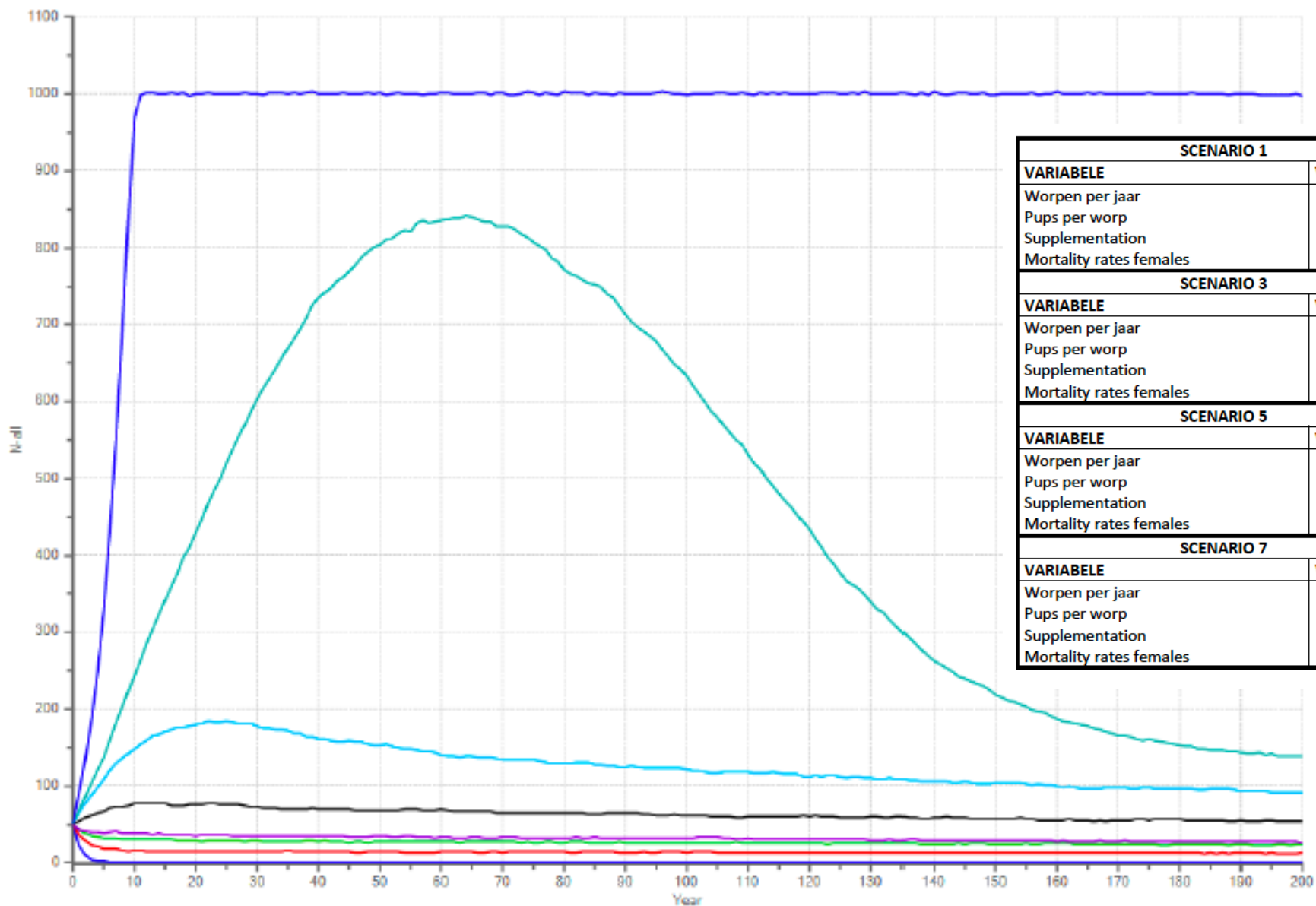
- Hairtraps reproduction burrows (n=21)
- Hairsamples spring traps (n=17)
- Hair introduced hamsters (n=165)
- 18 loci (Reiners *et al.* 2012)
- CERVUS (Kalinowski *et al.* 2007)



GENETIC MONITORING – PRELIMINARY RESULTS

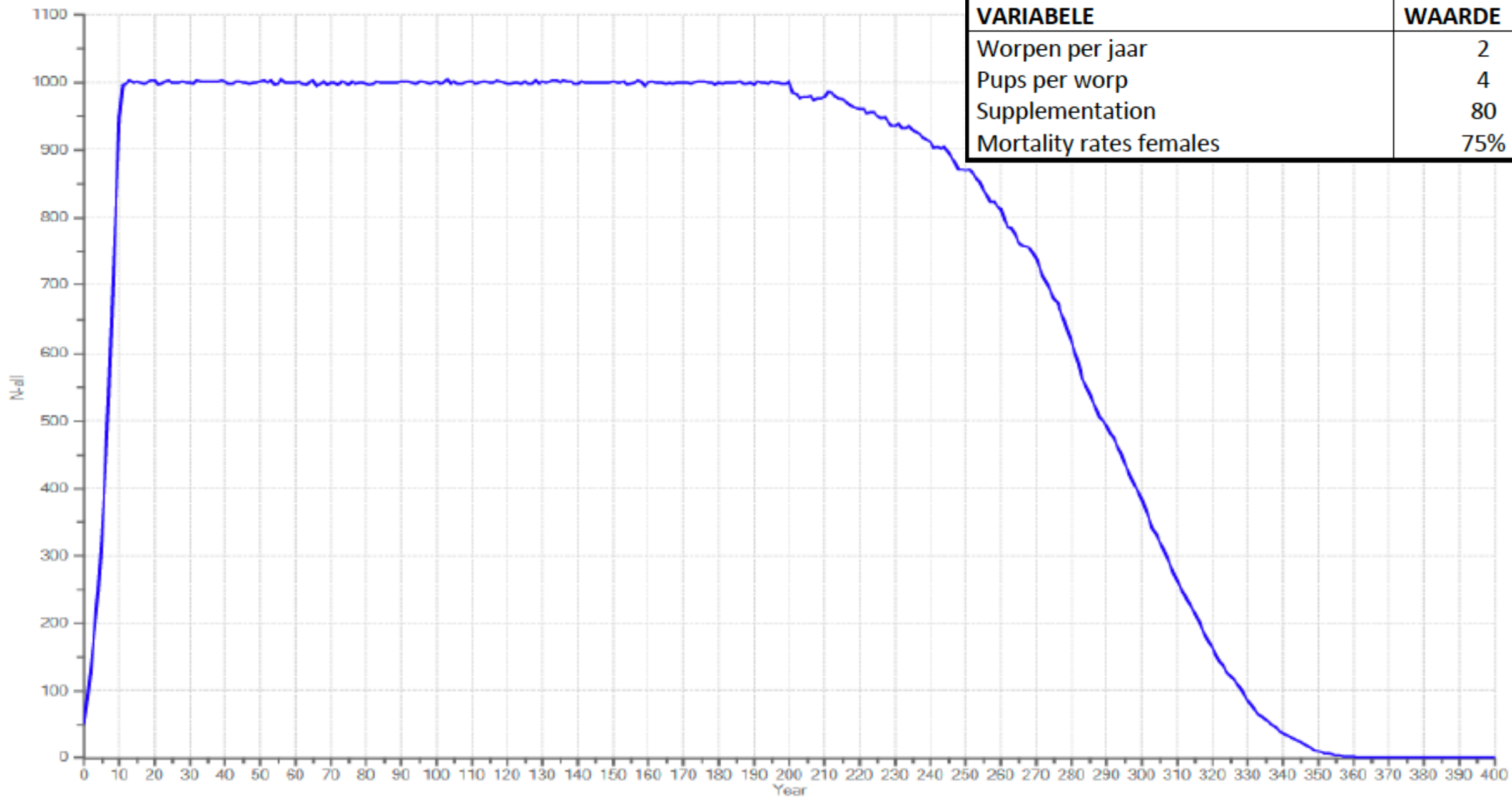
- Fathers of pups → no recent introduced hamsters
- Genetic variation introduced individuals > sampled individuals in Widoonie
→ *Certain alleles aren't picked up from samples (low frequency in breeding population)*
- Sex ratio in pups 1.6:1 → towards male individuals? (n=13)
- Modelling Vortex (SCTI)

Scenario 1 Widoosie Scenario 2 Widoosie Scenario 3 Widoosie Scenario 4 Widoosie Scenario 5 Widoosie Scenario 6 Widoosie Scenario 7 Widoosie Scenario 8 Widoosie



SCENARIO 1		SCENARIO 2	
VARIABELE	WAARDE	VARIABELE	WAARDE
Worpen per jaar	1	Worpen per jaar	1
Pups per worp	1	Pups per worp	2
Supplementation	0	Supplementation	12
Mortality rates females	80%	Mortality rates females	80%
SCENARIO 3		SCENARIO 4	
VARIABELE	WAARDE	VARIABELE	WAARDE
Worpen per jaar	1	Worpen per jaar	2
Pups per worp	2	Pups per worp	2
Supplementation	20	Supplementation	20
Mortality rates females	75%	Mortality rates females	75%
SCENARIO 5		SCENARIO 6	
VARIABELE	WAARDE	VARIABELE	WAARDE
Worpen per jaar	2	Worpen per jaar	2
Pups per worp	2	Pups per worp	2,5
Supplementation	40	Supplementation	52
Mortality rates females	75%	Mortality rates females	75%
SCENARIO 7		SCENARIO 8	
VARIABELE	WAARDE	VARIABELE	WAARDE
Worpen per jaar	2	Worpen per jaar	2
Pups per worp	3	Pups per worp	4
Supplementation	52	Supplementation	80
Mortality rates females	75%	Mortality rates females	75%

Scenario 8 Widooisie 200j → inbr. → supp. 100j



SCENARIO 8

VARIABELE	WAARDE
Worpen per jaar	2
Pups per worp	4
Supplementation	80
Mortality rates females	75%

FUTURE PERSPECTIVES

- INFLUENCE AVAILABILITY ANIMAL PROTEINS IN THE FIELD - innovative management
- TOTAL GENETIC MAPPING BELGIAN POPULATION
- MODELLING BELGIAN POPULATION DYNAMICS - impact genetics and management

