



Selection for longevity in Dutch dairy cattle Industry perspective

Mathijs van Pelt
Animal Evaluation Unit

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Importance of longevity

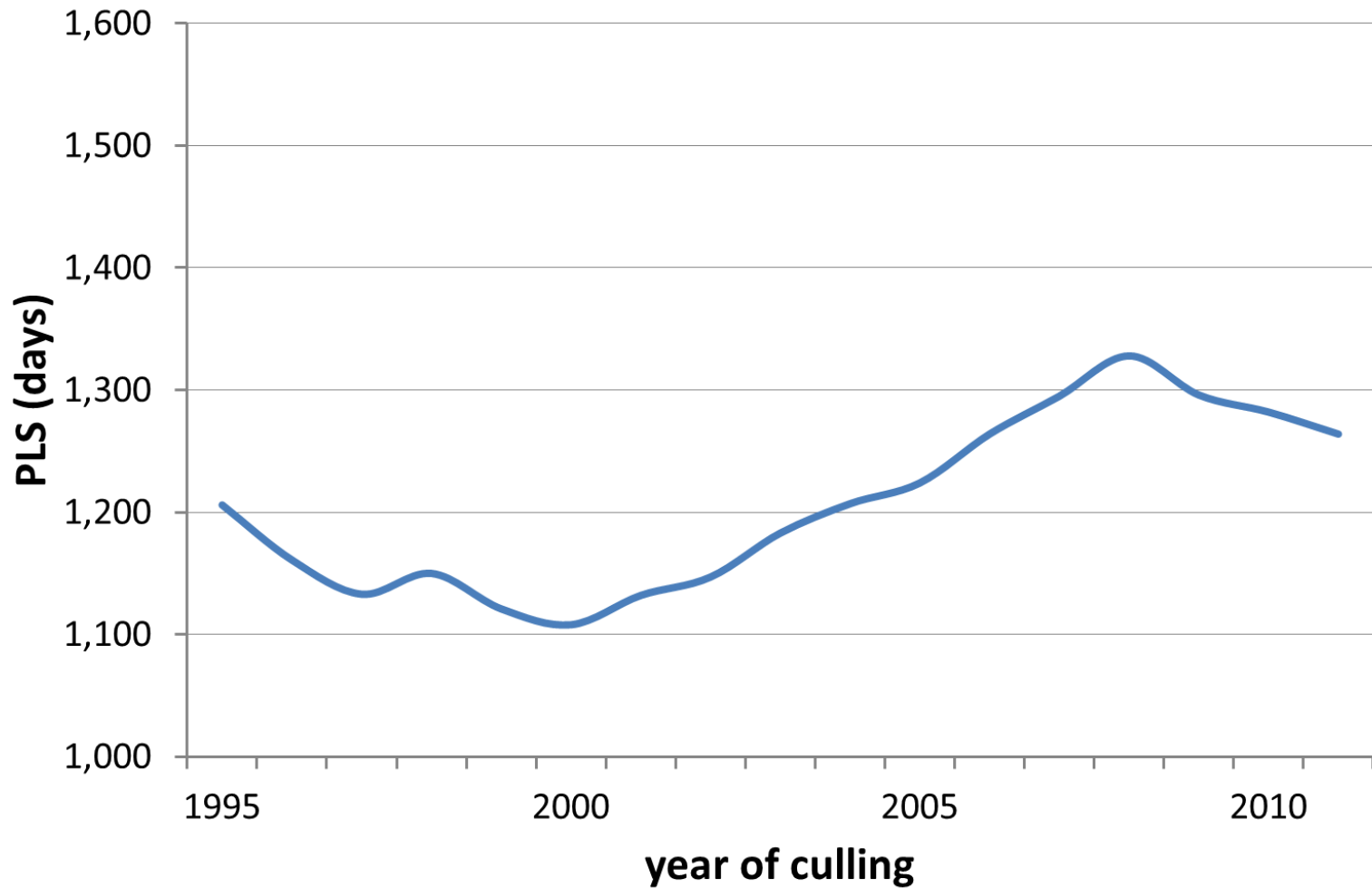
- **Economically**
 - Lower replacement costs
- **Consumers**
 - Want healthy and long-living cows
- **Farmers Union**
 - Cows should become 2 years older by 2020
- **Positive relation with production**
 - Lifetime milk production (LMP) will increase

Definition of longevity

- **Days between first calving and last test date**
 - productive life span (PLS)

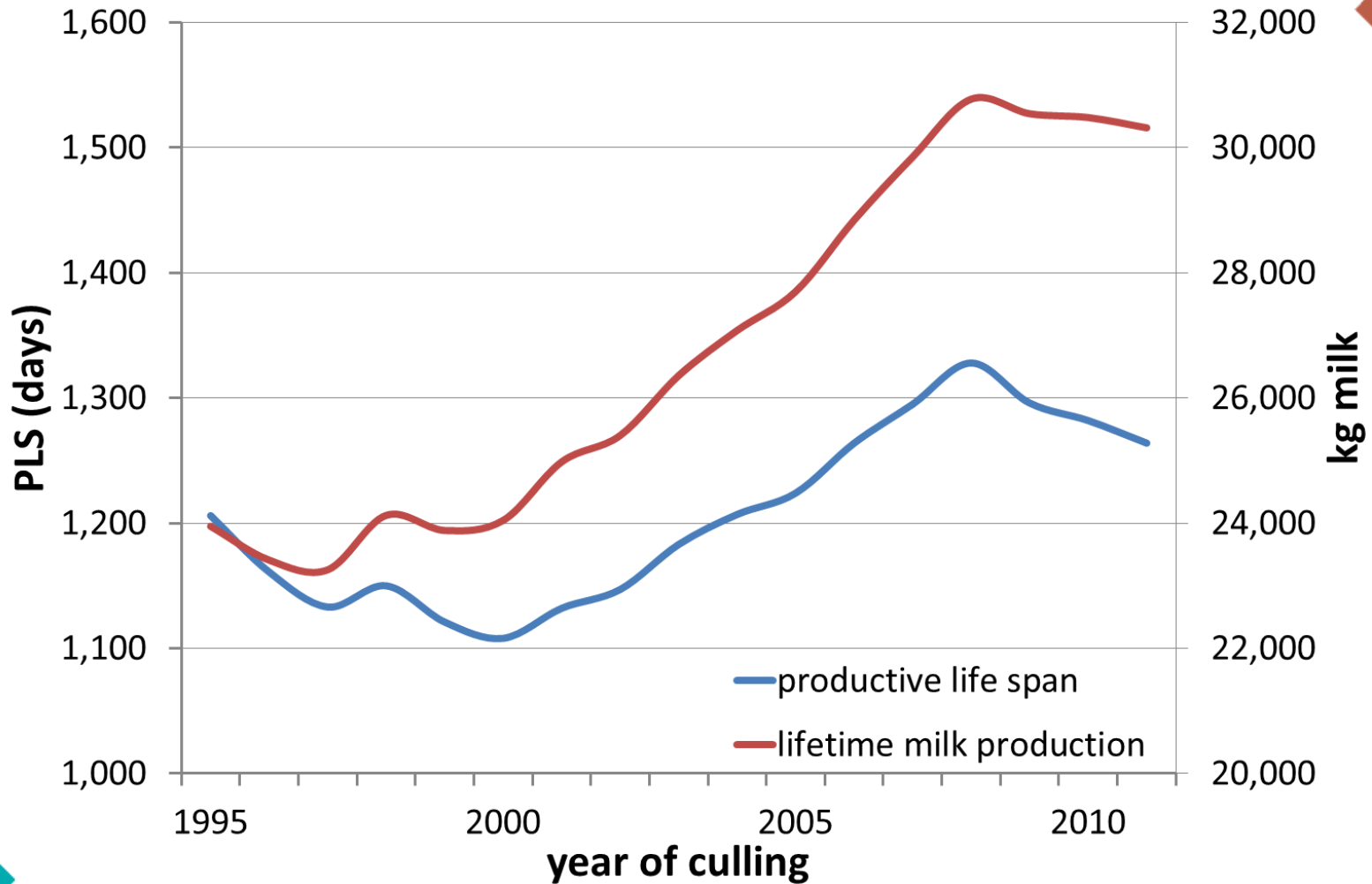


Average productive life span (1)



Average productive life span (2)

Lifetime milk production (LMP)



Complexity of longevity

- **Available late in life**
 - When cow is culled
- **Reflection of genetics and management**
- **Culling decisions of farmer are mainly management**
 - Involuntary: mastitis, fertility, claw disorders, ...
 - Voluntary: too low production
 - Changes over time
 - Increasing herd size
 - Quota
 - Young stock

Complexity of longevity in genetic evaluation

- **Young animals are selected for breeding**
 - While longevity is known at the end of life
- **EBVs for young bulls are based mainly on living daughters in their first lactation**
- **In genetic evaluation data used of:**
 - Culled cows
 - Living cows
- **Prediction of survival of living cows seems a contradiction**

Genetic evaluation (1)

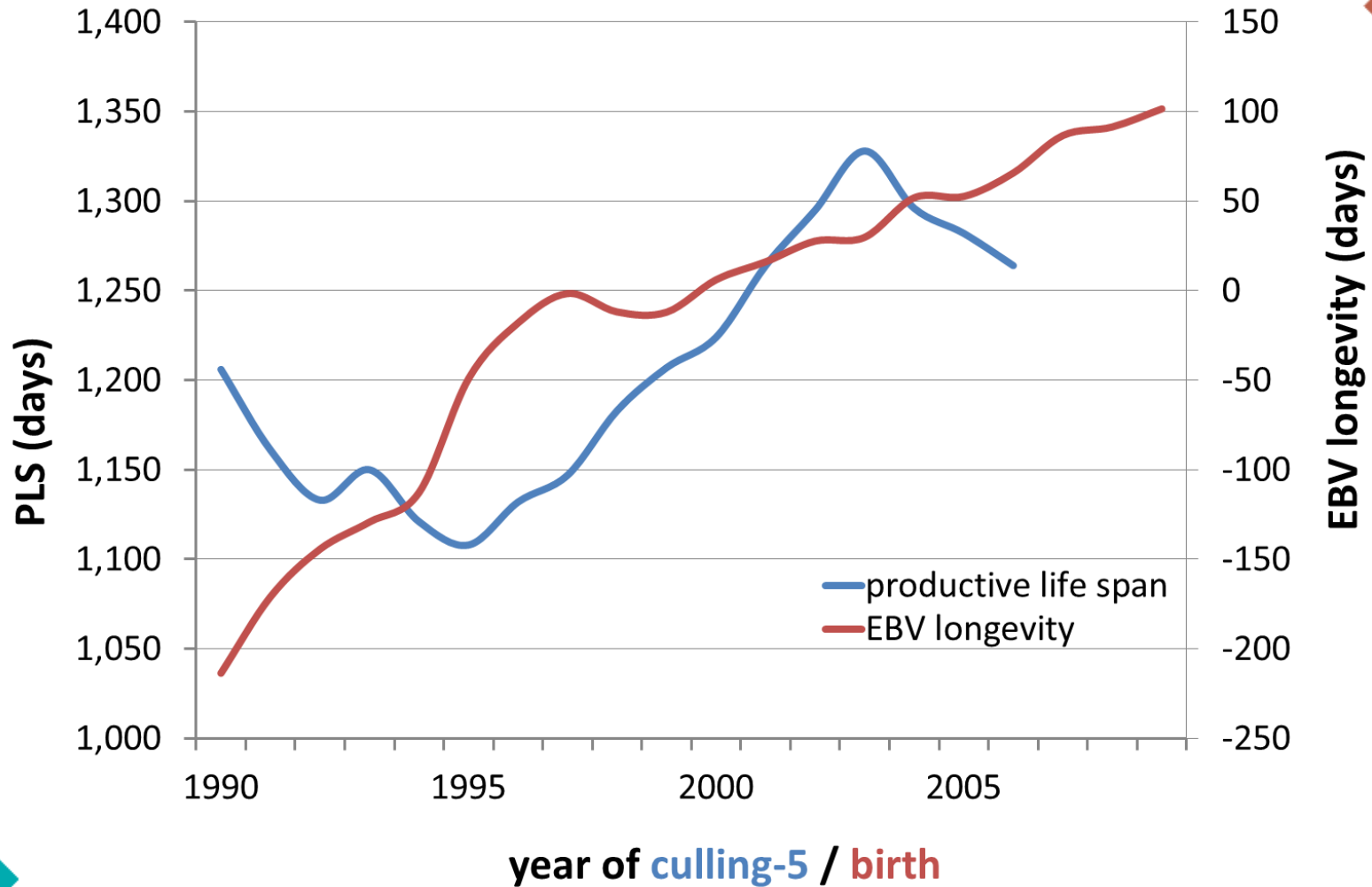
- **Introduced in 1999 and included in Dutch TMI**
 - Until 2007 functional longevity
 - Since 2008 productive longevity
 - No correction for production → easier to understand for farmers
- **Current model: survival analysis**
 - Assumes longevity as same trait during entire productive life and over time
 - Approximation of the complex situation of the reality

Genetic evaluation (2)

- **Heritability is 0.12**
- **Genetic standard deviation is 270 days**
- **Use of predictive traits increases reliability of EBV**
- **Used predictive traits**

	Correlation
– Somatic cell count	0.44
– Udder depth	0.24
– Locomotion	0.22
- **Included in TMI with weight of 11%**

Phenotypic and genetic trend cows



Possibilities to improve longevity on farms

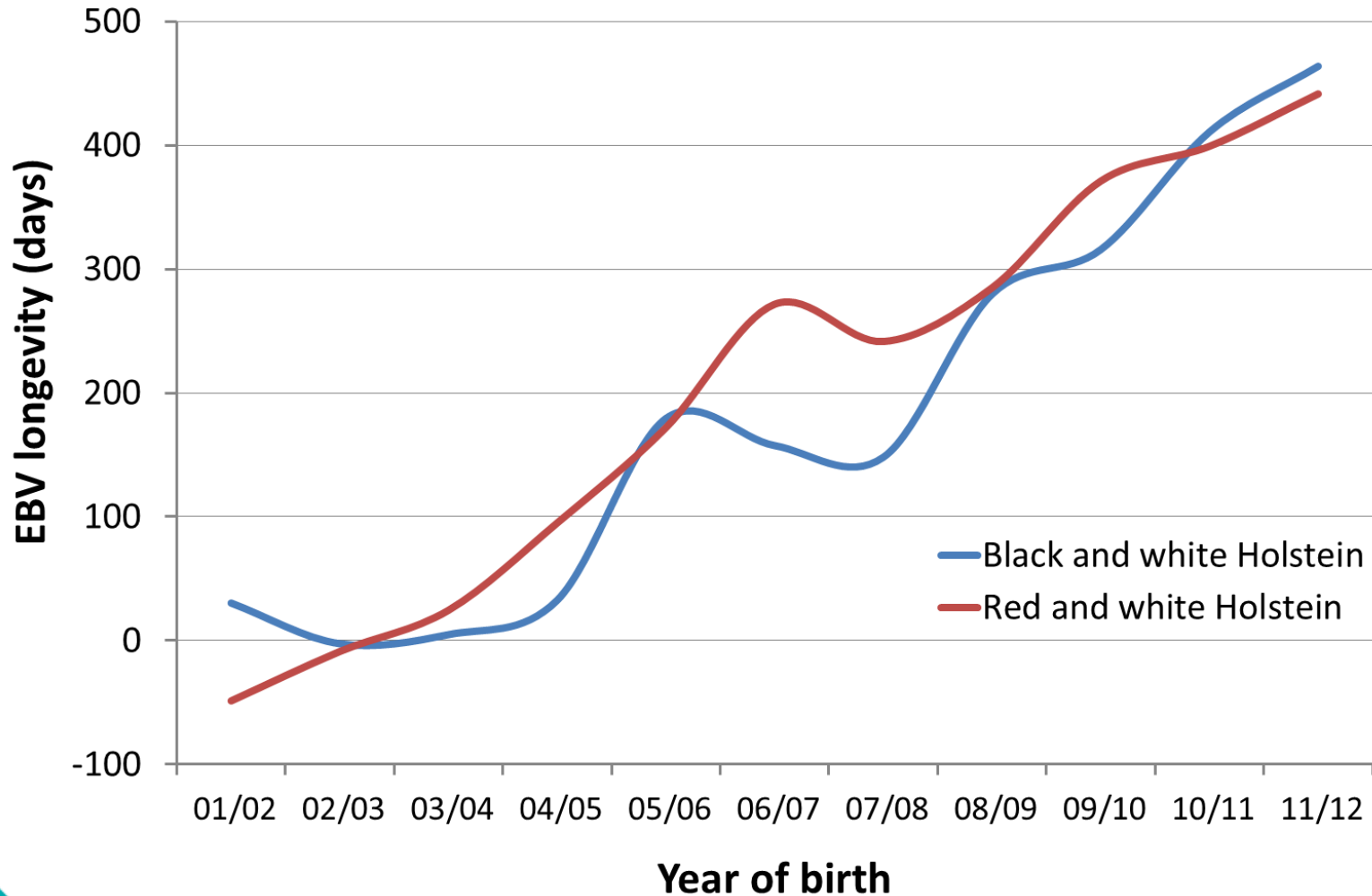
- **Genetics**
- **Management**
- **CRV has products and tools for both**

Possibilities to improve longevity on farms

- **Genetics**

- Use of bulls with superior EBV for longevity
- Breeding programme of CRV focuses on healthy long-living cows with efficient milk production

Genetic trend CRV bulls



Genetic progress in bulls 50 days per year

Possibilities to improve longevity on farms

Management products

- **Yearly statistics on culled animals**
 - Productive life span, herdlife, lifetime milk production
- **(New) product: longevity/herdlife monitor**
 - Real time overview of present and culled cows with information on LMP, net revenues divided in 5 age groups
 - Information on culling reasons, distribution of young stock, born calves and calving ease
 - Numbers are benchmarked against country average
 - Updated after each milk recording



Aanwezige dieren (laatste MPR: 11-07-2012)

groep	aant	levensproductie							laatste lact			landelijk			
		ALVA	lft	lact	drg	melk	kgM/d	%v	%e	kgV+E	lw	NDR	-50	+50	NDR
vaarzen	59	2.01	2.08	5854	6.0	4.24	3.30	447	100	1.38					1.23
2e kalf	39	2.01	3.10	1365	6.1	4.37	3.7	1365	100	3.07					2.44
3e kalf	43	2.01	4.10	1168	6.0	4.17	3.5	1168	100	2.04					3.20
4e kalf	13	2.01	5.10	1183	198	37621	17.6	4.35	3.41	2917	98	4.35			3.69
> 4e kalf	23	2.01	8.01	1834	354	59986	20.3	4.35	3.39	4643	91	4.99			4.17
melkvee	177	2.01	4.05	743	157	23812	14.9	4.26	3.38	1819	100	3.09			2.56

Present cows

Afgevoerde dieren (periode)

groep	aant	(%)	lft	levensproductie							laatste lact			landelijk		
				lact	drg	melk	kgM/d	%v	%e	kgV+E	lw	celg	nins	NDR	-50	+50
vaarzen	5	14 %	2.07	174		4268	4.6	4.36	3.40	331	87	163	1.60	1.05		1.32
2e kalf	8	22 %	4.00	62	81	19777	17.7	4.35	3.49	1535	103	196	3.15	3.30		2.48
3e kalf	6	16 %	5.00	96	124	29493	17.4	4.35	3.47	2122	71	25	2.5	4.08		3.21
4e kalf	9	24 %	6.01	1284	207	40096	18.1	4.33	3.35	3079	82	878	0.89	4.36		3.69
> 4e kalf	9	24 %	7.11	1783	354	58133	20.1	4.35	3.45	4535	89	155	1.44	4.97		4.19
melkvee	37	21 %	5.05	1062	197	33567	16.9	4.35	3.43	2610	89	413	1.81	3.79		3.04

Culled cows

Vervanging dieren

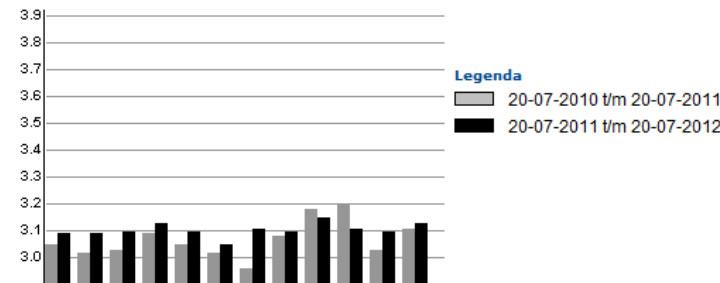
	aant (%)		landelijk			aant (%)		landelijk	
insteek (eigen opfok + aanvoer)	54	31 %	45 %	vroeg	113	39 %	45 %		
afvoer melkkoelen	38	21 %	38 %	< 2 jaar	9	3 %	17 %		
dood	5			1 - 2 jaar	54	19 %	17 %		
export	0			> 2 jaar	5	2 %	8 %		
ouderdom				3 %					
overtoeren				6 %	geboren kalveren	257	89 %	130 %	
afgemest of slachtrijp	0			8 %	vaarskalf	64	41 %	49 %	
been of klauwaandoening	6	18 %	11 %	stierkalf	93	59 %	51 %		
voedingsstoornissen	0	0 %	1 %						
problemen rond het afkalven	1	3 %	1 %						
hooftziekten	1	3 %	13 %	vlot	0	0 %	44 %		
vruchtbaarheid	1	3 %	17 %	normaal	0	0 %	50 %		
overige gezondheid	2	6 %	12 %	zwaar	0	0 %	5 %		
lage productie	0	0 %	4 %	keersprek	0	0 %	0 %		
melkbaarheid	1	3 %	3 %	afgezaagd	0	0 %	0 %		
slecht exterieur	0	0 %	0 %	andere hulp	0	0 %	1 %		
gedrag	0	0 %	0 %	onbekend	0	0 %	0 %		
onbekend	1	3 %	19 %	dodgeboorte	0	0 %	4 %		

Culling reasons

Distribution young stock

Calving ease

Netto Dag Rendement (NDR)
Aanwezige dieren



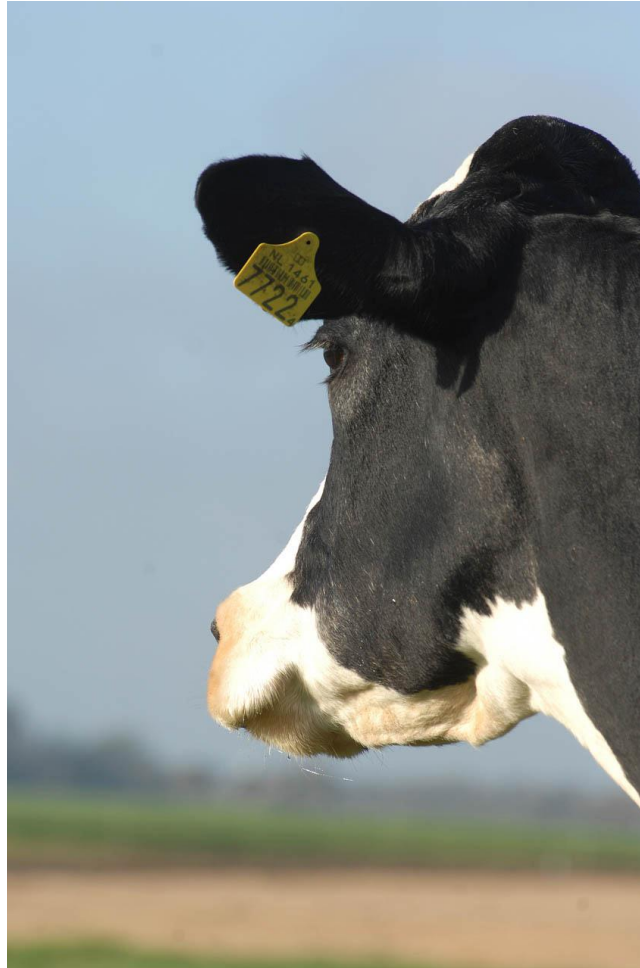
Possibilities to improve longevity on farms

- **Other tools to improve longevity indirectly**
 - Milk recording, also for somatic cell count
 - Fertility reports
 - Heat detection systems
 - Claw health
 - Animal health
 - Registration of medication use
- **Overview on herd level and animal level**
 - Herd level: evaluate changes in management
 - Animal level: individual attention

Conclusions

- **Longevity is a complex trait**
- **In the Netherlands attention for improvement of longevity with management and genetics**
- **Positive genetic and phenotypic trend**
- **Need to improve longevity**
 - Need for older cows
 - Quota will disappear
 - Tools for genetics and management available

Thank you for your attention



Questions?