IRISH CATTLE BREEDING FEDERATION

ICBF Dairy Industry Meeting.

Department of Agriculture, Food and the Marine

An Roinn Talmhaíochta, Bia agus Mara

Agenda.

- Review of prioritisation exercise from January workshop – Andrew Cromie
- Female fertility Update – Donagh Berry & Francis Kearney.
- Test Day Models – John McCarty & Timo Pitkanen.
- Lameness & mastitis – Siobhan Ring & Donagh Berry.
- Cow Index – Margaret Kelleher.
- Genetic evaluations – Review of Systems & Processes – Andrew Cromie
- AOB.

IRISH CATTLE BREEDING FEDERATION

Review of Prioritisation Exercise.

Department of Agriculture, Food and the Marine

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Trait Priorities.

Traits	Priority Rank (based on surveys)	Research Completeness (1=low, 5=high).	Ease of roll-out (1=low & 5=high).
Fertility	1	1	3
Test Day Model	2	4	4
Lameness	3	1	5
Calving Diff%	4	3	4
Mastitis	5	3	5
Survival	6	2	4
Feed Intake	7	2	2
BCS	8	1	4
SCC	9	4	5
Live-weight	10	5	4
Type	11	1	4
TB	12	4	5
Liverfluke	13	4	5

Service/system Priorities.

Traits	Priority Rank (based on surveys)	Research Completeness (1=low, 5=high).	Ease of roll-out (1=low, 5=high)
COWorth	1	5	3
Multi-breed genomics	2	1	5
Sire Advice	3	1	5
Sexed semen	4	2	4
Dairy Beef	5	4	3

Follow-up.

- ICBF & Teagasc meeting to recap on outcomes of workshop on 31 Jan 2017.
- Based on; (priority rank) + (research completion) + (ease of roll-out), particular work areas progressed.
- Opportunity to discuss these today.

Irish dairy cow fertility evaluations

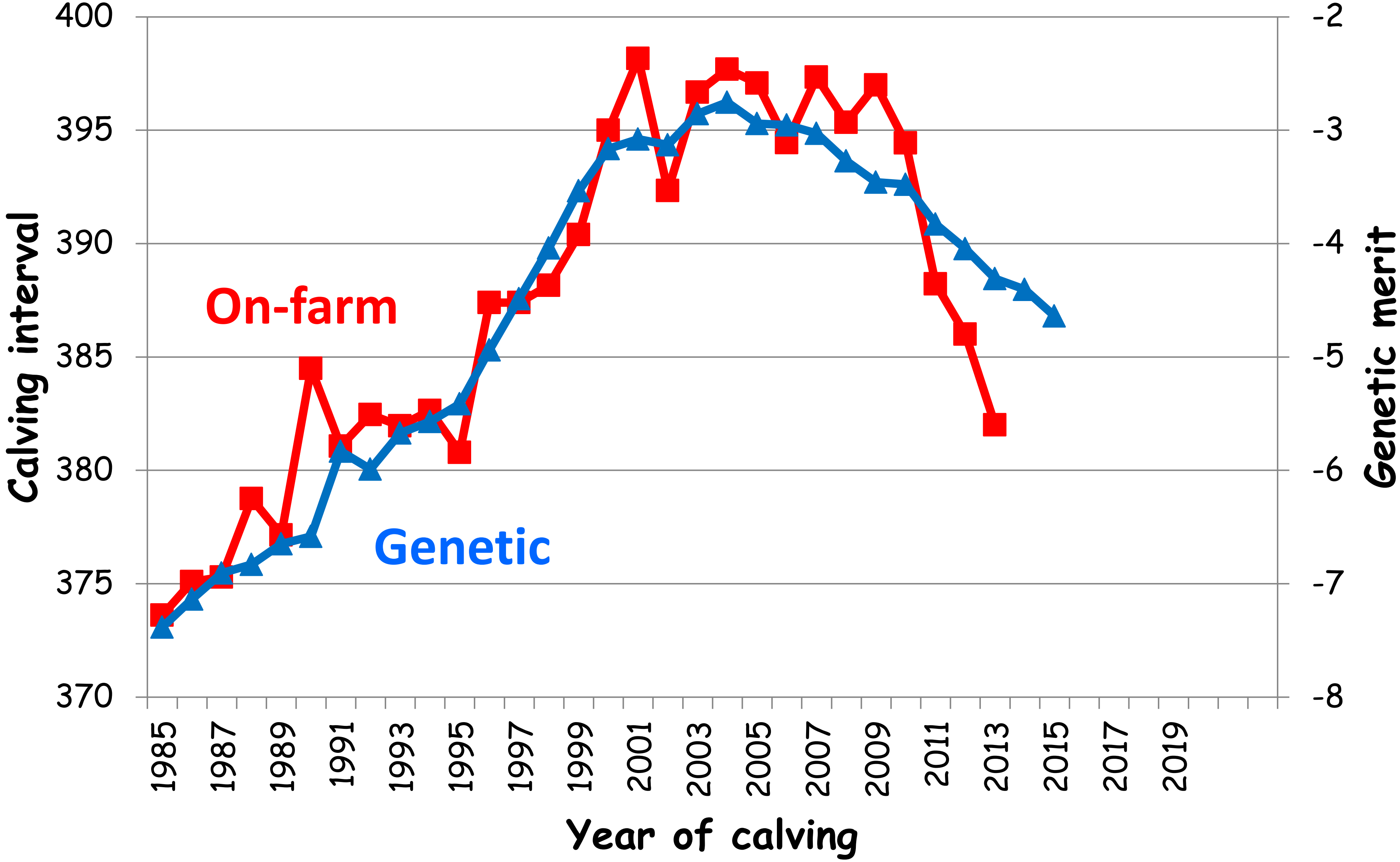
ICBF industry meeting, July 2017

History of fertility evaluations

- **2001:** sire model parity 1 for CIV + survival
- **2002:** CMMS data used to better define survival, 13x13 multi-trait sire model (3*CIV, 3*survival, 3*milk, BCS, ANG, FA, UD)
- **2003:** sire model → animal model
- **2004:** new genetic parameters + lifespan to account for parity >3 cows
- **2006:** across-breed evaluations (new model)
- **2010:** 22x22 across-breed multi-trait animal model – 5*CIV/Survival/milk, 3*CFS/NS, lifespan

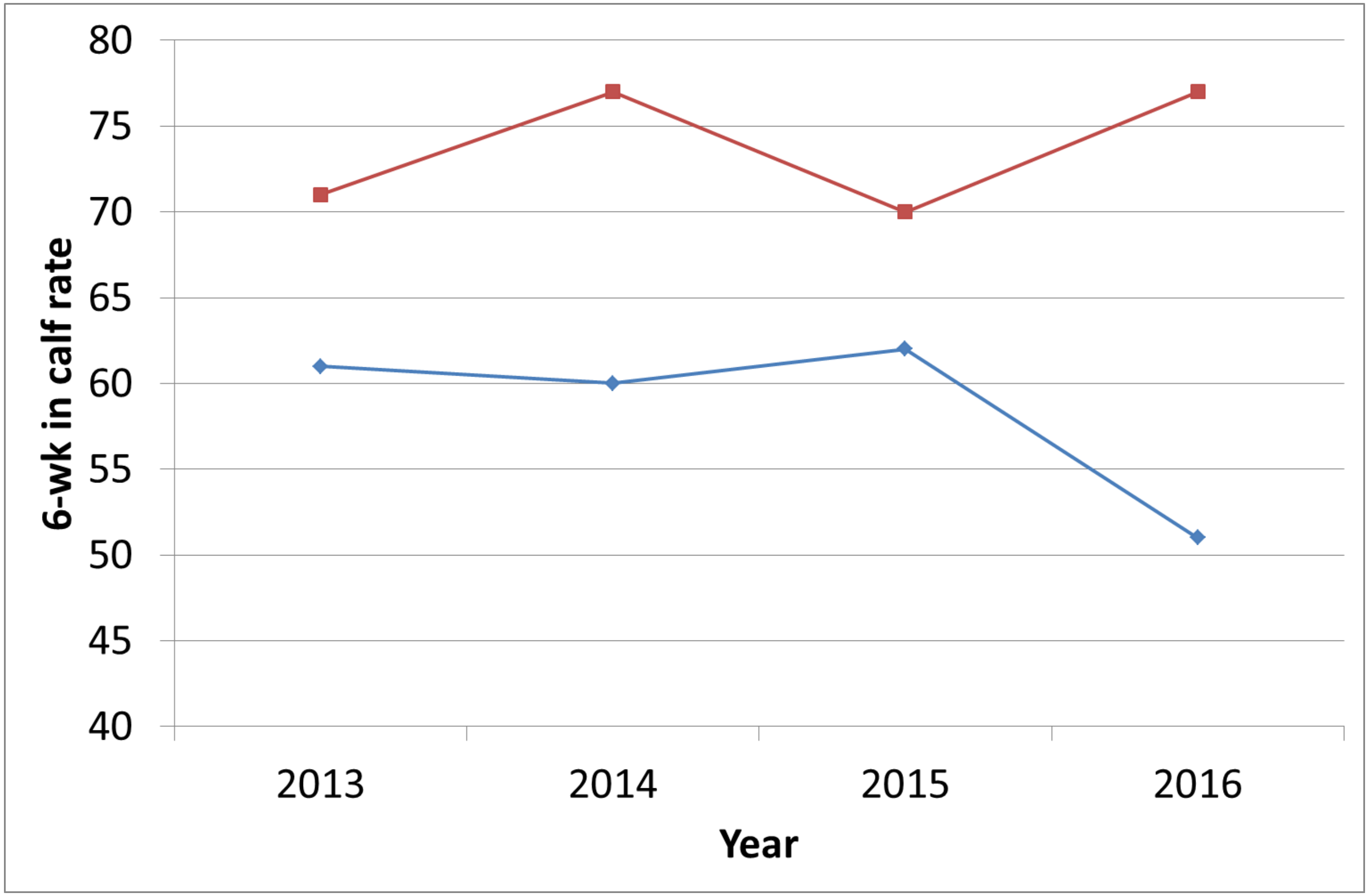
...and it worked!!!

(national data)



…and it worked!!!

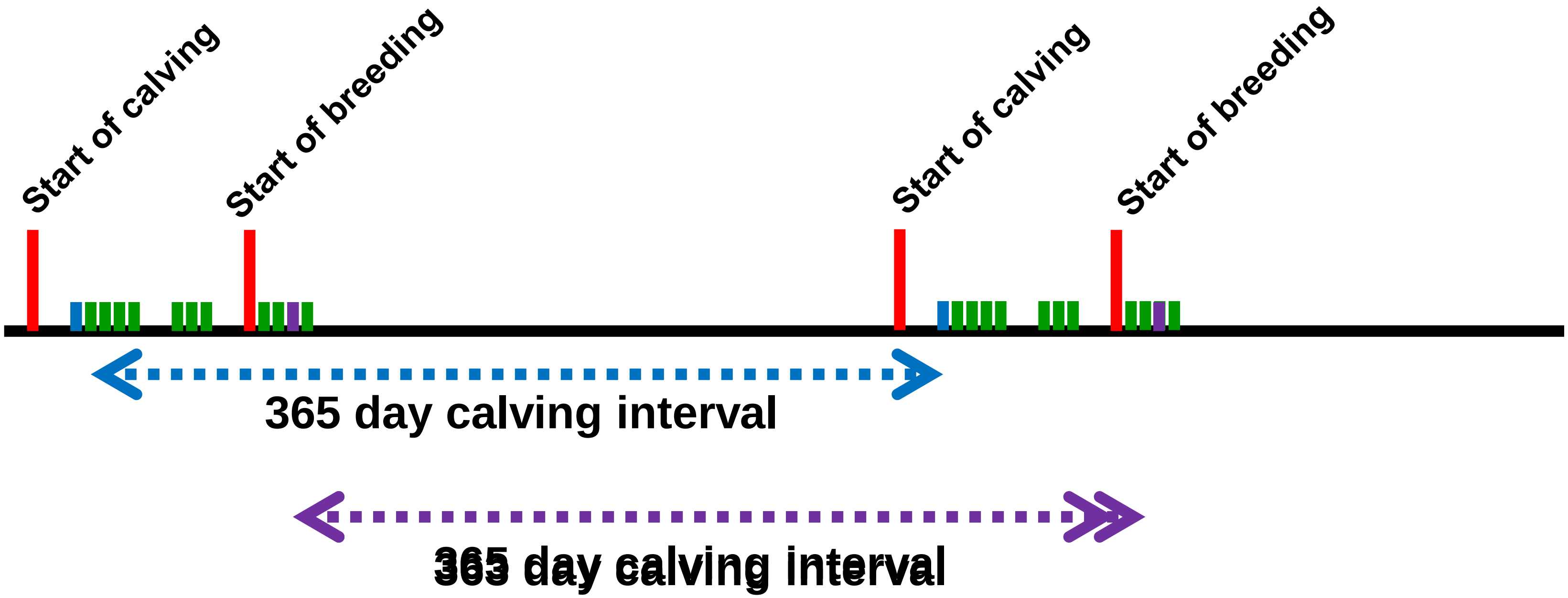
(Moorepark Next Gen Herd)



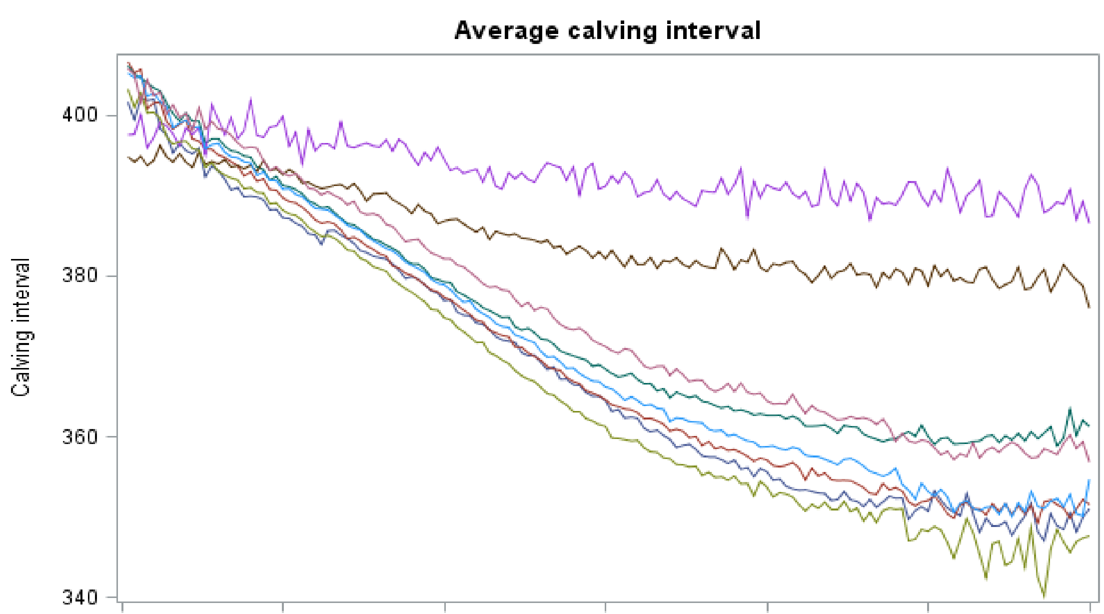
Motivation

- **Need to re-estimate genetic parameters**
  - ***Need to represent the current population***
  - ***Better quality data***
    - ***18% increase in heritability when parentage corrected***
- **(One-step) genomics and simpler models**
- **More pertinent fertility trait and genetic/genomic evaluations**
  - **Fertility improvements due to "fertility" or gestation length?**

Motivation


Start of calving
Start of breeding
Start of calving
Start of breeding
365 day calving interval
365 day calving interval

Calving date v calving interval



All year round

Split calving

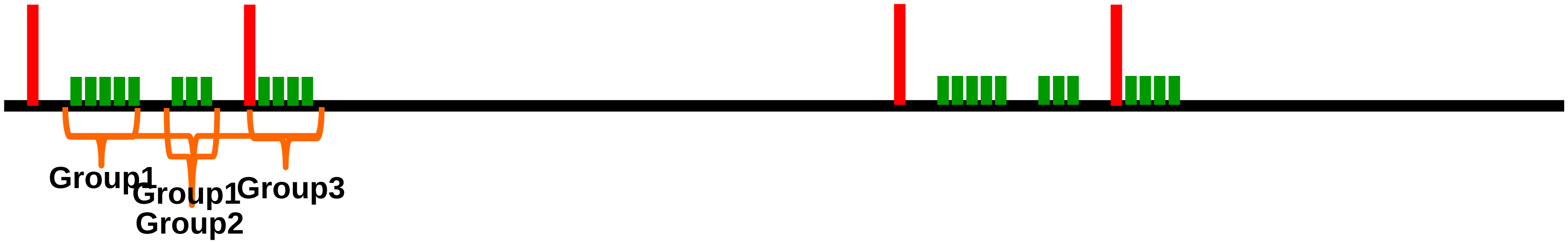
Relaxed seasonal herd definitions

Strict seasonal herd definitions

Jan 1st   March 15th   May 30th

Day in year of first calving in the interval

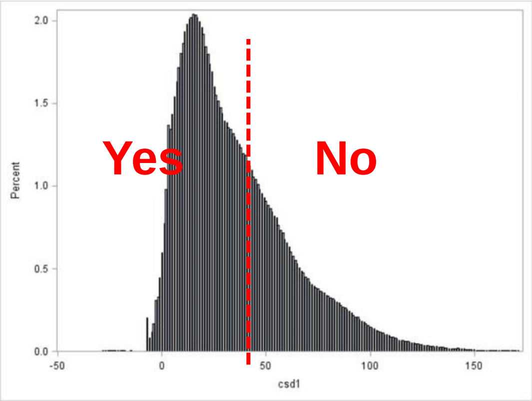
Motivation

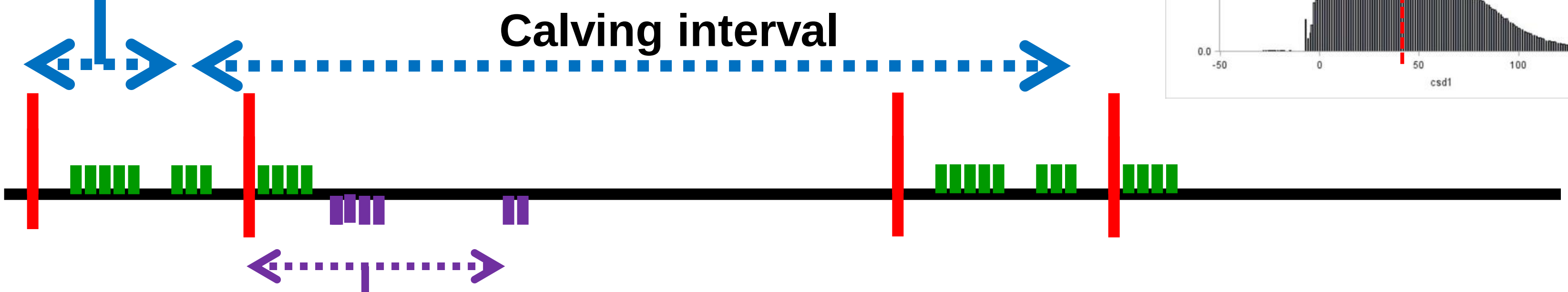


Traits

Number of days from herd start of calving to cow calving date

Calved or not in the first 6 weeks



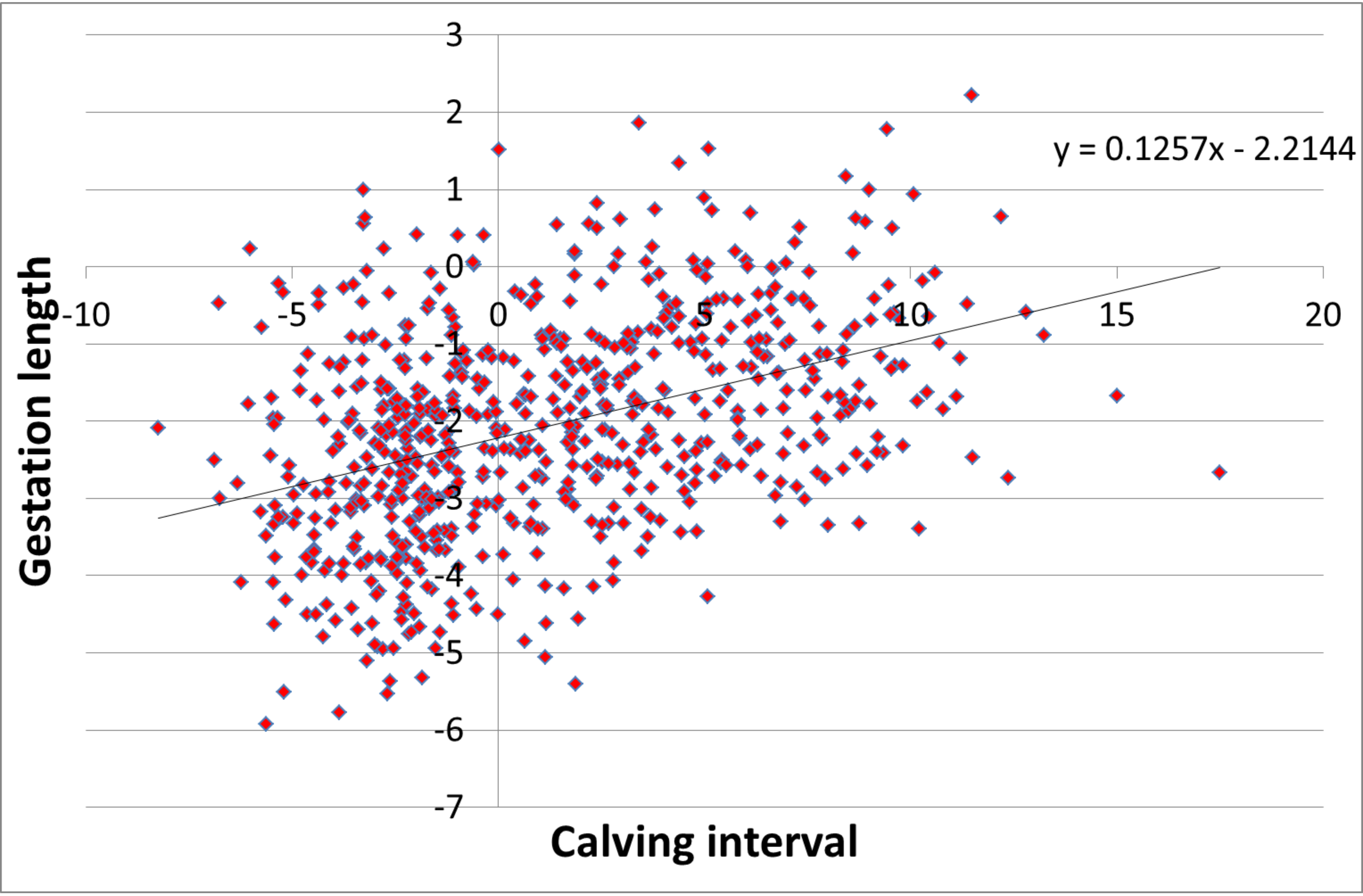


Number of days from herd mating start date to cow mating

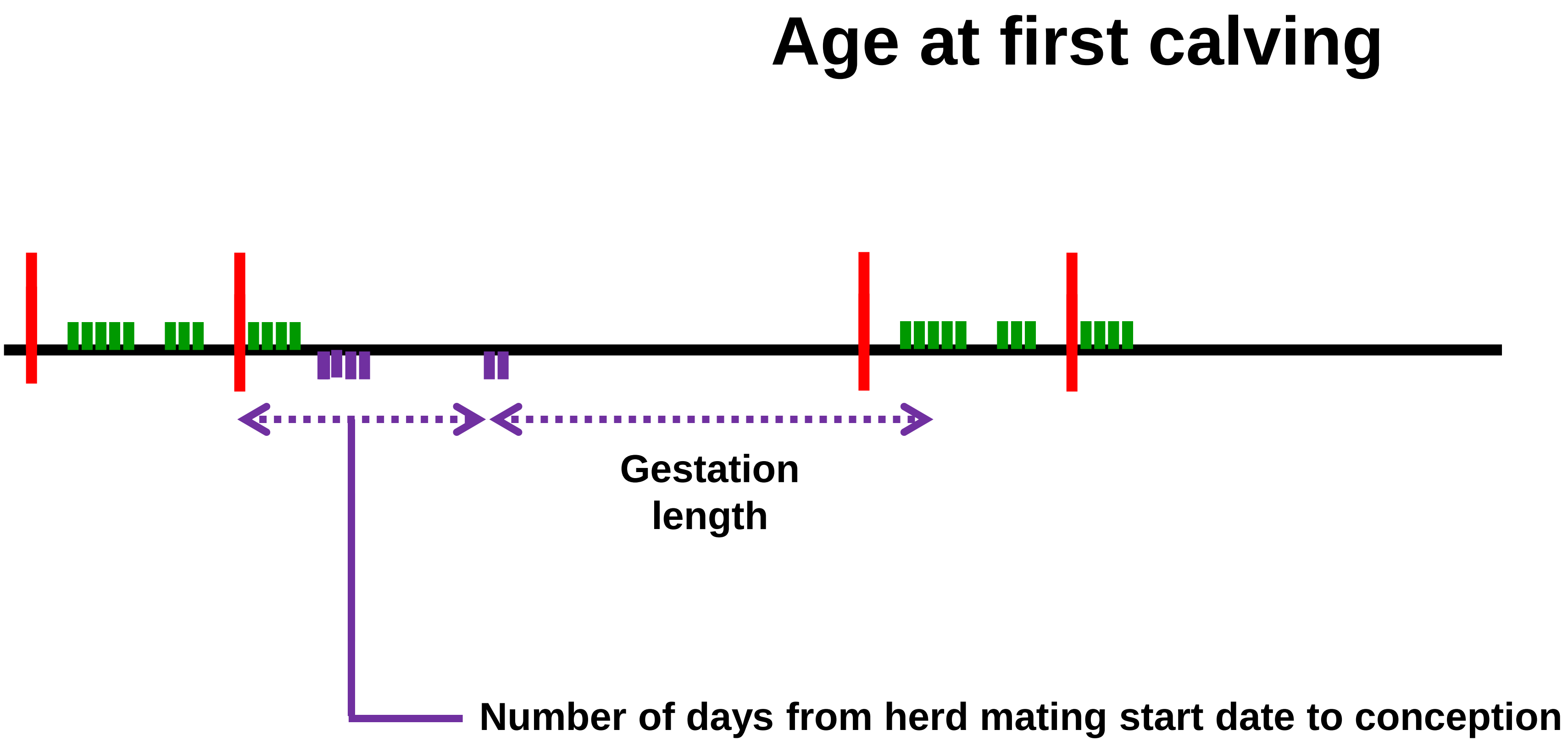
Served or not in the first 3 weeks of breeding season

Number of days from herd mating start date to conception

Gestation length v calving interval



Traits


Age at first calving
Gestation length
Number of days from herd mating start date to conception

Conclusions

- Constantly challenging how things can be done better
  - Genetic evaluations → genomic evaluations
  - 305-day milk → test-day model
- Last fertility research was ~10 years ago
  - New data, new knowledge, new traits, genomics….
- Research progressing.

Nordic Test-Day model

Timo Pitkänen
Natural Resources Institute Finland (LUKE)

Contents

Natural Resources Institute Finland has long traditions

1898 MTT Agrifood Research Finland is founded

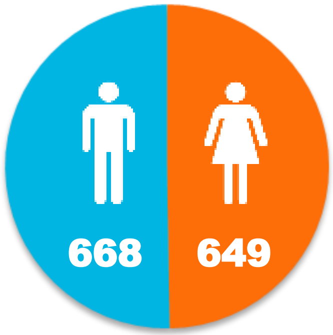
1917 Finnish Forest Research Institute (Metla)

1971 Finnish Game and Fisheries Research Institute (RKTL)

1993 Information Centre of the Ministry of Agriculture and Forestry (Tike)

2015
MTT, Metla, RKTL and Tike’s statistic services are merged. Natural Resources Institute Finland (Luke) is formed.

Locations and personnel



1317
Employees

27%
Doctoral degree

51
Professors

51
Average age, y

Biometrical genetics research team
Research and Expertise

Genetic evaluation methodology

- quantitative genetics
- statistical methods
- numerical methods
- software development

Utilization of genomic and phenotypic information

- modelling of SNP information
- modelling of biological data
- genomic prediction

Design of breeding programs

- farm animal biology
- breeding goals
- economic value of genetic improvement

Research

Genetic evaluation methodology

- Animal evaluation and genetic models – Toolbox (MiX99, Relax2, snpblup_rel, hginv)
- Developing of breeding value prediction software (MiXBLUP)
- Multibreed genomic prediction for Irish dairy cattle
- Russian dairy cattle genetic evaluation

Fur Animals

- National genetic evaluation for blue fox
- Strong legs

Pig

- Sustainable pig and poultry production

Cattle

- Use of genomic information to improve reproduction and welfare
- New fertility evaluation for Nordic dairy cattle
- Redefined and novel cow fertility measures
- Towards genetic improvement of feed efficiency
- Ethiopian genetic evaluation for dairy cattle
- Mitigation of methane emission in dairy systems
- Genetics and breeding of beef breeds

Sheep

- Sustainable sheep and goat production in EU

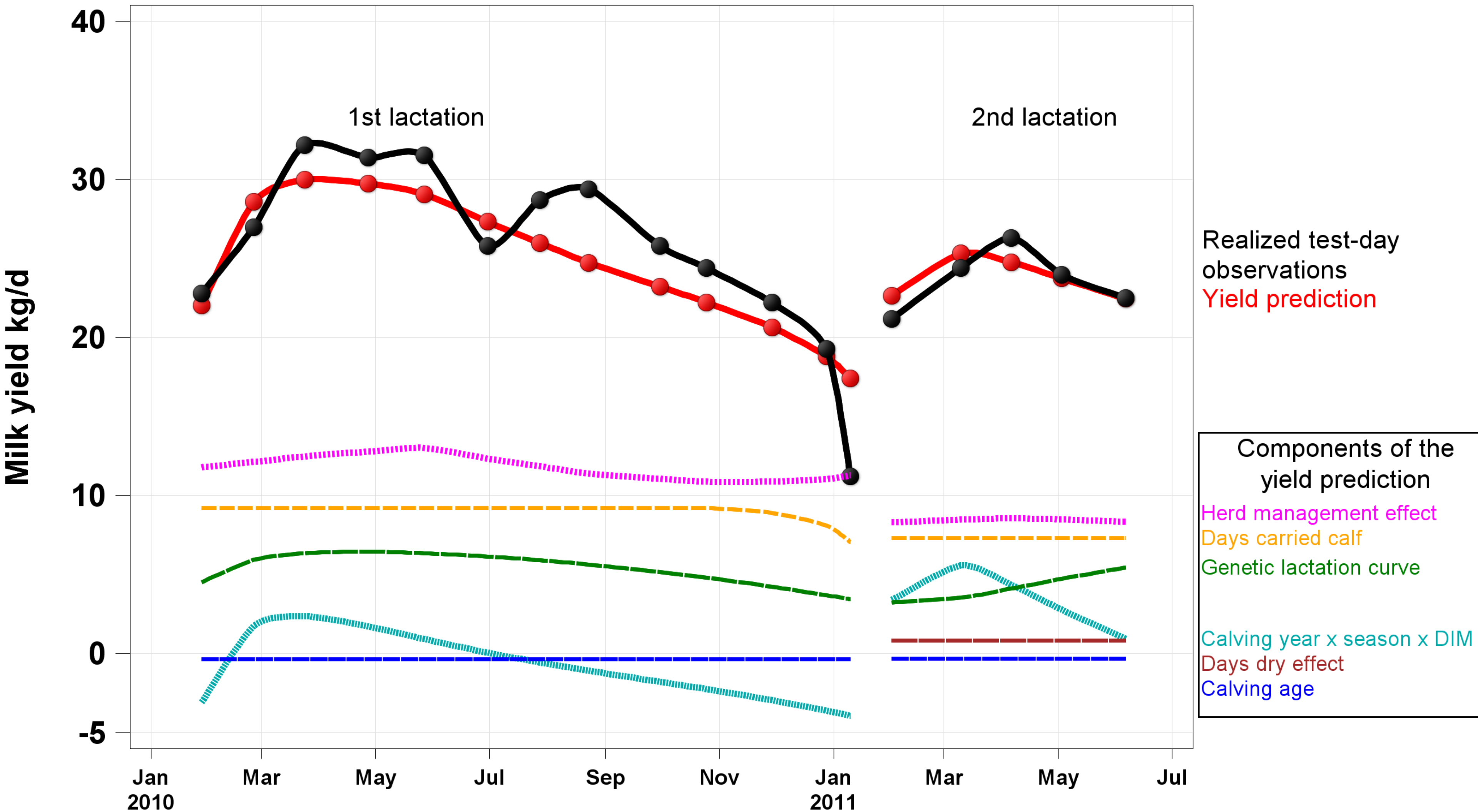
Fish

- Finnish fish breeding programme
- Improving EU aquaculture by selective breeding
- Vietnam - selective fish breeding
- Gulf of Bothnia as resource of growth
- Sevan trout breeding in Armenia

Barley

- Genomic selection for barley

Nordic Test-Day model



LUONNONVARAKESKUS

A Short History of Finnish and Nordic Test-day model

1992: **305d repeatibility animal** model in **Finland**

2000: First **Test-Day model in Finland**

– Traits: first parity, and later parities

2006: **First Nordic TDM**

– Traits : First, second, and later parities

– For Sweden 305d yields were used

2010: **Model update**

- Traits: first, second, and third parities
- Swedish test-day records included

2016: Model update

- Parameters for observations from **milking robots**

Nordic Test-day model: 2016

- **Joint** evaluation for **Finnish**, **Swedish** and **Danish** dairy cattle
- **Milk**, **protein**, and **fat** yields as biological traits
- **First**, **second**, and **third** parity as a separate trait
- **3 countries** * **9 traits** = **27 traits** in the model evaluated at **the same time**
- **Genetic correlation between countries 1.0**
- Separate model for **HOL**, **RED**, and **JER** breeds
- Separate **residual variances** for **conventional** and **robot milking**
- **Heterogenous variance adjustment**

Evaluations and test-day records

Routine Evalutions

- **Routine evaluations** done by **Nordic Cattle Genetic Evalution** (NAV)
- NAV is **jointly owned** by three countries

Test-day recording

- On average milk recording is done **once in a month**
- In **Finland** fat and protein **contents** are determined **every second month**
- Test-days from **DIM=8 to 315** are included
- 9-10 TDs per cow per parity

Nordic Test-day model, figures

- HOL evaluation May 2017:
  - 157,731,912 **test-day records** from FIN,DNK and SWE
  - 405,349,185 **yield observations** (milk + protein + fat)
  - 9,955,910 **animals** in the pedigree
  - 7,739,238 **cows** with TD records

From 305d model to TD model: What to expect?

Multiple-Trait Random Regression Test-Day Model for all Lactations

M. Lidauer[1], E. A. Mäntysaari[1], I. Strandén[1] and J. Pösö[2]
[1]*Agricultural Research Centre MTT, Animal Production Research, FIN-31600 Jokioinen, Finland*
[2]*Finnish Animal Breeding Association, FIN-01301 Vantaa, Finland*

- Interbull Bulletin no 25. (2000)
- Comparison between Finnish 305d model and Finnish test-day model

Comparison of Standard Deviations of Estimated Breeding values

Table 2. Standard deviations (kg) of estimated breeding values for milk (M), protein (P), and fat (F) yields for first lactation (FIRST), later lactations (LATER), average of first and later lactations (0.5(FIRST+LATER)) obtained from the multiple-trait multi-lactation random regression test-day animal model (TD-MODEL), and obtained from the previously used single trait repeatability animal model (ST-R-AM) by different groups of animals; Ayrshire (AY) and Friesian (FR) bulls born 1991-1993 with at least 60 daughters, and Ay and Fr cows born in 1995 with at least 4 test-day observations. Number of animals in parenthesis

	TD-MODEL									ST-R-AM		
	FIRST			LATER			.5(FIRST+LATER)					
	M	P	F	M	P	F	M	P	F	M	P	F
AY bulls (335)	415.	10.4	16.4	496.	14.5	21.2	438.	11.9	17.9	414.	11.0	17.4
FR bulls (132)	426	11.0	18.9	477	13.3	22.4	434	11.6	20.1	407	11.1	19.4
AY cows(67,252)	401.	9.3	14.1	436.	11.5	17.5	406.	10.0	15.3	334.	9.6	15.0
FR cows (20,804)	449.	10.7	14.5	491.	12.9	18.4	457.	11.4	16.0	370.	10.7	15.2

Correlations between estimated breeding values

Table 3. Correlations between estimated breeding values for milk (M), protein (P), and fat (F) yield for first lactation (FIRST), later lactation (LATER), first and later lactations average (0.5(FIRST+LATER)) obtained from the multiple-trait multi-lactation random regression test-day animal model, and corresponding breeding values obtained from the previously used single trait repeatability animal model by different groups of animals; Ayrshire (AY) and Friesian (FR) bulls born 1991-1993 with at least 60 daughters, and Ayrshire and Friesian cows born in 1995 with at least 4 test-day observations. Number of animals in parenthesis

	FIRST			LATER			.5(FIRST+LATER)		
	M	P	F	M	P	F	M	P	F
AY bulls (335)	0.96	0.93	0.95	0.90	0.89	0.90	0.97	0.96	0.97
FR bulls (132)	0.95	0.94	0.97	0.89	0.87	0.93	0.96	0.94	0.97
AY cows (67,252)	0.86	0.85	0.88	0.83	0.82	0.85	0.87	0.87	0.89
FR cows (20,804)	0.88	0.87	0.88	0.84	0.84	0.85	0.88	0.88	0.89

IRISH CATTLE BREEDING FEDERATION

Test Day Model - Update

Department of Agriculture, Food and the Marine

An Roinn Talmhaíochta, Bia agus Mara

Background

- Currently calculate 305 day values for each lactation
- 305 day model uses one 305 day figure for Milk/Fat/Protein which summarises whole lactation
- Operated on contract by CRV Holland – only evaluation not run in-house by ICBF.
- Current model - trait is Heifer-Equivalent (calving @26 months)
- Test day model – each parity (1-3) is a different (but correlated) genetic trait. Separate breeding value for each parity(1-3)

Why Change?

- Current model has performed very well
- More accurate estimation of environmental effects from including the influence of particular recording day
- Optimal use of information from all test days
- Better use of records in progress
- Possibility of persistency evaluation
- Method of choice for most dairy evaluations internationally (New Zealand, Holland, Nordic Countries, Canada, Germany, UK, Belgium)

Actions – Test Day Model

- Genetic parameters estimated 2012 milk/fat/prot incl additional Heterogenous Variance parameters
- Submit initial HO/FR evaluation to interbull test run Jan 2013 Milk/Fat/Prot - passed Interbull test
- Submit all breed (HO/FR, Je, NR/SR, Sim) evaluation to interbull test run Sept 2013 – passed Interbull test
- Dec 2013 – test proofs generated incl genomics
- Milk/Prot proofs stack up well, Fat proofs stack up well overall – some queries
- Decision – not made official due to queries on fat

Actions

- 2014 re-estimate parameters, full re-work of model
- Submit milk/fat/prot to Interbull test run Sep 2014
- Results – passed Interbull test
- Decision – not to proceed

Actions

- Specific evaluation by CRV excluding HV correction
- Apr 2017 - Timo Pitkänen (LUKE) visit ICBF 4 months
- Complete analysis of model
- Results presented here (basically same as previous presented but with 2 years more data)
- Plan submit Interbull Test run Sep 2017
- Implement at suitable time afterwards

Data

- Individual test day records (i.e. raw milk recording)
- Tests since 1/1/1996
- Animals with known sire/dam
- All parities up to 15

PARITY	Records	Cows	PARITY	Records	Cows
1	7,524,368	1,517,884	**9**	327,470	70,960
2	6,199,088	1,231,431	**10**	158,772	35,176
3	4,845,157	964,849	**11**	70,574	15,966
4	3,655,977	734,590	**12**	29,370	6,780
5	2,591,464	526,347	**13**	10,904	2,581
6	1,728,348	355,871	**14**	3,825	945
7	1,070,985	223,290	**15**	1,590	356
8	614,545	130,847			

Weighing by Parity

Records from last 6 years

PARITY	Num Records	Fraction	Weighting
1	970,737	1	**41%**
2	781,567	0.81	**33%**
3	611,521	0.63	**26%**
4	468,900	0.48	20%
5	339,935	0.35	14%
6	233,054	0.24	10%
7	148,637	0.15	6%
8	88,362	0.09	4%
9	48,495	0.05	2%
10	24,413	0.03	1%
11	11,519	0.01	0%
12	5,072	0.01	0%
13	1,952	0.00	0%
14	710	0.00	0%
15	189	0	0%

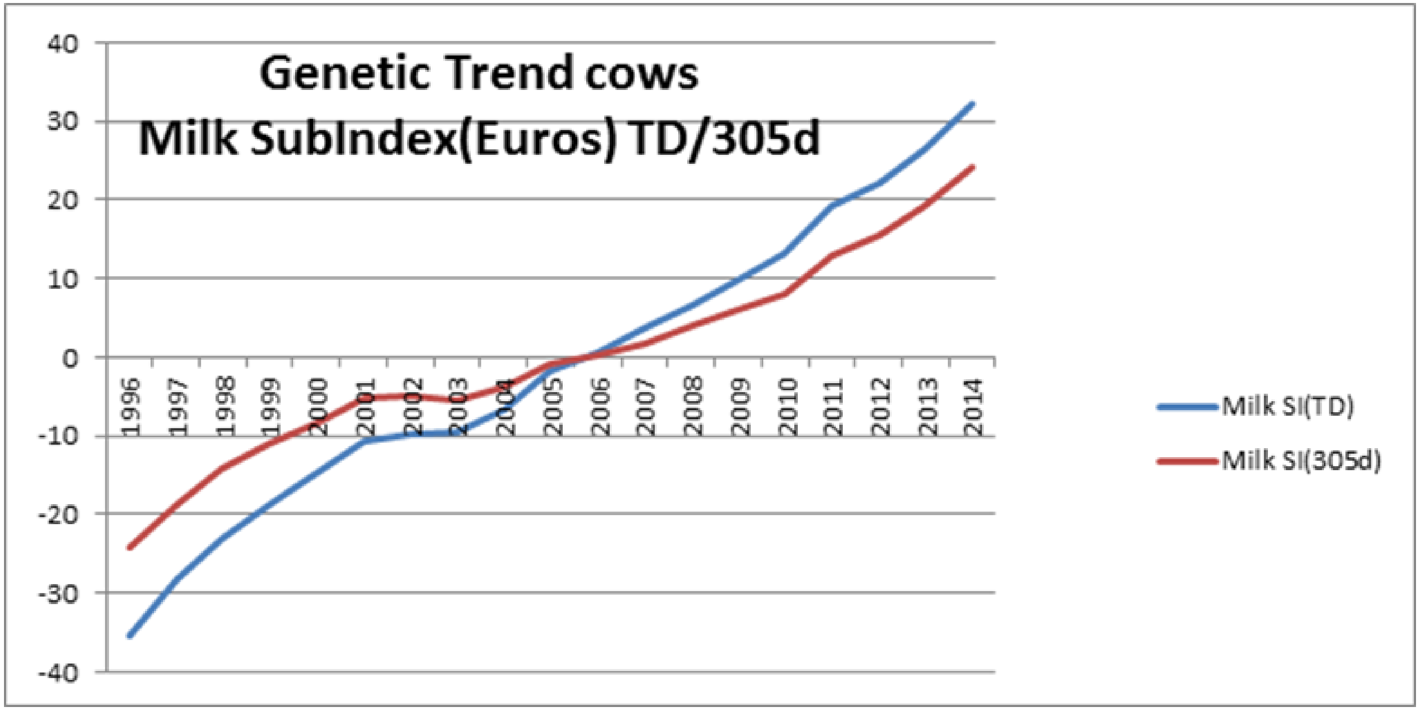
Base cow is unchanged

(born 2005, calved 2007)

Other Countries

- Nordic Countries
  - 50 : 30 : 20
- UK
  - 38 : 31 : 31
- Holland
  - 41 : 33 : 26
  - https://www.crv4all-international.com/wp-content/uploads/2016/03/E-7-milk-production.pdf

Genetic Trend



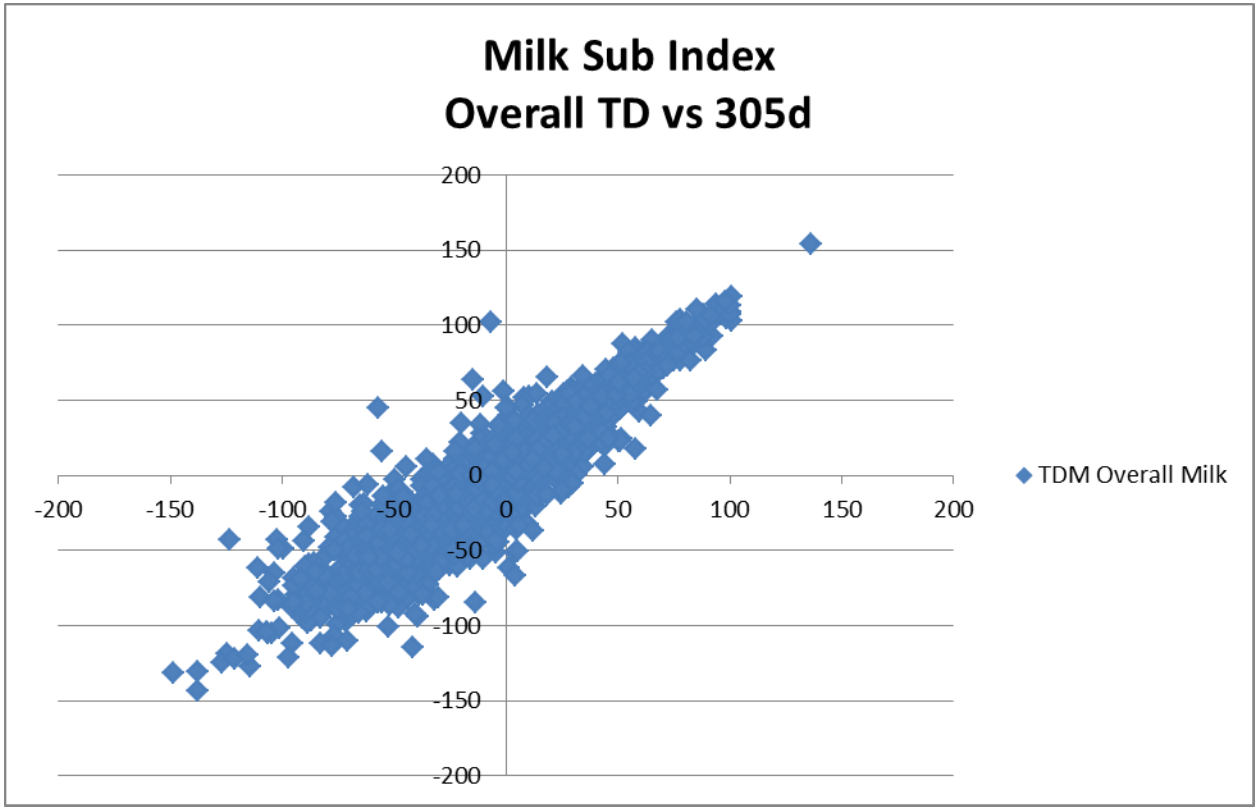
– Higher h^2 in new model compared to old

- Old Model 0.35
- New Model 0.46

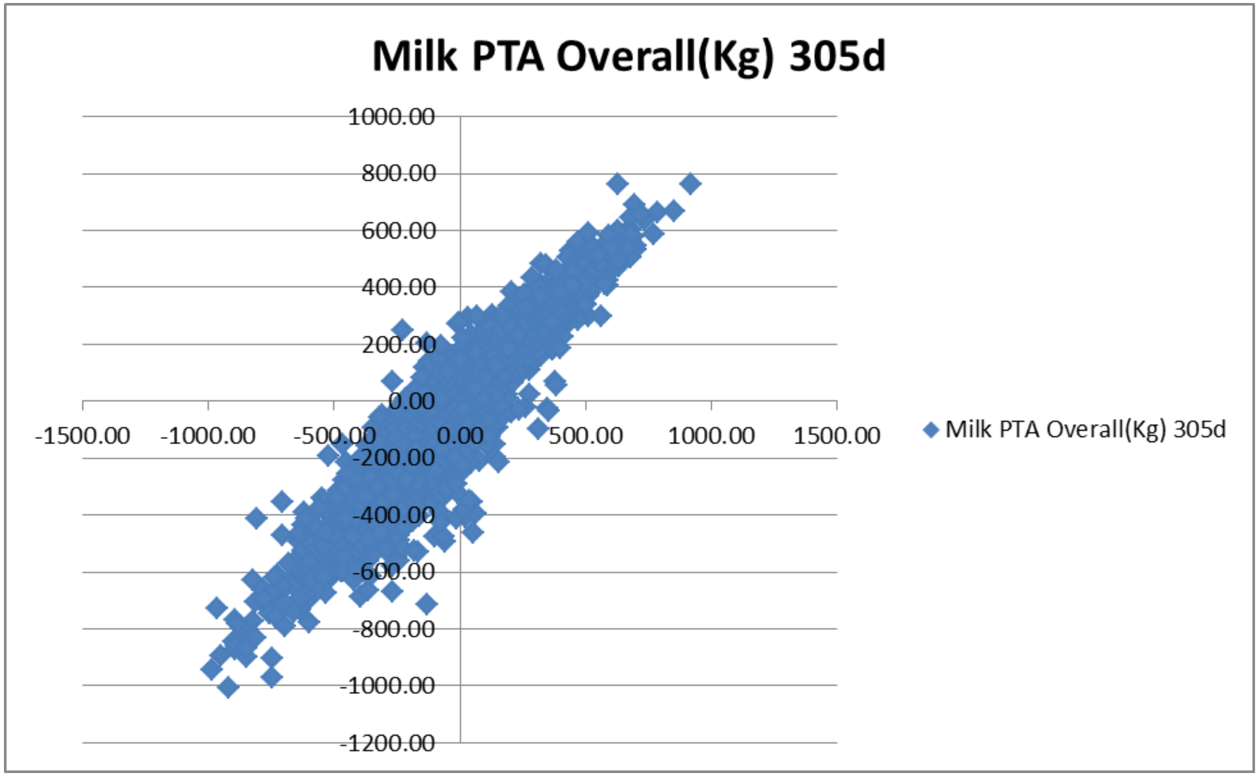
Correlations between old/new proofs

	Num Anis	Milk	Fat	Prot
Bulls >90%	2258	0.966	0.970	0.956
Bulls >70%	3557	0.954	0.947	0.939
All Cows with records	1831295	0.924	0.935	0.923
Alive Cows with records	626774	0.956	0.958	0.953

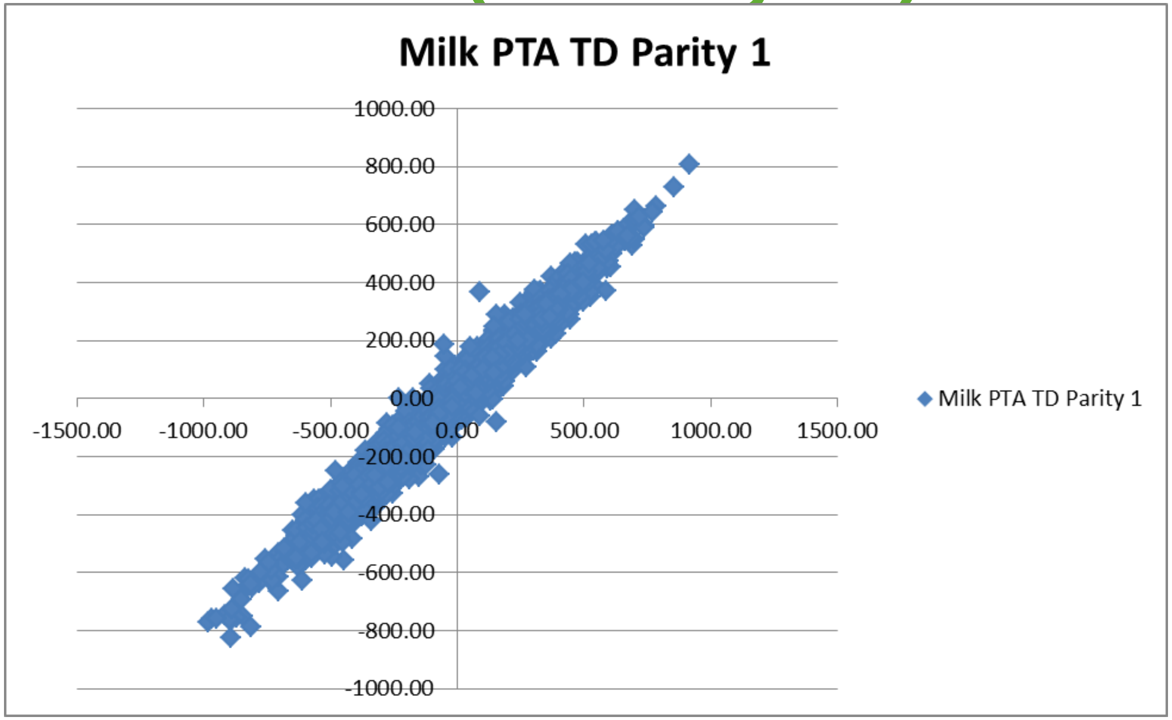
Old vs New – Ai Bulls Milk Sub Index



Old vs New – Ai Bulls Milk PTA(Overall)



Old vs New – Ai Bulls Milk (Parity 1)



– Note tighter correlation with parity 1 PTA, as current model is Heifer Equivalent

Reliability Changes

	Num Anis	Milk Rel	
		305d	Td
Cows with records	1,831,295	58.6	67.7
Alive Cows with records	602,218	57.2	65.3

Changes different Animals

	Num Anis	Milk		Fat		Prot		Milk SI Euro Difference
		Td	305	Td	305	Td	305	
Active AI Bulls	530	44.73	-2.04	5.52	4.44	4.20	2.57	**7.72**
Bulls >50%	4246	-2.56	-25.56	0.54	0.17	-0.35	-0.83	**1.54**
Bulls >70%	3557	14.82	-4.16	1.37	1.17	0.39	-0.01	**1.13**
Bulls >90%	2258	36.38	17.22	2.31	2.15	1.39	0.95	**1.41**
All Cows	1831295	*-2.47*	*-13.21*	*0.58*	*0.55*	*0.06*	*-0.07*	**0.06**
All Cows alive	626774	*42.39*	*1.96*	*2.95*	*3.04*	*2.87*	*1.61*	**5.62**

Changes different Breeds

Milk		Fat		Prot					
Avg Td	Avg 305d	Avg Td	Avg 305d	Avg Td	Avg 305d	Milk SI Euro diff	Num Bulls	Avg Age	Breed
122.44	102.41	3.82	3.59	3.37	2.86	3.37	1638	22/05/1997	HO
-165.87	-200.28	-2.79	-3.35	-3.72	-4.81	5.12	238	18/12/2000	FR
-305.77	-356.50	12.71	11.71	0.67	-0.44	5.64	104	30/07/2005	JE
-126.15	-103.31	-7.87	-5.82	-3.57	-2.84	-4.21	58	24/12/1994	MO
-157.05	-191.26	-2.76	-3.53	-1.38	-2.70	8.28	33	07/08/1999	NR
-296.64	-323.57	-8.39	-8.59	-5.54	-6.66	4.53	28	22/06/1997	MY
-121.50	-168.69	0.13	-1.50	-1.67	-3.31	8.34	8	18/01/1997	SR

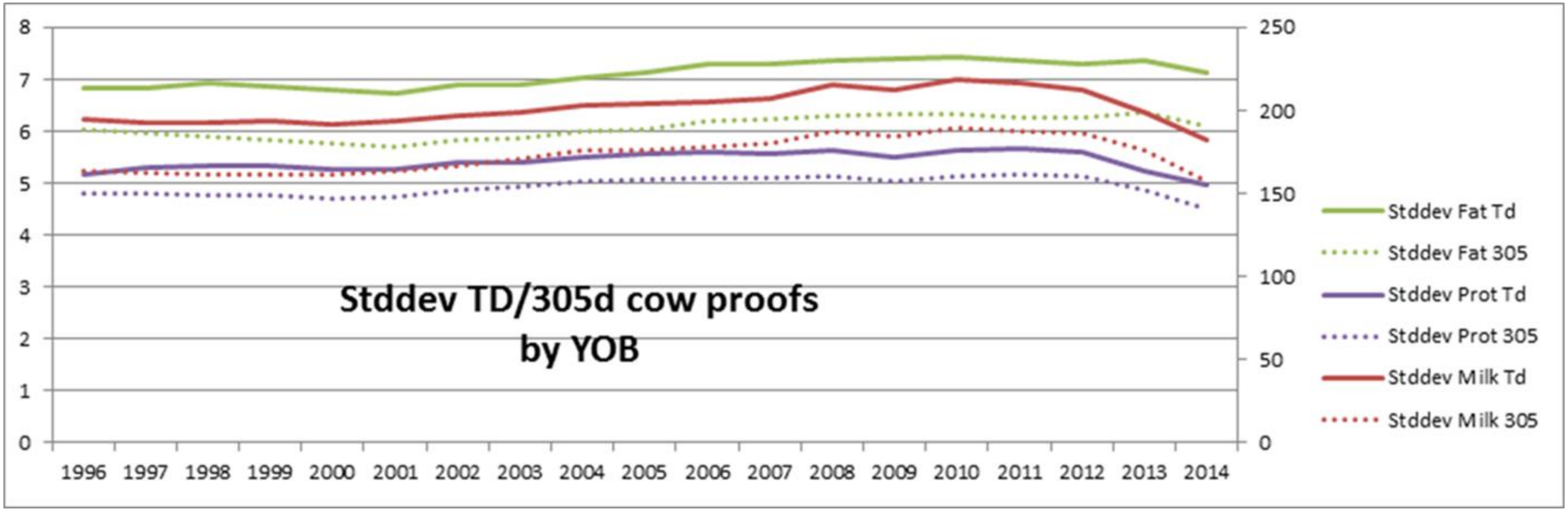
– Bulls >=87.5% of the breed

Parity differences

	Milk 1 PTA	Milk 2 PTA	Milk 3 PTA	Milk Incr 1-3
Bull 1	372	626	887	515
Bull 2	53	-27	-163	-215
Average	62	69	99	37

– Daughters of some bulls better (or worst) as they mature (Average across 1063 AI bulls born since 1/1/2000, rel >90)

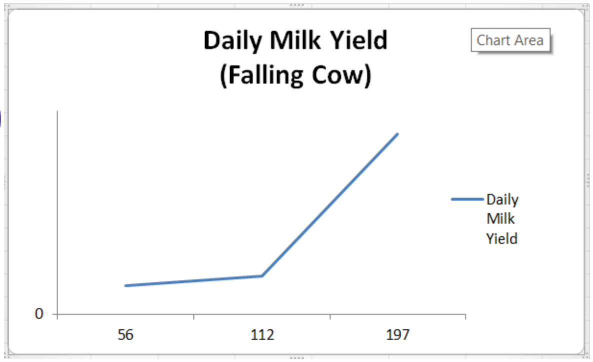
Variation in proofs



– Note data taken from Nov 2016 (to allow comparison with 305d model)

Rankings Changes

- Active AI bulls(daughter proven) – ranked by milk sub index
  - Top 10 bulls – 9 bulls still in top 10
  - Top 100 bulls – 89 bulls still in top 100
  - Top 200 bulls – 191 bulls still in top 200
  - Bottom 100 bulls – 92 still in bottom 100
  - Top 10 cows – 6 still in top 10
  - Top 1000 cows – 577 still in top 1000



Actions

- Specific evaluation by CRV excluding HV correction
- Apr 2017 - Timo Pitkänen (LUKE) visit ICBF 4 months
- Complete analysis of model
- Results presented here (basically same as previous presented but with 2 years more data)
- Plan submit Interbull Test run Sep 2017
- Implement at suitable time afterwards

Lameness update

Siobhán Ring &
Thierry Pabiou

Teagasc
Agriculture and Food Development Authority

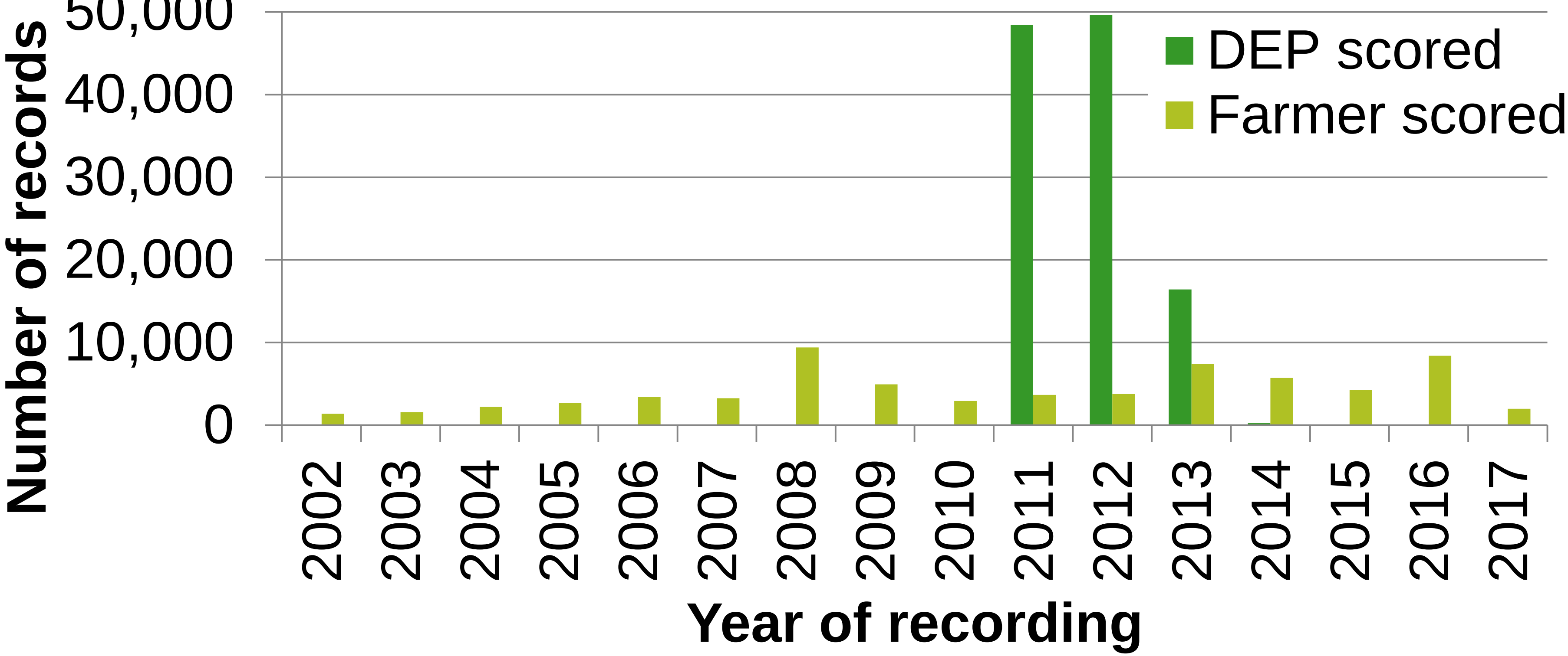
Current status

- Health sub-index introduced 2006
  - Locomotion (n = 45,813 parity 1 cows)
  - Feet & legs composite (older/foreign animals)
  - SCC
- First lameness parameters 2012
  - Heritability → 3.8%
- Multi-trait animal model
  - Milk yield, SCC, mastitis, lameness

Current status - data

- 881,640 lameness records (~90% DEP data)
  - 10.8% lame
  - 45% animals repeated records

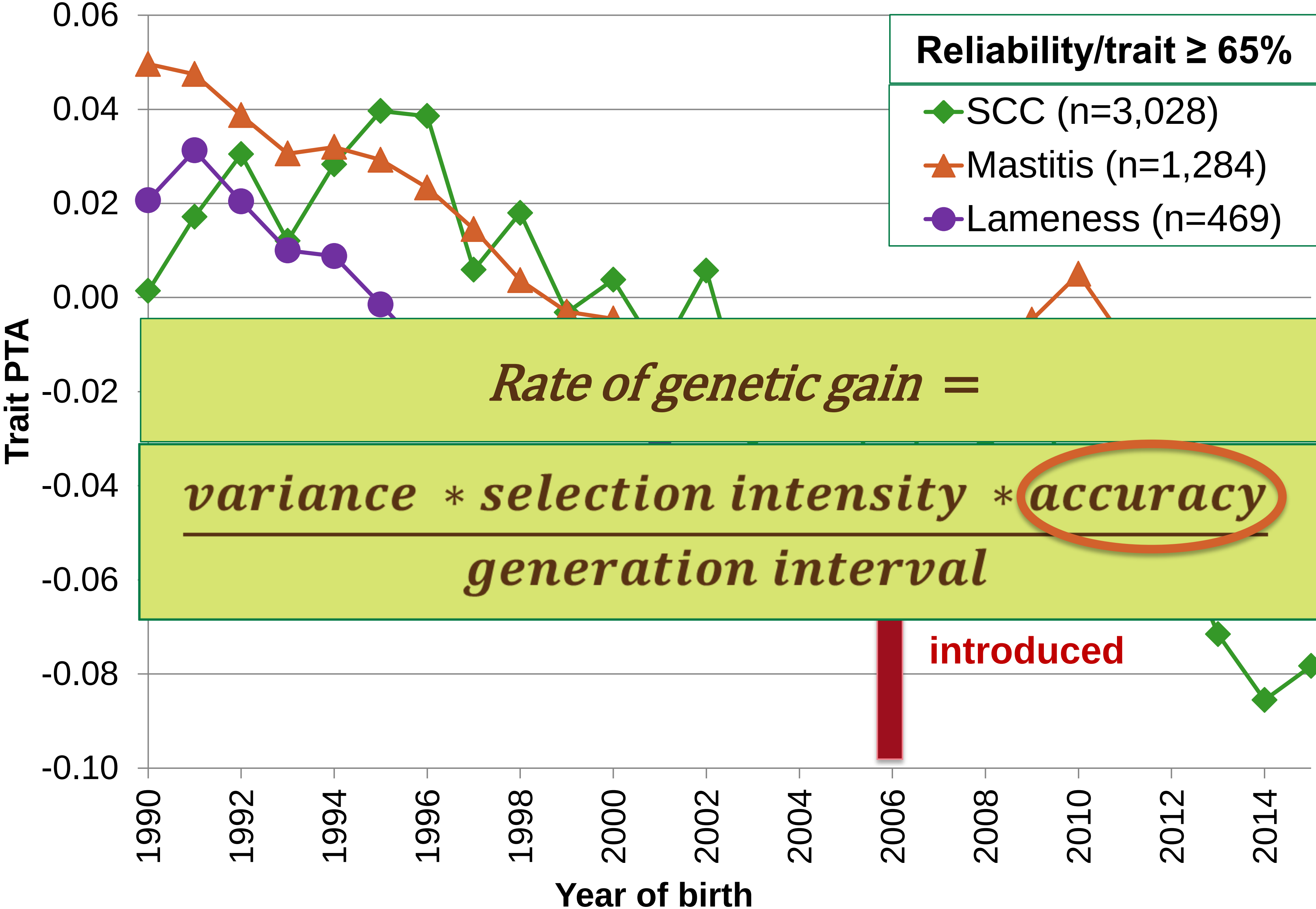
Lameness event recording



Motivation

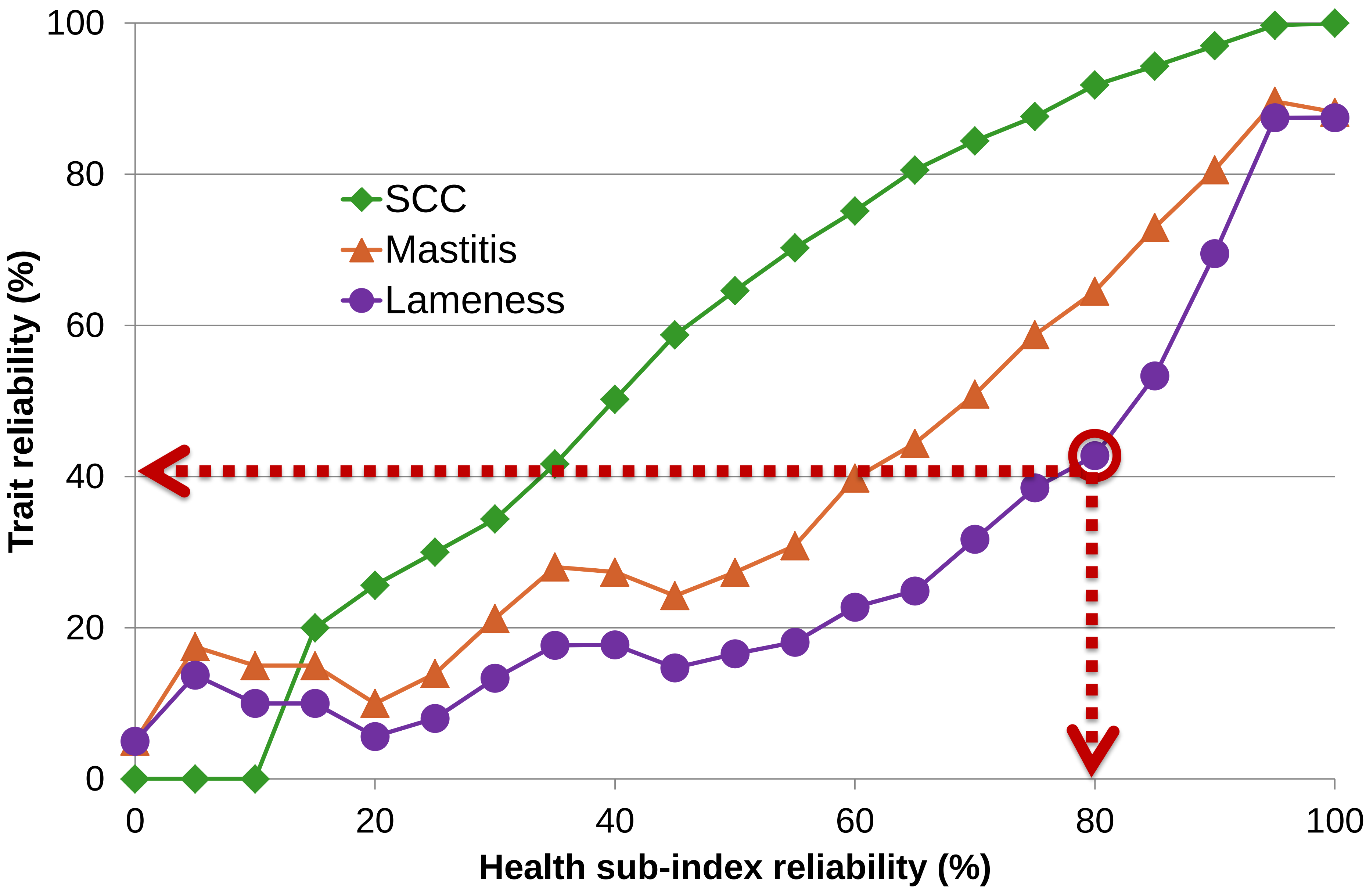
- Need to re-estimate genetic parameters
  - Parentage errors corrected
  - Incentive to provide lameness records removed
  - Increased farmer awareness of the importance of recording
  - Parameters need to reflect current population & data quality

Genetic trends



$$\textit{Rate of genetic gain} = \frac{\textit{variance} * \textit{selection intensity} * \textit{accuracy}}{\textit{generation interval}}$$

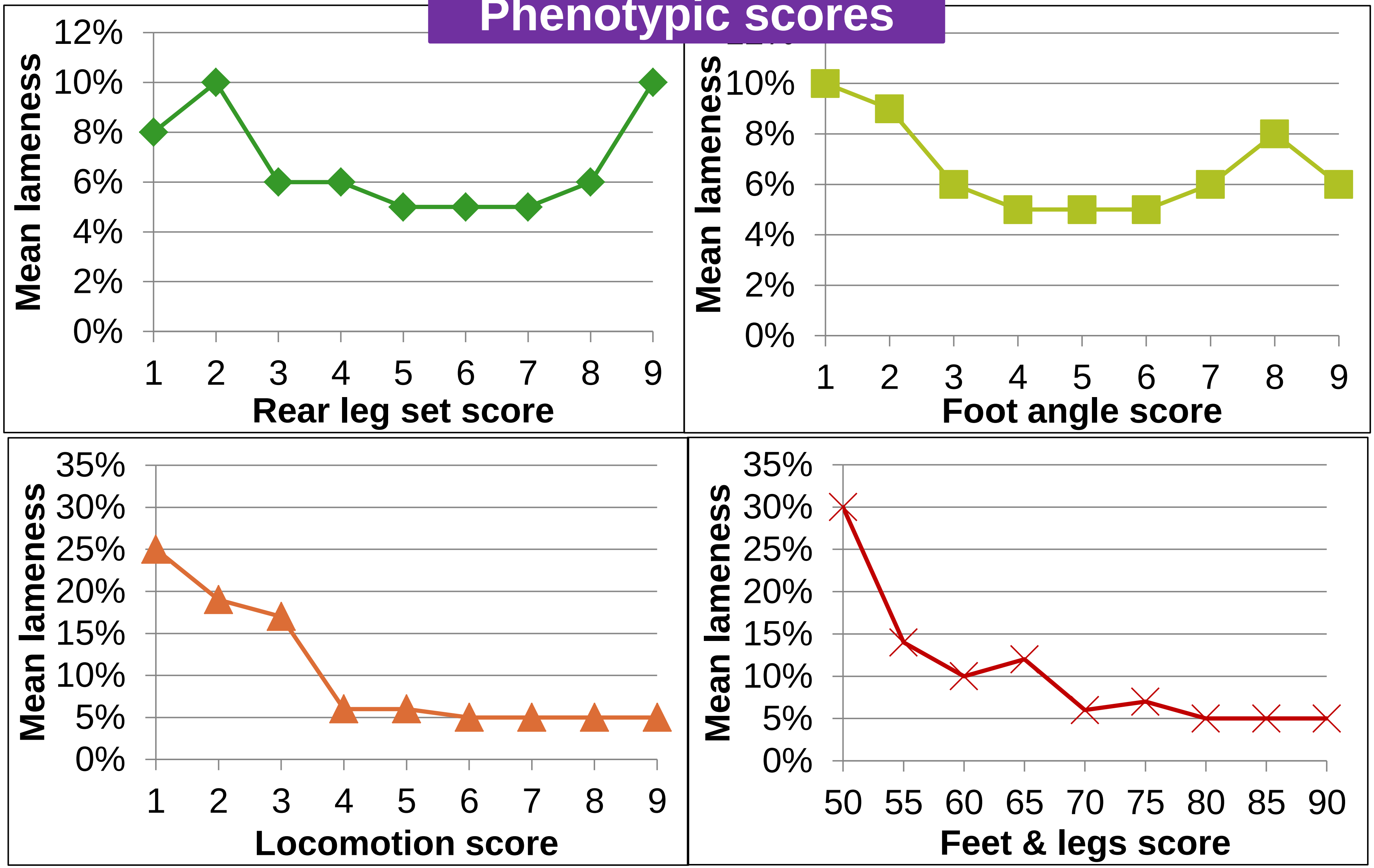
Traits influencing reliability



Conformation and lameness

1st parity clinical lameness and conformation score (n =16, 062)

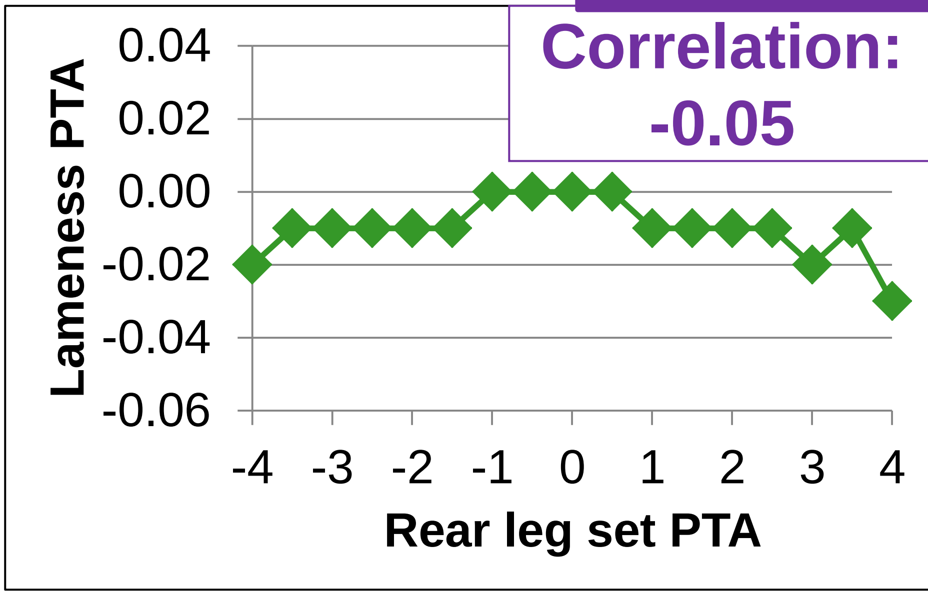
Phenotypic scores



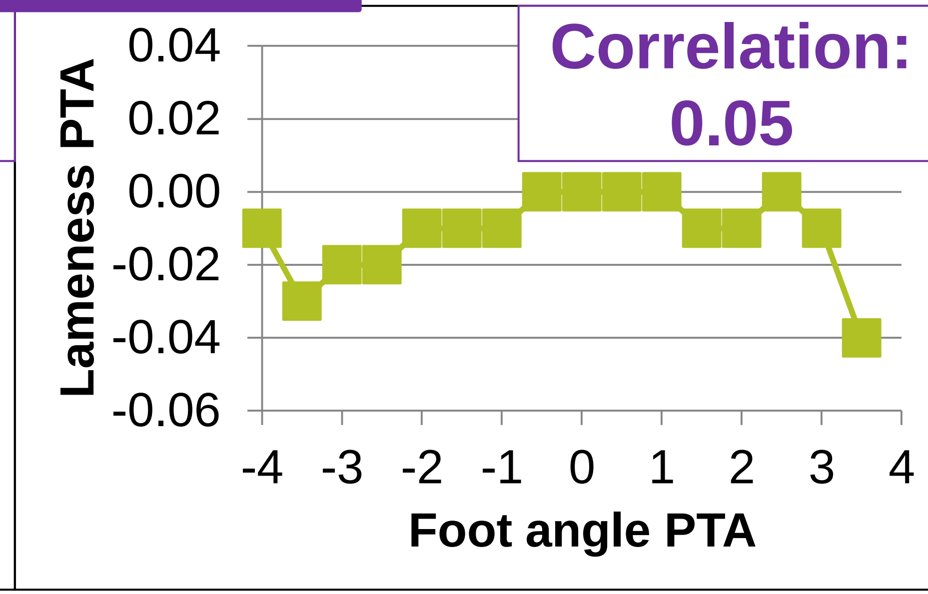
Conformation and lameness

1st parity lameness PTA and conformation PTA (n =16, 062)

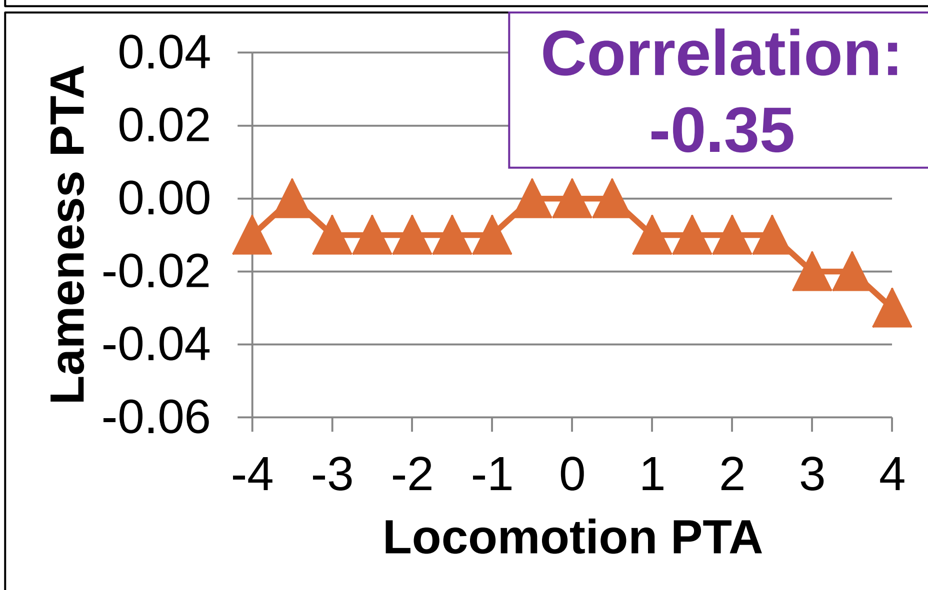
Genetic evaluation



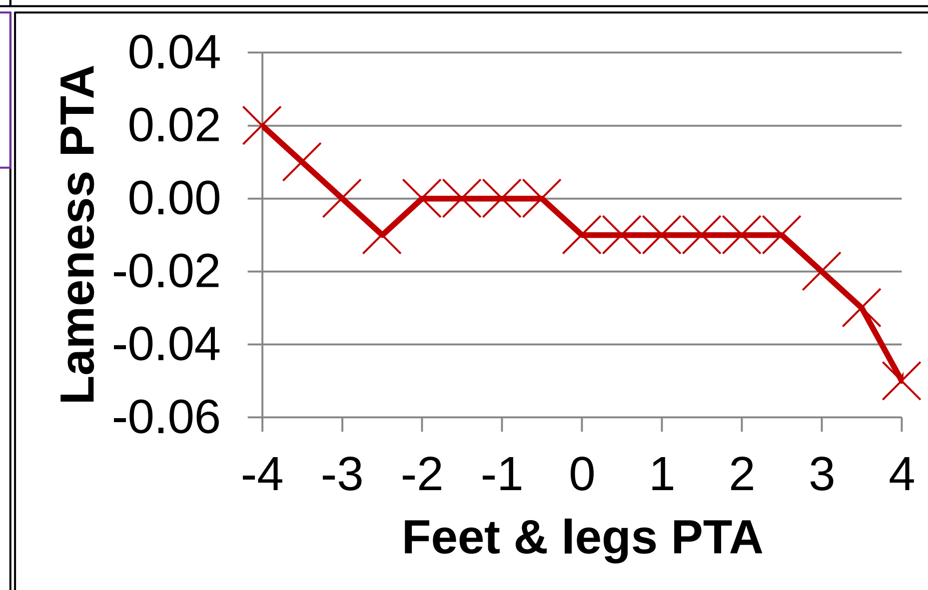
Correlation: -0.05



Correlation: 0.05



Correlation: -0.35



Potential for change

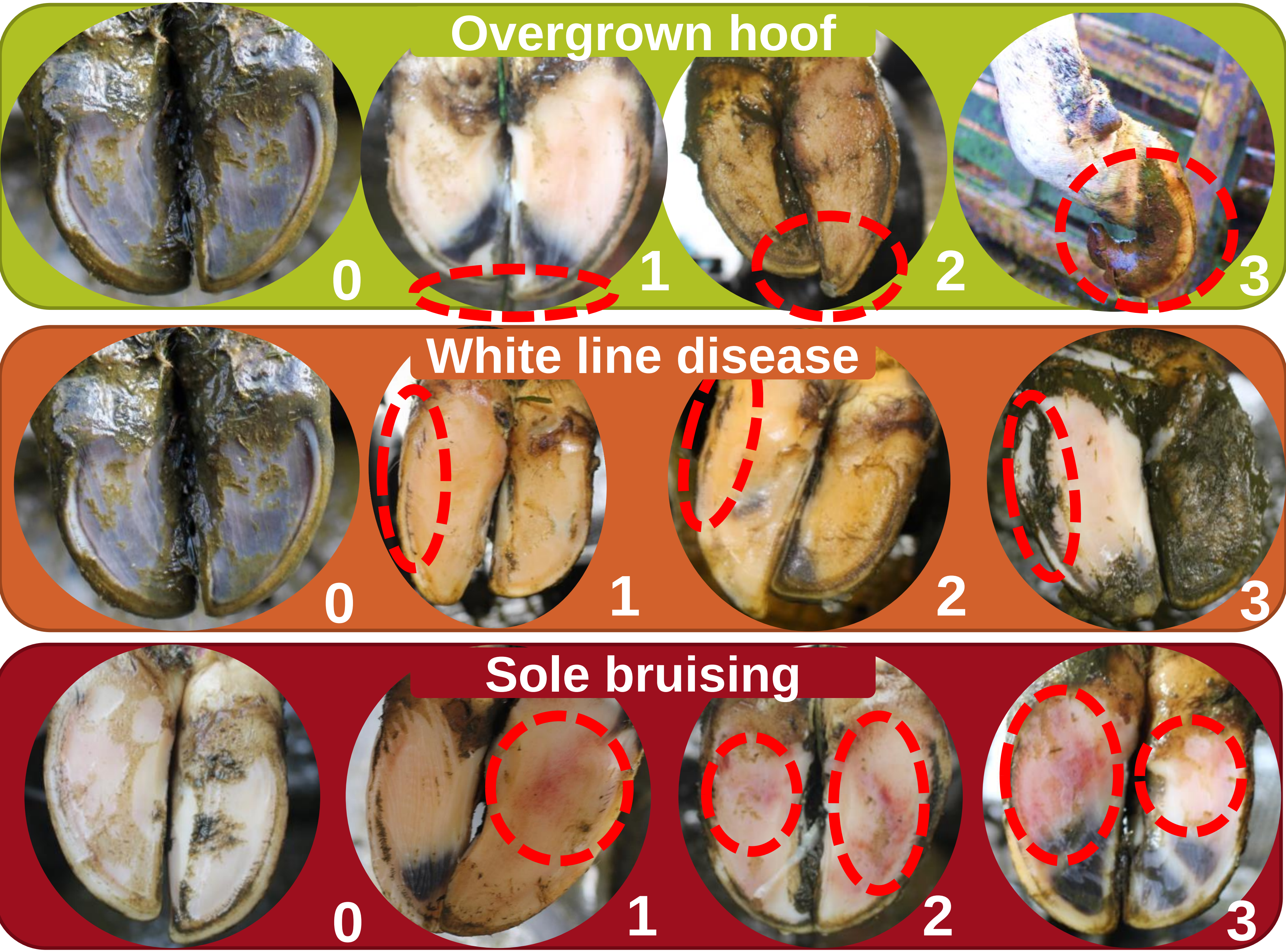
HealthyGenes

- Collect accurate health records
  - ~11,000 dairy cows, 68 herds
  - Estimate genetic parameters

BCS

Mobility

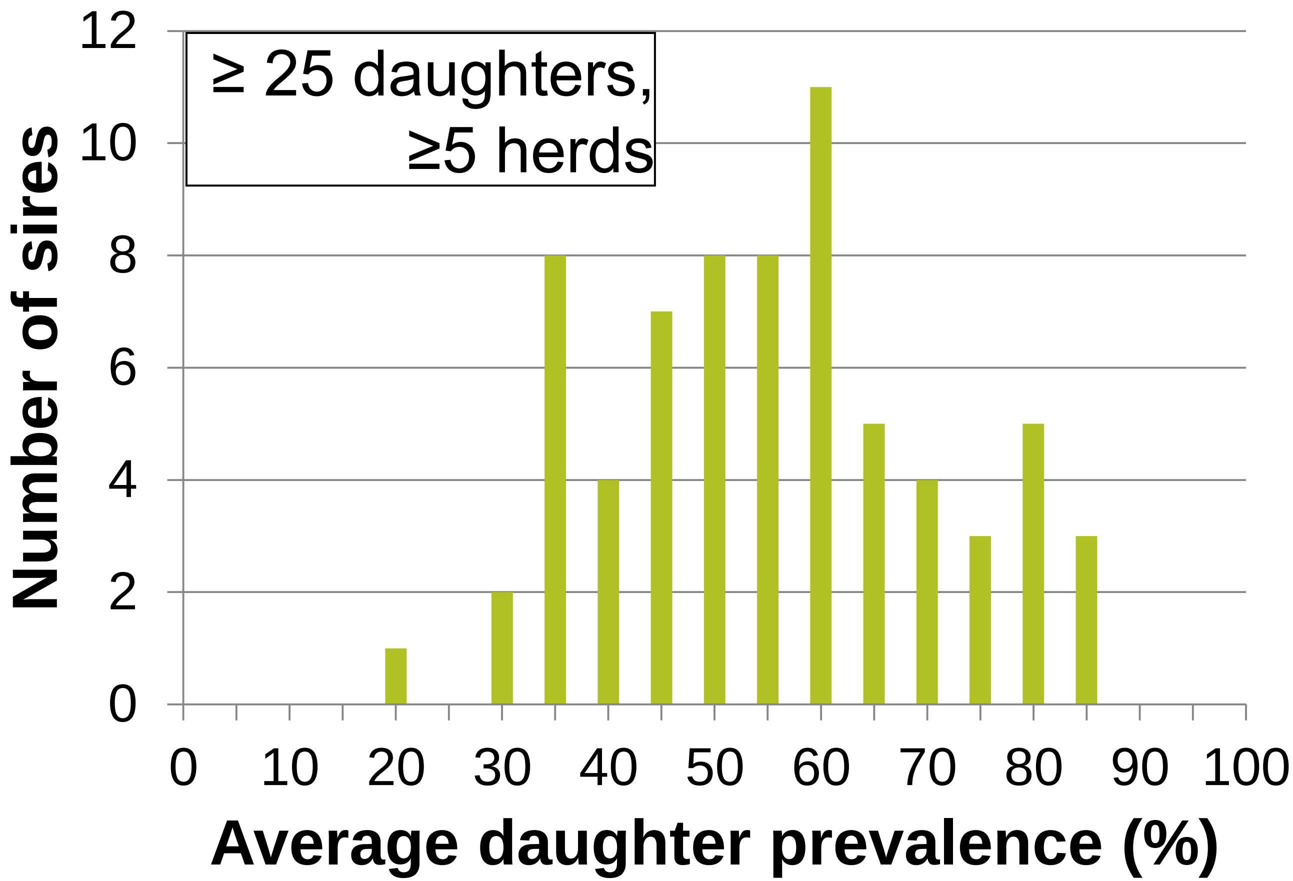
Hoof health
(n = 7,579)


Overgrown hoof
0
1
2
3
White line disease
0
1
2
3
Sole bruising
0
1
2
3

Hoof health traits

Overgrown

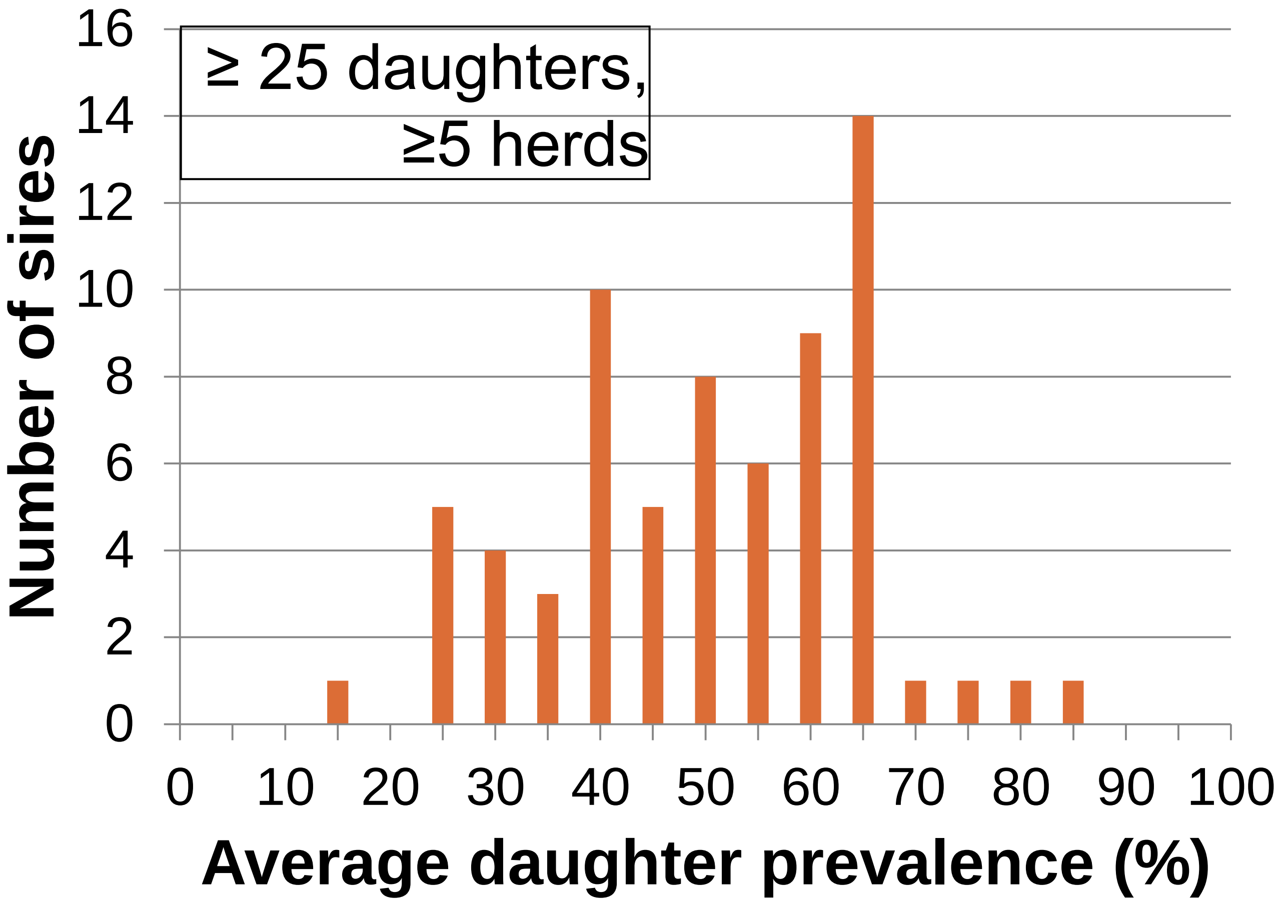
Prev. (≥1)→ 52%
Prev. (3)→ 3%
Heritability → 9%



Hoof health traits

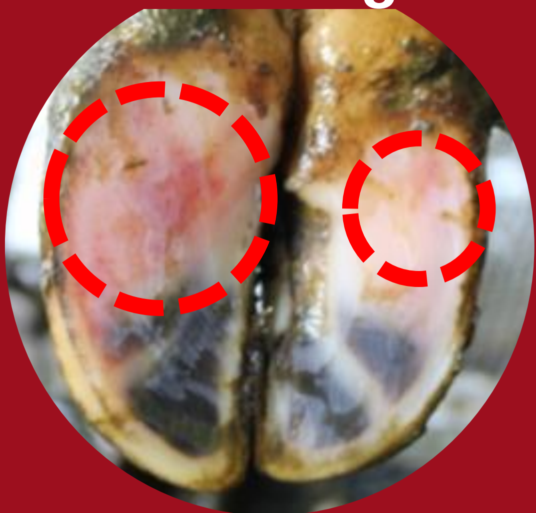
White line

Prev. (≥1)→49%
Prev. (3)→8%
Heritability→13%

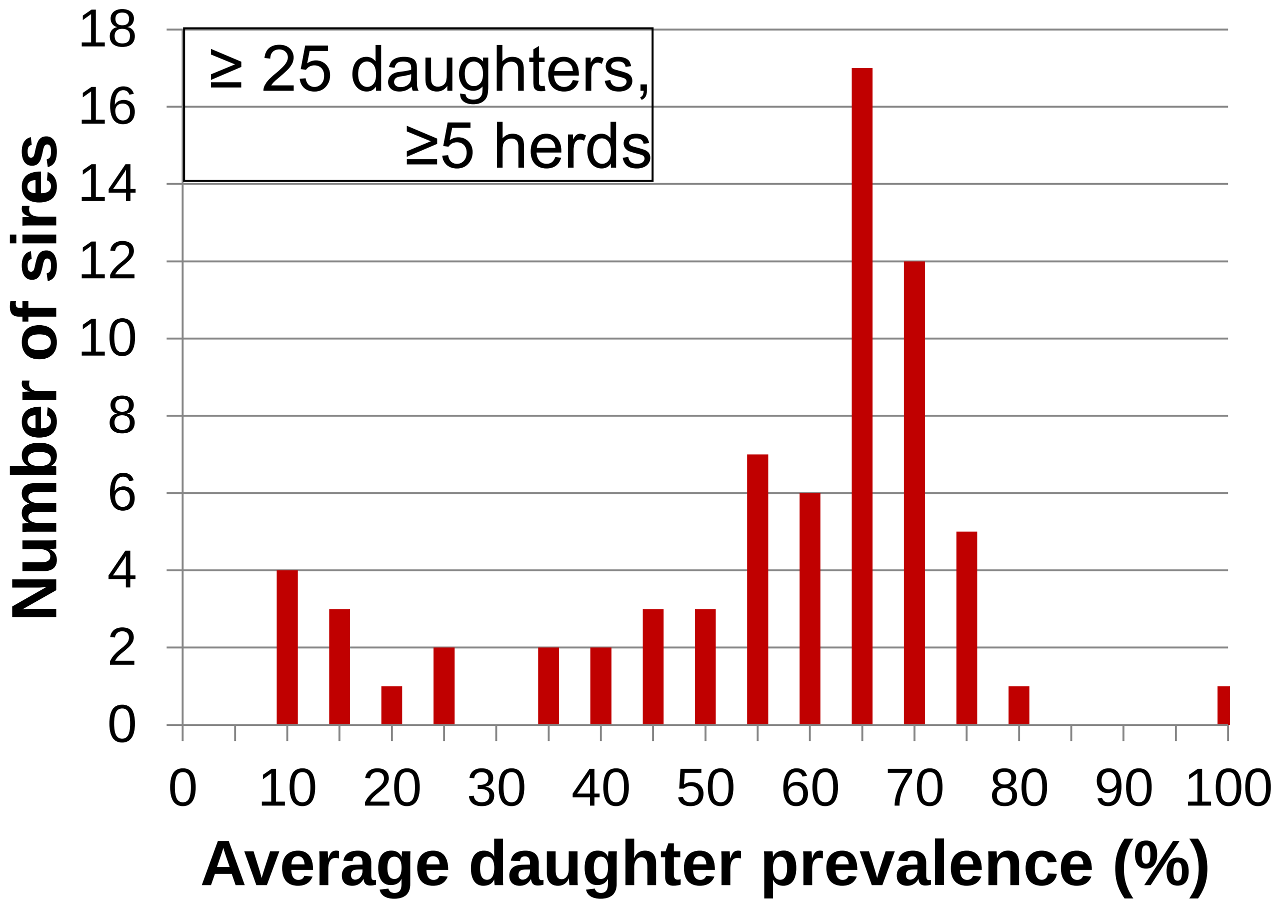


Hoof health traits

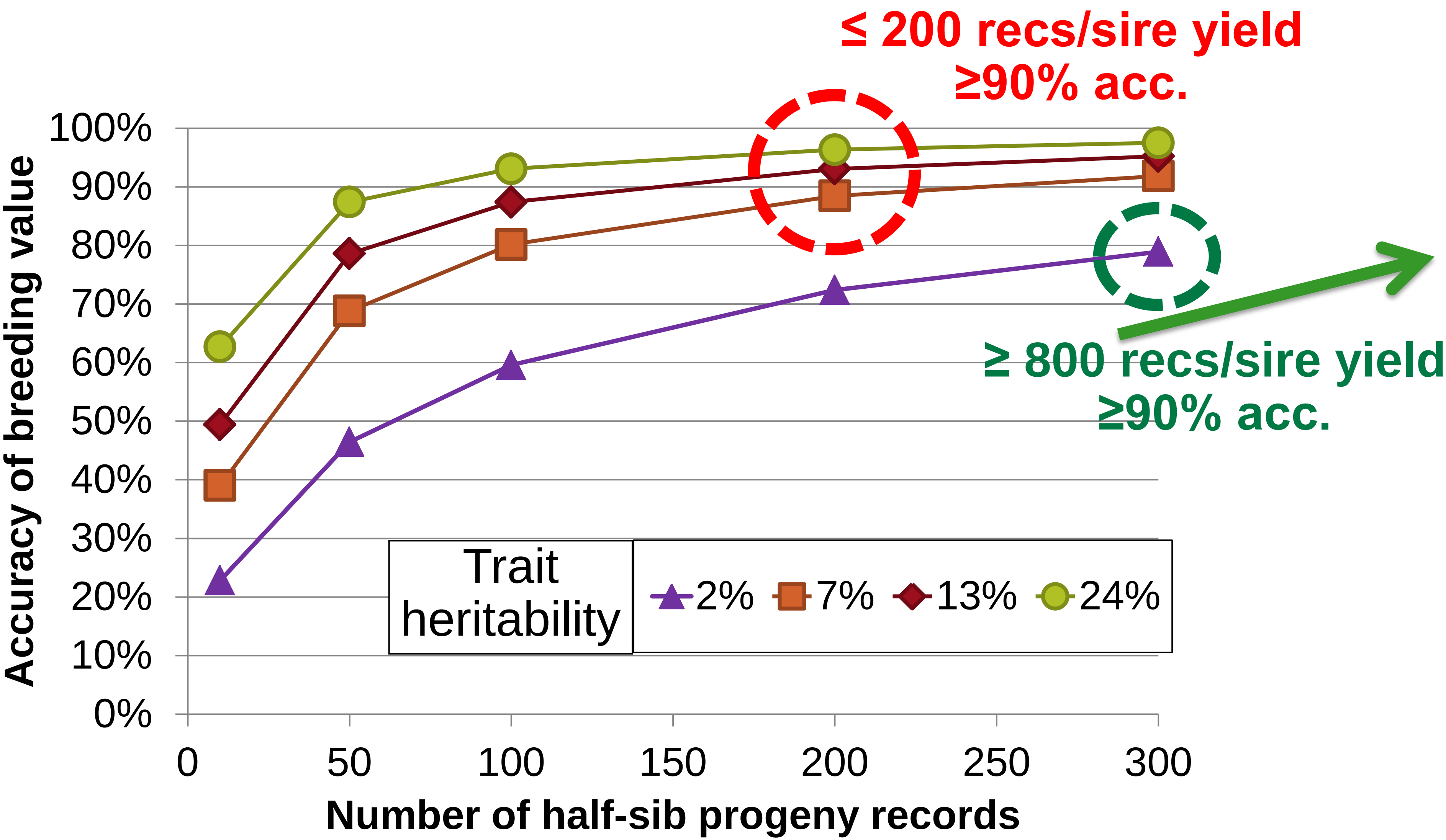
Bruising



Prev. (≥1)→ 53%
Prev. (3)→ 7%
Heritability→24%



Increasing accuracy & genetic gain



Conclusions

- Lag in lameness genetic progress
  - Availability of phenotypes
  - Accuracy of recording
- Locomotion/hoof health traits yield higher genetic variation
  - ↑ genetic progress. Availability of data still a **major** concern => combination of DEP + targeted herds.
- Re-evaluation required & in progress
  - Data – (editing)
  - Traits
  - Genetic evaluation models
  - Economic weights
  - Systems for recording

Teagasc
Agriculture and Food Development Authority

IRISH CATTLE BREEDING FEDERATION

Cow's Own Worth (COW)

Dr. Margaret Kelleher

Dairy Industry Meeting

21st June 2017

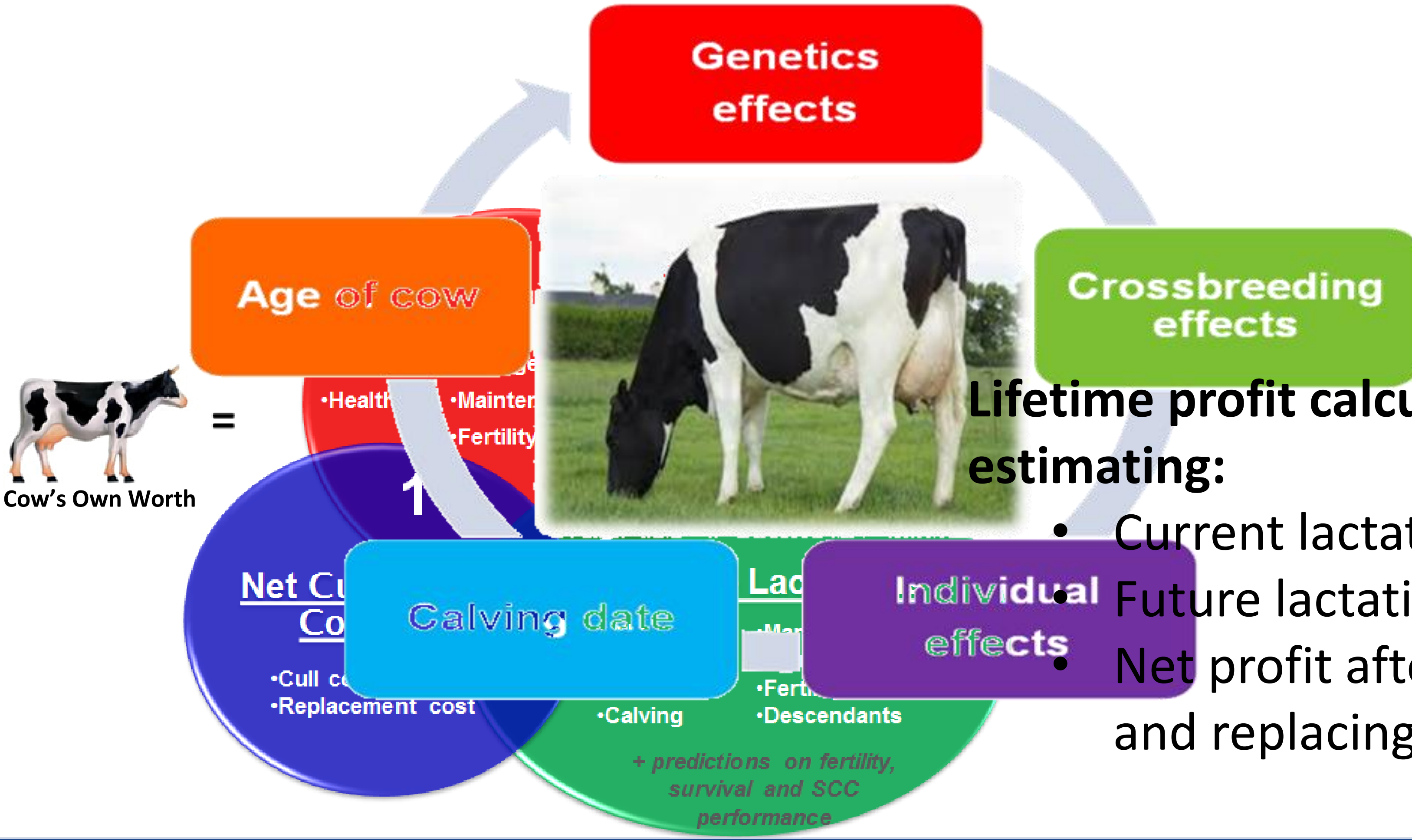
Department of Agriculture, Food and the Marine

An Roinn Talmhaíochta, Bia agus Mara

COW: Cow's Own Worth

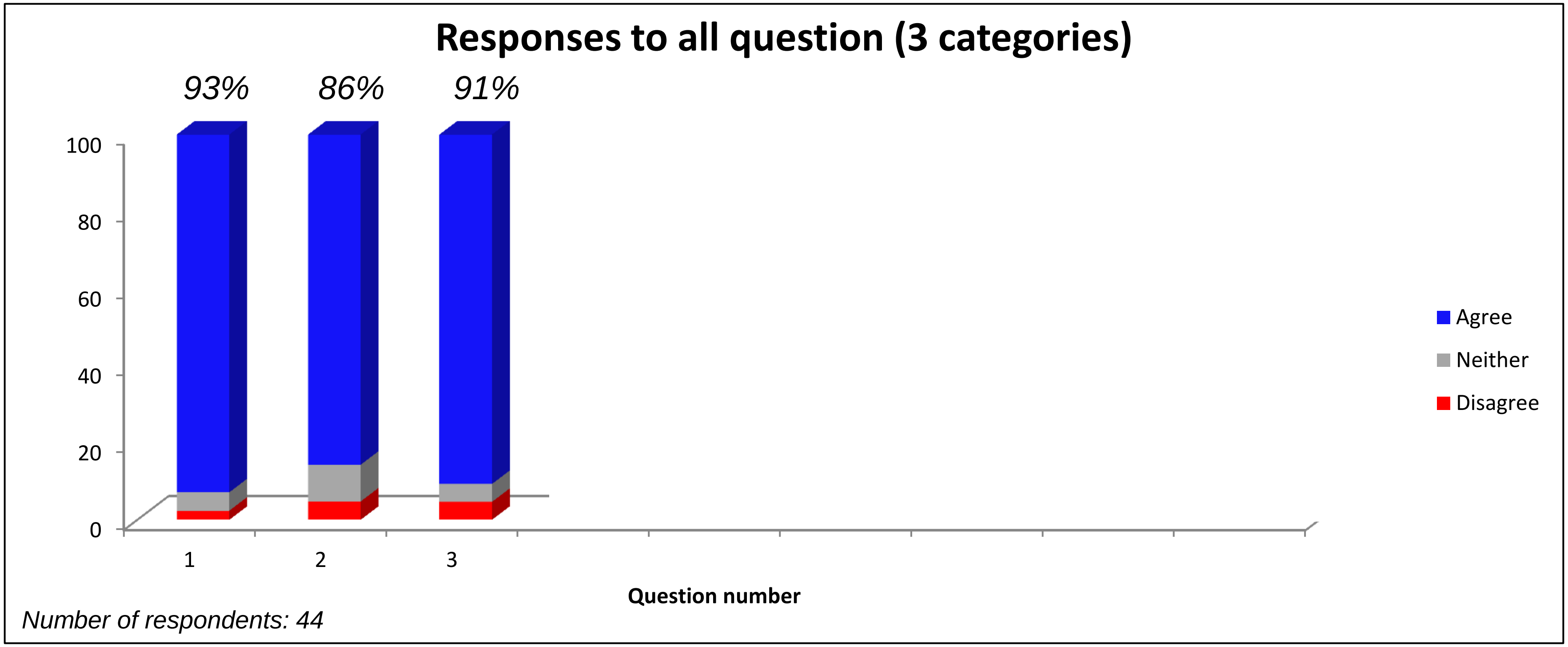
Predicted Performance – Culling tool

5 factors contributing to performance



Lifetime profit calculated by estimating:

- Current lactation profit
- Future lactation profit
- Net profit after culling and replacing cow



1. The COW was able to identify cows **performing well** within my herd.
2. The COW was able to identify cows for **culling** within my herd.
3. I would use the COW to help **inform my culling decisions** if it were to become a routine service from ICBF.
4. I found the report **easy to read**.
5. I found the **extra summary tables** useful to highlight specific areas of production (EG: Top 10 and bottom 10 on COW, Top 10 and bottom 10 on milk solids, High SCC cows).
6. I found the **colour coding** of the top 10% and bottom 10% on important traits useful.
7. I feel that my **milk recording information has more value** now that I can receive a COW index report.
8. I would like the COW to be **generated for my herd from now on**.
9. I would recommend the **national extension** of the COW to all dairy milk recording herds in 2017.
10. Additional comments.

Profile development 2017

- Development underway
- Pilot phase scheduled July
- Farmers testing screens and accuracy of COW rank
- Potential to encourage more data recording with data completeness dash bars

ICBF.com Irish Cattle Breeding Federation

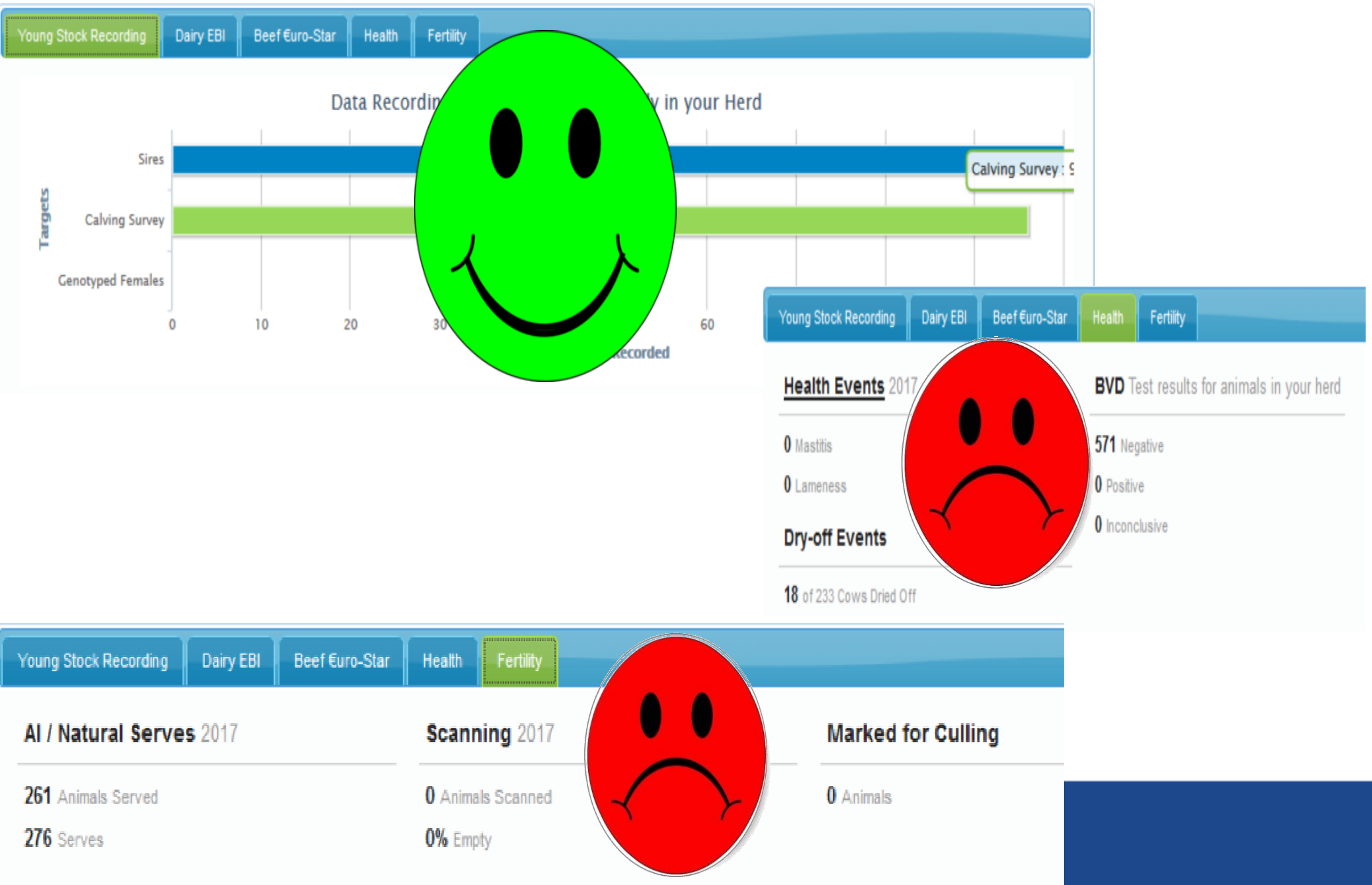
HERDPLUS ▾ | IC ADMIN | TAURUS ▾ | SERVICES ▾ | GENE IRELAND ▾

Cow's Own Worth (COW) Profile Click on an Animal Number/Jumbo to view more details.

Show 100 rows of 753 total. Showing 1 to 100 — First | Previous | 1 | 2 | 3 | 4 | Next | Last — Hide filters — Excel | PDF

Animal Details						Production Values				COW Components			COW
Jumbo	Animal Number	Breed	Lact	Calving Date	EBI	Milk PV (kg)	Fat PV (kg)	Prot. PV (kg)	SCC (,000 c/ml)	Current Lactation (€)	Future Lactations (€)	Net Cull Value (€)	COW Rank
8278	8278	JE (44%), HO (38%)	1	13-FEB-16	145	218	23	18	41	178	765	960	1
8104	8104	JE (50%), HO (28%)	1	26-JAN-16	115	135	30	19	104	191	719	961	2
8179	8179	JE (34%), NR (25%)	1	27-JAN-16	156	-43	21	10	26	149	736	959	3
8180	8180	JE (41%), HO (25%)	1	22-JAN-16	138	-35	21	14	146	169	700	961	4
8298	8298	JE (53%), HO (31%)	1	08-FEB-16	115	74	37	15	50	206	650	964	5
8130	8130	JE (34%), HO (25%)	1	21-JAN-16	147	50	28	13	56	171	680	960	6
8355	8355	HO (56%), JE (25%)	1	03-FEB-16	180	158	20	15	285	156	672	960	7

Current data recording



Conclusions

- Complimentary to the EBI
- Added value service
- Prospects to improve herd profitability
- Multiple sources of data available
- Live system
- Maximise COW accuracy by;
  - Recording **MORE** data
  - Recording **ACCURATE** data
- Pilot phase of on-line service July 2017
- Engagement with key stakeholders re: roll-out and support of service => all cattle breeding organisations will benefit from COW.
- Roll-out from Sept/Oct pending outcome of pilot phase

Cow's Own Worth

ICBF.com

IRISH CATTLE BREEDING FEDERATION

Review of Genetic/Genomic Evaluation Systems & Processes.

Department of Agriculture, Food and the Marine

An Roinn Talmhaíochta, Bia agus Mara

Some key initiatives.

- Independent over-sight on genetic/genomic evaluations. Co-ordinated by Dr Roel Veerkamp.
- Mapping and risk analysis of genetic/genomic evaluation systems and processes undertaken. ISO-2015 certification achieved last week.
- Clearer separation of operational activities, from research/development/implementation.
- Graduate program with Wageningen UR, Netherlands. Target of three people/year.

ICBF.com

IRISH CATTLE BREEDING FEDERATION

Genomic Evaluation Software.

Department of
Agriculture,
Food and the Marine

An Roinn
Talmhaíochta,
Bia agus Mara

Why change?

- Current dairy genomic evaluation software developed by Donagh Berry in 2009. It has served us well.
- Improvements to methodologies + need for increased scale-ability + need for flexibility, means that we now must start considering alternatives.
- Mix99 software the preferred approach.
  - Beef and calving already on Mix99. Opportunity to migrate milk and fertility.
- Development work underway.

Proposed Approach.

1. Mimic exactly same methodology applied by DB but in Mix99. Use the same reference population as is applied currently.
2. Move to applying latest methodology in Mix99. Use the same reference population as is applied currently.
3. Move to applying latest methodology in Mix99. Move to using updated training population including females

Initial Results.

- Very promising.
- Further work underway.
- Align results/outcomes with the 1st meeting of the new “Steering Group”.
- Update at next ICBF Dairy Industry Meeting.

Our Farmer & Government Representation

Our AI & Milk Recording Organisations

Our Herdbooks

Acknowledging Our Members