



The DataGene Herd Test Dashboard

*T. Francis, M. Humphris, R. Morris, T. Sargent,
R. Shephard*

Speaker: Tony Francis



Who we are



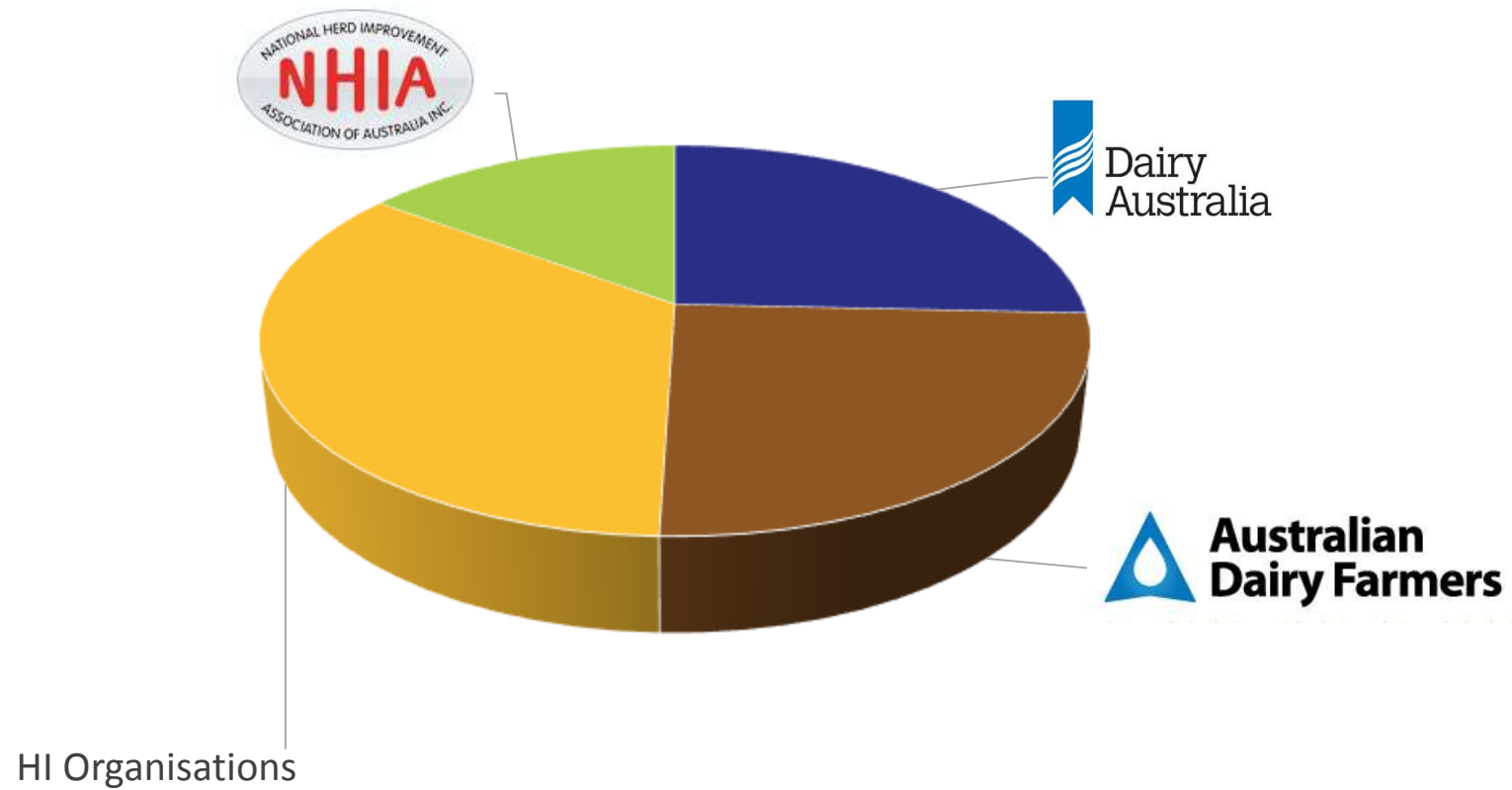
Pure alcohol consumption among persons (age 15+) in liters per capita per year, 2010^[2]

Rank +	Country +	Total +	Recorded consumption +	Unrecorded consumption +	Beer (%) +	Wine (%) +	Spirits (%) +	Other (%) +	2015 projection +
1	 Belarus	17.5	14.4	3.2	17.3	5.2	46.6	30.9	17.1
2	 Moldova	16.8	6.3	10.5	30.4	5.1	64.5	0	17.4
3	 Lithuania	15.4	12.9	2.5	46.5	7.8	34.1	11.6	16.2
4	 Russia	15.1	11.5	3.6	37.6	11.4	51	0	14.5
5	 Romania	14.4	10.4	4	50	28.9	21.1	0	12.9
6	 Ukraine	13.9	8.9	5	40.5	9	48	2.6	11.8
7	 Andorra	13.8	12.4	1.4	34.6	45.3	20.1	0	9.1
8	 Hungary	13.3	11.3	2	36.3	29.4	34.3	0	12.4
9	 Czech Republic	13	11.8	1.2	53.5	20.5	26	0	14.1
10	 Slovakia	13	11.4	1.7	30.1	18.3	46.2	5.5	12.5
11	 Portugal	12.9	11	1.9	30.8	55.5	10.9	2.8	12.5
12	 Serbia	12.6	9.6	2.9	51.5	23.9	24.6	0	12.9
13	 Grenada	12.5	11.9	0.7	29.3	4.3	66.2	0.2	10.4
14	 Poland	12.5	10.9	1.6	55.1	9.3	35.5	0	11.5
15	 Latvia	12.3	10.5	1.8	46.9	10.7	37	5.4	10.6
16	 Finland	12.3	10	2.3	46	17.5	24	12.6	11.9
17	 South Korea	12.3	9.8	2.5	25	1.6	2.9	70.5	10.9
18	 France	12.2	11.8	0.4	18.8	56.4	23.1	1.7	11.6
19	 Australia	12.2	10.4	1.8	44	36.7	12.5	6.8	12.6
20	 Croatia	12.2	10.2	2	39.5	44.8	15.4	0.2	11.7
21	 Ireland	11.9	11.4	0.5	48.1	26.1	16.7	7.7	10.9
22	 Luxembourg	11.9	11.4	0.5	36.2	42.8	21	0	11.2
23	 Germany	11.8	11.3	0.5	53.6	27.8	18.6	0	10.6
24	 Slovenia	11.6	10.6	1	44.5	46.9	8.6	0	10.9
25	 United Kingdom	11.6	10.4	1.2	36.9	33.8	21.8	7.5	12
26	 Denmark	11.4	10.4	1	37.7	48.2	14.1	0	10.2
27	 Bulgaria	11.4	10.3	1.1	39.3	16.5	44.1	0.1	11.3
28	 Spain	11.2	10	1.2	49.7	20.1	28.2	1.8	10.6
29	 Belgium	11	10.5	0.5	49.2	36.3	14.4	0.1	10.8
30	 South Africa	11	8.2	2.9	48.1	17.8	16.7	17.4	11.5
31	 New Zealand	10.9	9.3	1.6	38.2	33.9	15.2	12.5	11.2



Now really!

Membership

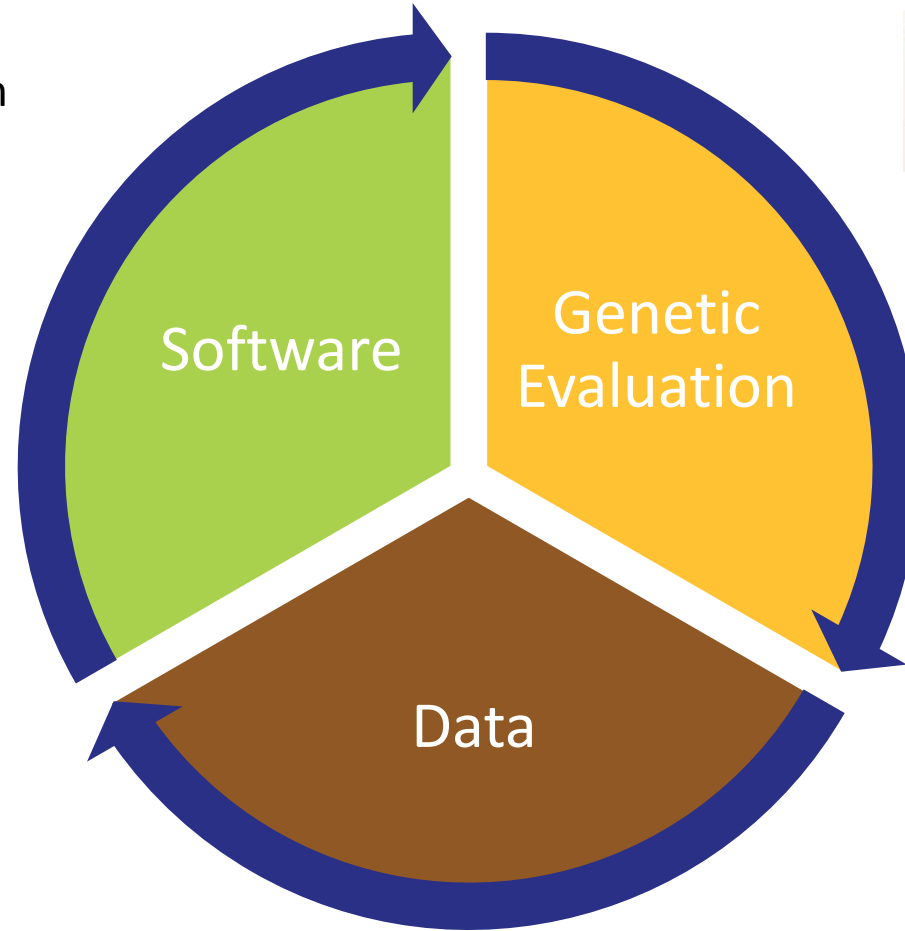


HI Industry Members



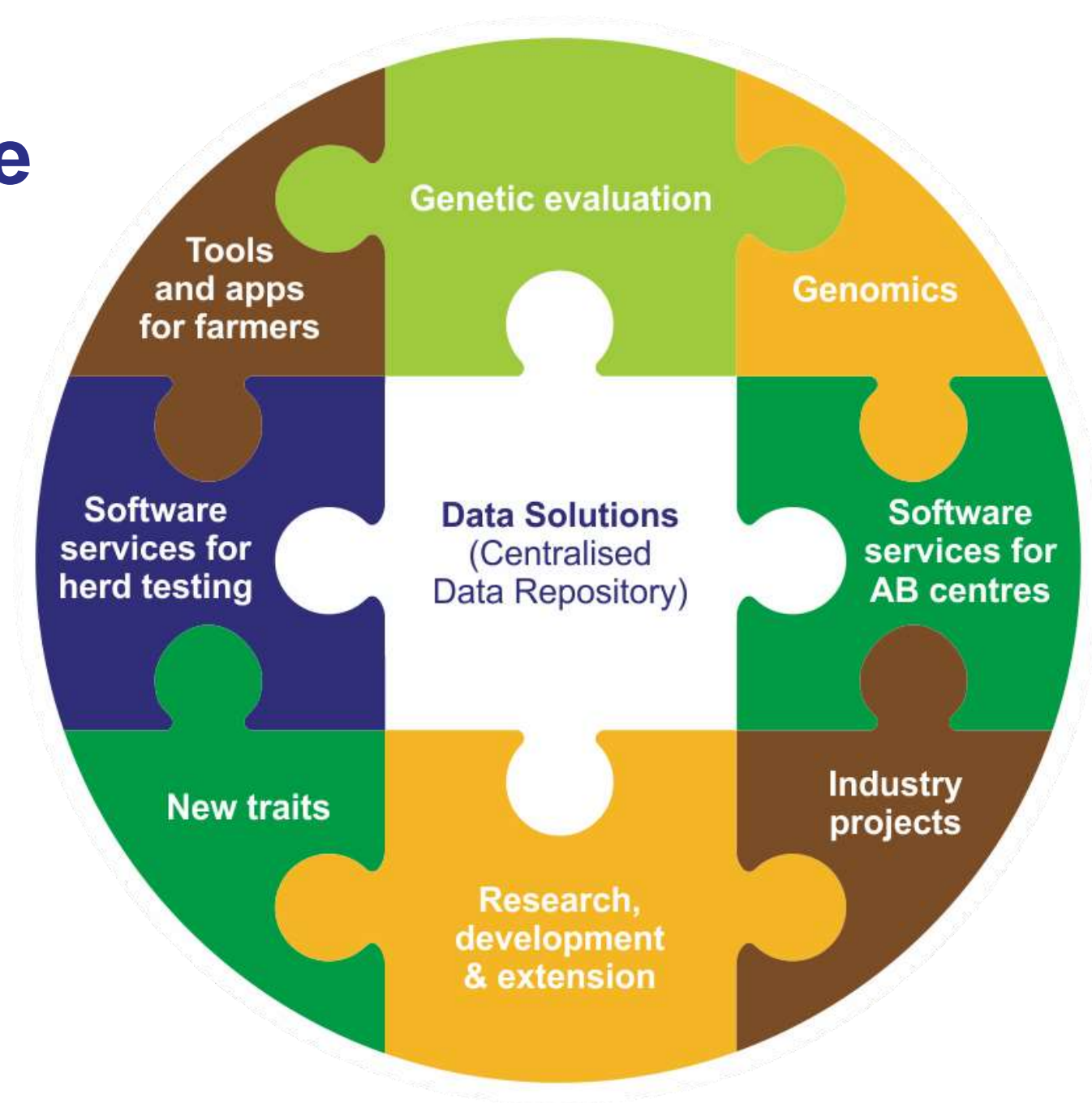
DataGene Origins

Herd Improvement
Industry Software from
HICO (MISTRO)



Central Data Repository

DataGene



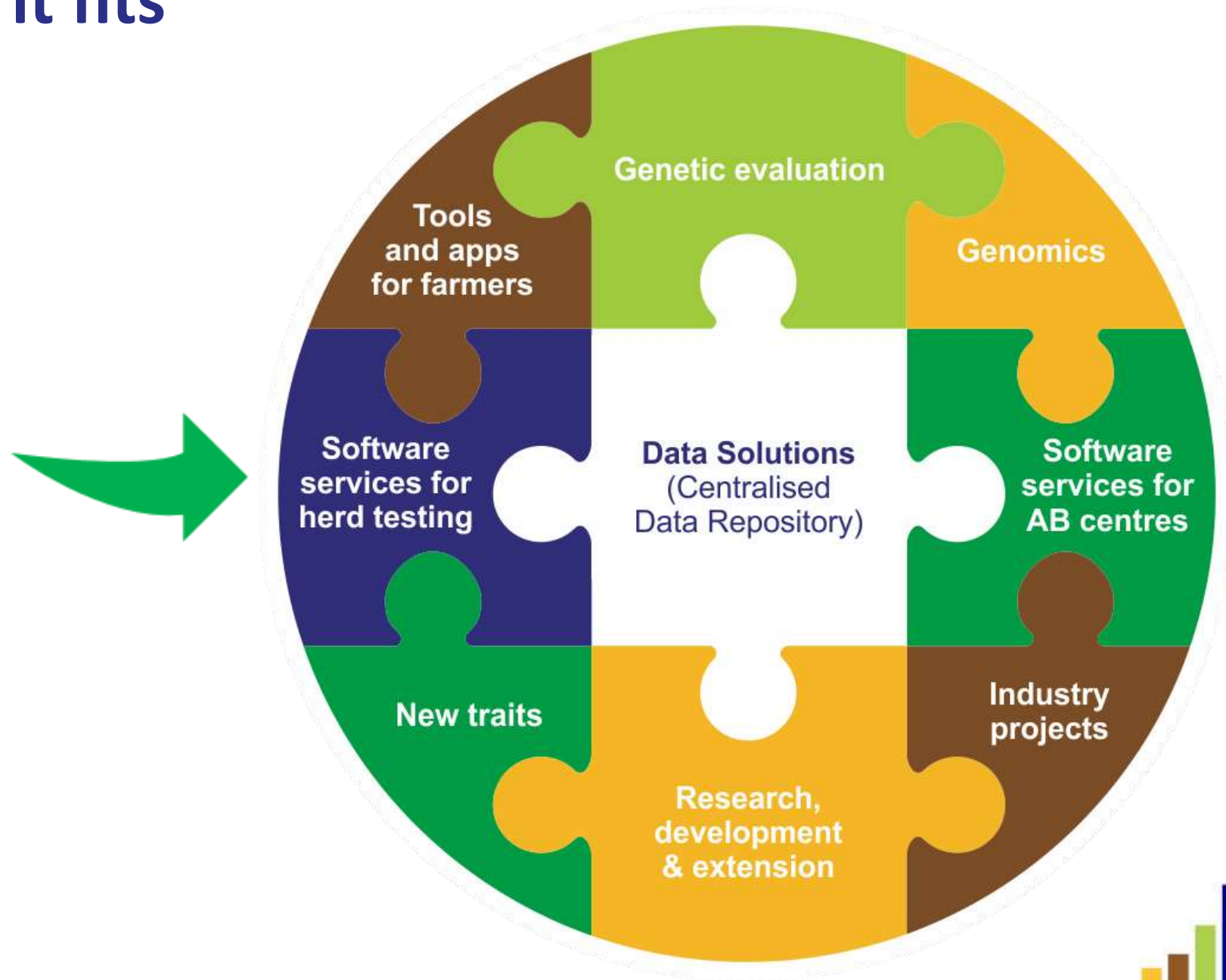
Dashboard planning

Dashboard requirements



COLLABORATION

Where it fits



Dashboard development

Dr. Mark Humphris



Qualifications

Bachelor of Science (Hons)
Bachelor of Veterinary
Medicine and Surgery
(Hons)
Diploma of Human
Resource Management
(Dairy)
Certificate IV in Training
and Assessment

Biography

Mark has a dairy and veterinary background and consults to dairy farm clients, industry bodies and pharmaceutical companies. Mark has trained many farmer short courses in mastitis, fertility, lameness, calf health, dairy cow nutrition and transition management and now is the Project Leader for Dairy Australia's Countdown Program.

Mark has a strong focus for disease prevention and for education in driving change and sustainability on farms. Through growing up on dairy farms in South Australia and Victoria and then work in Australia, the UK, China, India and the US, Mark has gained much experience in first understanding dairy business needs and then building capacity throughout the dairy farm management and staff.

Richard Morris



Biography

Richard Morris is an agricultural IT consultant with many years of experience in dairy research, computer modelling and programming. His skills include spreadsheet and VBA model development, Windows .Net software and iOS App development.

Richard is the developer and co-creator of the ruminant nutrition package Rumen8 that is used across Australia and internationally and is a key research / extension component within the proposed Hub work plan.

He was a Dairy Research Officer with the Department of Agriculture and Food WA from 2000 to 2013 and his areas of expertise include intensive pasture management, forage conservation and cattle nutrition with a sound knowledge of dairy systems. He has tertiary qualifications in zoology and computer science.

Tim Sargent



Qualifications

Bachelor of Engineering
(Electronic and Computer)
(2000) with honours,
Monash University

Biography

With 15 years experience developing software solutions in the Australian dairy industry and internationally Tim has been a significant contributor to many projects using in herd recording, herd testing, inventory management, farm software, hardware interfacing, system design, data analysis, software integration and much more.

Tim's focus is on designing systems to reduce errors, speed up workflow, and to be more intuitive. He has a reputation for getting to the bottom of any issues and then working on ways to prevent them in the future. My studies include Bachelor of Engineering (Electronic and Computer) with honours from Monash University, completed in 2000.

Dr. Richard Shephard



Qualifications

BVSc(1989), University
of Sydney
MVetStud(2000),
Massey University
PhD(2008), University
of Sydney

Biography

Richard graduated in Veterinary Science from the University of Sydney in 1989, completed a Masters of Veterinary Studies from Massey University in 2000 and a PhD from the University of Sydney conducted within the Australian Biosecurity Co-operative Research Centre in 2008.

He examined the potential role of syndromic surveillance systems within remote animal production regions. This work led to development of the Bovine Syndromic Surveillance System (BOSSS). Richard is a faculty member of the Realtime Outbreak and Disease Surveillance (RODS) Laboratory of the University of Pittsburgh.

He currently provides veterinary and farm management services. Richard has expertise in mastitis, reproduction, population medicine, farming systems.

Dr. Martin Staines



Biography

Dr. Martin Staines has been one of the key providers of dairy research services to the WA (and national) dairy industry for many years through his Research Officer role in the Department of Agriculture and Food, WA.

His input into the Hub, especially through the transitional and establishment phases, was critical to ensuring a smooth transition from government-led to industry-led dairy R, D and E. Martin holds tertiary qualifications in agriculture and ruminant nutrition and holds a PhD in nutritional biochemistry (University of New England). Consequently, much of his experience has been in assessing and improving dairy herd feeding systems including both pasture and feed-based practices.

However, his skills and experience, which have been obtained over a career spanning more than 30 years to date, also include research, project management and extension and communication.

**WE'RE
SORRY**

The finished product

Fred Farmer
123 Farm Road
Farmerville



HERD IMPROVEMENT CO-OPERATIVE

Date: May 1, 2017

Herd: 123456

Cow Count 1/7/15 - 30/6/16 722

HERD TEST REPORT

HERD DASHBOARD

	RESULTS	TREND
CELL COUNT (ACTUAL)	12%	↔
CELL COUNT (WEIGHTED)	0%	↔
CHRONIC MASTITIS	11%	↓
CLINICAL MASTITIS	3%	↔
CALVING TIME MASTITIS - HEIFERS	12%	↑
CALVING TIME MASTITIS - COWS	16%	↑
ACIDOSIS	12%	↑
KETOSIS	14%	↓
RE-CALVING 400 DAYS		
RE-CALVING 365 DAYS		
COW AVERAGE YIELD	21.7 litres	↔

Notes

1. The results column lists the percentage of cows with alerts in each category.
2. The direction and colour of the arrows in the trend column indicate if the percentage of cows have met the trigger level for alert and have decreased (green), increased (red), or remained the same (yellow) from the last test day. If the arrows are grey, it means the trigger level has not been reached, but will still indicate the trend.

HERD PROFILE

	RESULTS	TREND
HERD SIZE	1,630	↔
MILKING COWS	430	↔
FRESH COWS	40	↓
DRY OFFS	30	↑
CULL COWS	0	↓
SOLD COWS	20	↑
UNIDENTIFIED SIRES	174	

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COW	CELL COUNT - ACTUAL	CELL COUNT - WEIGHTED	CALVING TIME MASTITIS - HEIFERS	CALVING TIME MASTITIS - COWS	CLINICAL MASTITIS	CHRONIC MASTITIS	ACIDOSIS	KETOSIS	RECALVING 400	COW YIELD
20	791							1.4	544	-50%
783	392								606	-36%
301	789								438	-26%
2176	529								441	-30%
582	516								612	-66%
884	511								428	-36%
2100	376								460	
10042	935							1.5	543	
910	663						0.9			-27%
1918	706							1.5	576	
760	300						0.9		578	-32%
946	3278								526	-12%
909	1290								564	
93	1222								527	-20%
725	928								600	-30%
886	893							1.5		-20%
600	645						1.0			-59%
985	473								521	-13%
887	459								524	-39%
1026	301								435	-12%
367	291								516	-33%
187	997						0.9			-11%
465	989									
143	278						0.8		433	
314	273								553	-37%
64	1257								405	-34%
3190	421							1.5		-15%
4375	2810									-16%
	55	0	4	25	102	12	51	66	204	159

You can consider this list by way of cows for attention by category, or cows for attention by number of production alerts against an individual cow.
The tally at the end of the bottom column is the total number of cows from your herd that are flagged for attention in a given alert category.

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GLOSSARY OF TERMS

CELL COUNT (ACTUAL)

- Alert:** ICC greater than 250,000 cells/mL.
- Action:** Check for clinical mastitis as soon as possible. Continue to monitor for clinical mastitis.

CELL COUNT (WEIGHTED)

- Alert:** The milk from these cows needs to be removed from bulk tank to achieve ICC less than 250,000 cells/mL.
- Action:** Remove these cows to lower your bulk tank cell count.

CHRONIC MASTITIS

- Alert:** Cell count greater than 250,000 cells/mL for two consecutive lactations.
- Comment:** This measurement shows the proportion of cows infected in the previous lactation that were not cured by dry cow therapy (DCT).
- Action:** Review drying off protocols and hygiene. Ensure chronic high cell count cows are culled, not dried off.

Cows are producing between 5 and 12 L/day at the time of drying off.

Maintain a normal milking routine (no days skipped) until dry off.

Graze cows in a dry, clean paddock for 3-4 days after drying off with minimal manure and bare dirt.

Have at least six weeks dry.

Review treatment protocol, including treatment used and administration.

Refer to Farm Guideline (pages 14-17) on Dairy Australia website for detailed advice on drying, or watch Dairy Australia videos <https://www.youtube.com/watch?v=M0PrpZM50ek>

CLINICAL MASTITIS

- Alert:** Clinical mastitis from day 15 onwards during lactation.
- Action:** Review detection protocol. Detect clinical cases early by checking for swollen quarters, or clots that persist for more than three squirts. Take sterile milk cultures to identify pathogens. Review treatment protocol, including treatment used and administration.

CALVING TIME MASTITIS - HEIFERS

- Alert:** Clinical mastitis in the first 14 days of lactation.
- Comment:** Calving areas are a significant source of infection.
- Action:** Provide a clean, dry calving area, separate from the cows. Remove calves and milk heifers as soon as possible. Discuss the use of internal teat sealants with your vet for next year's heifers. If practical, use teat disinfectant prior to calving to kill bacteria near the teat end. If heifers are dripping milk, you may need to milk them before calving.

CALVING TIME MASTITIS - COWS

- Alert:** Clinical mastitis in the first 14 days of lactation.
- Comment:** Calving areas are a significant source of infection.
- Action:** Provide a clean, dry calving area. Bring cows in sooner and milkout completely to reduce mastitis occurring. Increase hygiene in the first eight milkings by washing and drying teats before putting cups on during this period. If practical, use teat disinfectant prior to calving to kill bacteria near the teat end. If cows are dripping milk, you may need to milk them before calving.

GLOSSARY OF TERMS

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- Action:** Review drying off protocols and hygiene: Ensure chronic high cell count cows are culled, not dried off.

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ACIDOSIS

Alert: Milk fat:protein less than 1.0

Comment: Ruminal acidosis may occur when cows consume excessive amounts of feeds, such as grains, which are rapidly digested in the rumen with inadequate quantities of long fibre. This is associated with a drop in rumen pH, reduced feed intake, feed efficiency and milk production, or, if more severe, acutely sick cows (e.g. scouring, lame) and deaths. Sub-acute ruminal acidosis (SARA) is difficult to detect but is usually of greater economic importance than lactic acidosis because a greater proportion of the herd will be affected. However, it can easily slip under the radar. Milk fat depression is an indicator. Clinical or lactic acidosis can range from mild to very severe. There are many herd, feed and feeding management factors which increase the risk of acidosis in a herd, including inadequate rumen adaptation just prior to calving.

Action: Consult a nutritionist. Identify contributing factors and make appropriate changes to your feeding management and ration. Review your transition feeding program. Seek veterinary assistance promptly if any cows are visibly sick.

RECALVING 400 & 365 DAY

Alert: Calving interval greater than 400 days

Comment: Recalving400 is the proportion of eligible cows that managed to calve within 400 days of the preceding calving. It is a stable measure which can be used to monitor performance of the majority of the herd. Recalve365 is the measure of elite performance. This is a smaller fraction of the herd AND influenced by calving pattern and system.

Action: Ensure cows calve in good body condition and have adequate nutrition, including an effective transition cow program. Treat reproductive disease early. Review and refine herd heat detection, AI practices and bull management before mating to maximise performance. Use early and follow-up pregnancy testing to monitor pregnancies.

KETOSIS

Alert: Milk fat:protein greater than 1.4

Comment: Ketosis (acetonaemia) occurs when daily energy intake does not meet the cow's requirements and the cow draws on its body reserves to make up the deficit. The rapid mobilisation of fat can lead to the accumulation of partially-metabolised fat particles called ketones in the bloodstream and liver, reducing liver function. The cow becomes unwell, and milk production and body condition decline dramatically. Symptoms include reduced appetite, reduced production, loss of body condition, neurological signs and sweet odour (acetone) on the cow's breath. While clinical ketosis is most common in high production herds four to six weeks after calving, sub-clinical ketosis can occur at any time when feed intake does not match nutrient demand. Sub-clinical ketosis can lead to other health problems, such as mastitis, retained foetal membranes, metritis, displaced abomasum, reduced milk yields and reduced in-calf rates. Each case of sub-clinical ketosis is estimated to cost \$125.

Action: Consult a veterinarian. Determine betahydroxybutyrate (BHBA) levels in at least 15 cows between 3 and 14 Days in Milk. Determine the extent of ketosis in the herd and whether further testing and treatment are warranted. Review your pre-calving transition feeding program.

COW YIELD

Alert: Cow yield has decreased by 10% or more

Comment: Cow yield decline > 10% per month is excessive. Cows lactation length will be short and lactation milk production reduced if this persists.

Action: Causes can include poor (individual) cow health, inadequate diet, low feed intake and low body condition. Examine and correct any problems to prevent further declines.

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The reaction

Peta Barlow – Dairy Farmer



“The Herd Test Dashboard is only relatively new but Yarram Herd Services were involved during its development so I got our herd involved as soon as it was available.

The Herd Test Dashboard gives you a picture of what is happening in the herd and which cows need closer attention.

It’s a free service and gives you more value from the information collected during herd testing.”

Peta Barlow – Dairy Farmer



“The figures for individual cows features on the second page are all coloured coded according to the severity of the issue, with serious issues shaded red and less serious issues shaded green.

I can look at trends in the herd between herd tests and also watch individual cows who may stay on the alert page from one month to the next.

In the past when I only had the usual herd test data I really only looked at cell counts and individual cow figures.

With the new Herd Test Dashboard I can now see a whole lot of information on the herd – and on individual cows which need monitoring or attention - in one report. It’s a great management tool because it covers health indicators and performance indicators.

If a cow gets flagged on the cows list then I can look at the cow’s individual herd test results in more detail and make a decision based on what is going on with the individual cow and what action to take.”

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Thank you



Questions