

Quality Milk Management Services

Milk ELISA Testing for Johne's Disease

(Mycobacterium avium paratuberculosis)

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Welcome to QMMS

About Us

‘where quality counts’

We are a small family company, focused on the dairy industry, offering laboratory and consultancy services to a range of clients from dairy farmers to multinational companies. We benefit from over 100 years combined experience in the dairy sector and are also involved at the ‘cutting edge’ of mastitis research and the application of the latest findings on farm. We have an uncompromising approach to quality, adopted from a firm research base.

QMMS has a dedicated team of personnel, which includes specialist veterinary surgeons, bacteriologists, skilled laboratory staff as well as research assistants. Familiarity with farming and the industry as well as speaking to the same person ensures any query can be dealt with rapidly and to your satisfaction

Our Philosophy

‘more than just numbers’

Our philosophy is to deliver a cost effective service centred on ‘adding value’ to the milk recording and bacteriology data we produce. We are firmly committed to providing appropriate unbiased advice and are acutely aware of the key management decisions that need to be made on the basis of our analyses.

About Our Clients

‘big enough to cope - small enough to care!’

Our clients are many and varied including conventional and organic farmers, veterinary surgeons, cooperatives, processors, universities and large multi-national pharmaceutical companies. All of our customers are valued from the smallest to the largest and we pride ourselves on fulfilling our clients’ needs, irrespective of whether they are a small family business or a pharmaceutical giant.

Our farm clients range from smaller herds of less than 50, to very large herds of over 1,000 cows on a mixture of systems from pasture-based, seasonal calving herds to intensive, high yielding herds. Our services cater for herds on aligned contracts, herds wishing to do 'essential' sampling, and herds requiring pedigree recording.



Johne's Disease

There is increasing awareness of the prevalence and importance of Johne's disease (the clinical syndrome of end-stage *Mycobacterium avium* subspecies *paratuberculosis* or MAP infection) in the U.K. dairy herd, with an increasing emphasis on the need for control.

Milk ELISA testing offers a rapid, cost effective and valuable method of monitoring the prevalence of MAP in a dairy herd, allowing timely and evidence based implementation of control strategies. Individual cow milk ELISA testing allows you to screen cows for antibodies to infection and highlight positive cows (and therefore those likely to be infected) and manage them differently to break the cycle of transmission.

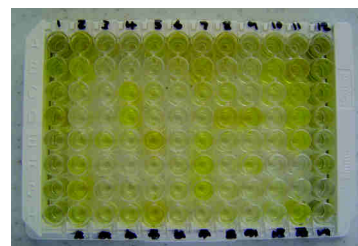
Our Services

Johne's Disease Testing

We offer milk based Johne's disease testing using the IDEXX ELISA and results are typically available within 7-10 days of submission.

Key facts about our Johne's testing service are listed below:

- Different service levels from *ad hoc* testing to a fully integrated testing and reporting service
- Test in conjunction with your QMMS milk recording **or** independent of your regular recording
- Testing frequency tailored to the requirements of **your** herd
- Powerful management reports, adding value to your data, delivered direct to your desktop
- Compatible with existing software*
- Cost effective and competitively priced
- 'Selective' testing service to reduce testing frequency in cows at reduced risk - based on the latest scientific findings
- Developed and backed by RCVS Recognised Specialist veterinary advice



*Data can be extracted from current on-farm software, but is fed back in QMMS' bespoke software to allow viewing of test results alongside other cow data.



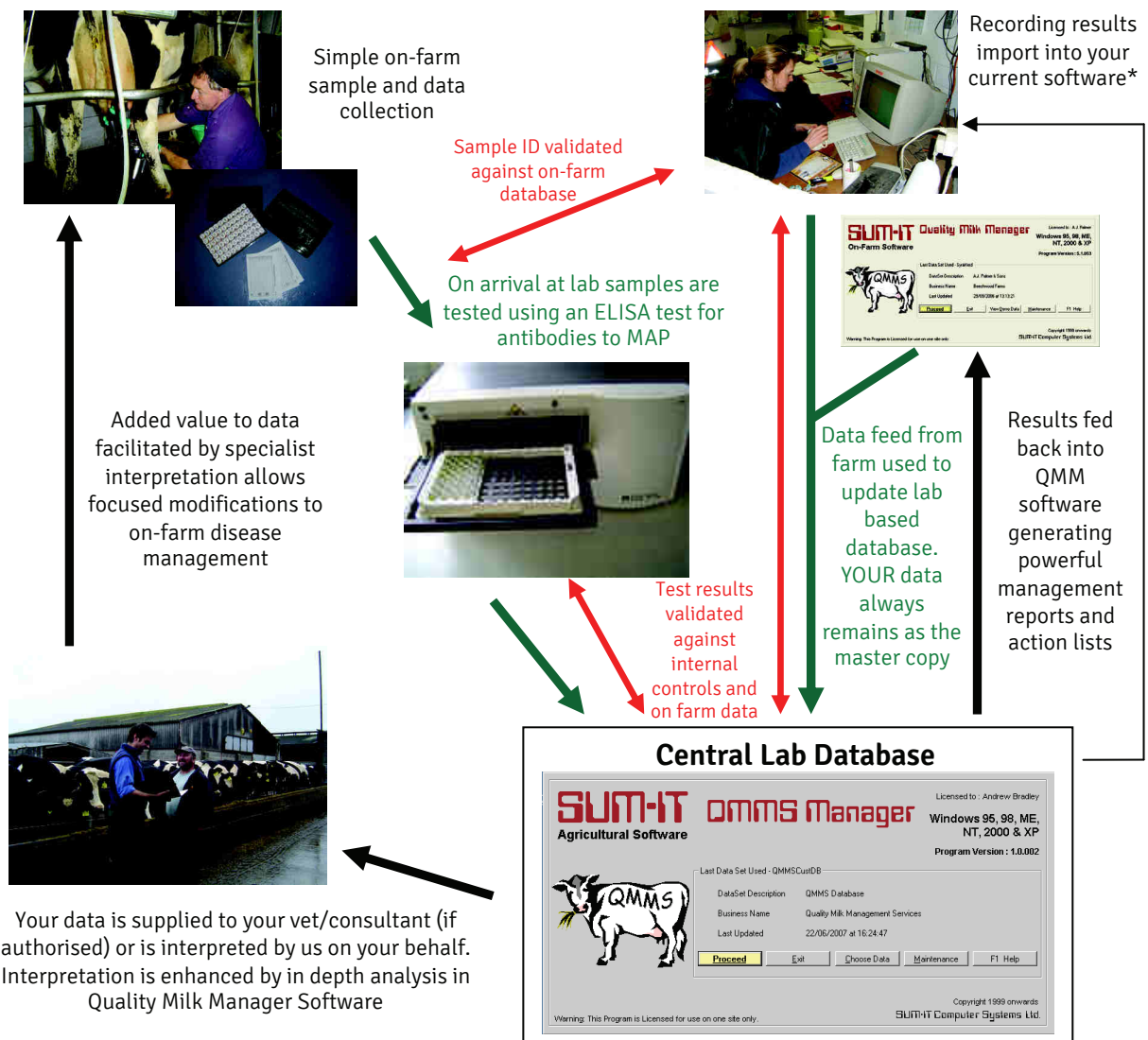
QMMS Johne's Disease Testing

Introduction

As with our milk recording and bacteriology services, the MAP ELISA service is backed by Royal College of Veterinary Surgeons Recognised Specialist advice, helping with interpretation of results and enabling a unique 'joined-up' approach to the control of Johne's disease in your herd. The suggested QMMS protocol has a strong evidence-base and outlines our interpretation of the latest research evidence on the application of milk MAP ELISA's and may therefore change as more research in this area is published. Full integration with on farm software is available in conjunction with SUM-IT Computer Systems.

The Process

The flow diagram below illustrates our seamless, fully integrated Johne's testing service:



*SUM-IT Software only



Viewing Your MAP ELISA Results?

In the absence of compatible on farm software your results will be emailed as .pdf files reporting both your current and historic results. Examples of some of these reports are outlined below:

Quality Milk Management Services Ltd Johne's Full Test Detail

For guidance on interpretation of these results please contact your attending veterinary surgeon.
(Cow Order)



Code	EarTag	LC	Value	Result	Current Status
2	201109	2	4.93	Neg	Currently Negative
3	INVALID1	1	79.00	Pos	Positive
4	20004	7	2.91	Neg	Currently Negative
5	Identify not Verified	2	2.65	Neg	Currently Negative
6	Identify not Verified	4	1.68	Neg	Currently Negative
8	Identify not Verified	5	22.25	Unc	Uncertain
9	Identify not Verified	1	2.81	Neg	Currently Negative
10	1000	1	1.64	Neg	Currently Negative
13	201000	2	1.23	Neg	Currently Negative
17	Identify not Verified	3	1.87	Neg	Currently Negative
18	Identify not Verified	1	1.56	Neg	Currently Negative
20	Identify not Verified	5	2.23	Neg	Currently Negative
21	202089	3	1.13	Neg	Currently Negative
22	Identify not Verified	1	20.45	Unc	Uncertain
23	Identify not Verified	3	1.12	Neg	Currently Negative
24	Identify not Verified	5	1.68	Neg	Currently Negative
26	Identify not Verified	3	2.47	Neg	Currently Negative
28	Identify not Verified	5	0.78	Neg	Currently Negative
29	Identify not Verified	1	1.98	Neg	Currently Negative
30	Identify not Verified	5	1.30	Neg	Currently Negative
32	201344	1	0.98	Neg	Currently Negative
33	Identify not Verified	3	4.44	Neg	Currently Negative
34	Identify not Verified	7	6.62	Neg	Currently Negative
35	401111	2	3.35	Neg	Currently Negative
36	Identify not Verified	1	5.18	Neg	Currently Negative
40	Identify not Verified	1	3.68	Neg	Currently Negative
41	Identify not Verified	5	4.44	Neg	Positive
42	601007	2	4.71	Neg	Currently Negative
43	Identify not Verified	3	4.22	Neg	Currently Negative
44	Identify not Verified	2	4.11	Neg	Currently Negative
45	Identify not Verified	6	0.84	Neg	Currently Negative
47	Identify not Verified	3	2.12	Neg	Currently Negative
48	Identify not Verified	3	1.40	Neg	Currently Negative
48	INVALID2	1	1.23	Neg	Currently Negative
50	Identify not Verified	4	8.42	Neg	Currently Negative
51	Identify not Verified	4	4.33	Neg	Currently Negative
52	Identify not Verified	1	2.12	Neg	Currently Negative
53	Identify not Verified	3	13.21	Neg	Currently Negative
54	322144	1	3.49	Neg	Currently Negative
55	Identify not Verified	7	8.37	Neg	Currently Negative
57	301365	1	4.96	Neg	Currently Negative
58	Identify not Verified	1	1.33	Neg	Currently Negative
60	Identify not Verified	3	14.48	Neg	Currently Negative

Page 1 of 7 Johne's Full Test Detail - Printed From: QMMS Manager (v 1.2.002) On 03/06/2011 at 15:40:51 © Sumit Computer Systems Ltd

Quality Milk Management Services Ltd Johne's Individual Cow Summary

Bulk Value: 16.55
Test Date: 24/05/2011

Percentage of Tests Positive: 9.2
Percentage of Tests Uncertain: 3.8
Percentage of Tests Negative: 87.0



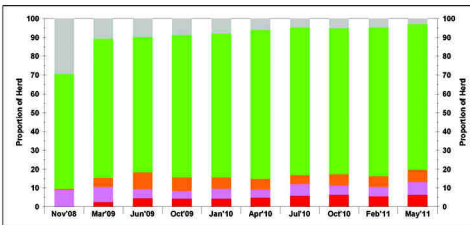
Code	EarTag	LC	24/05/09	28/10/09	27/01/10	27/04/10	28/07/10	27/10/10	23/01/11	24/05/11	Current Status	
1	600001	7	23.44	17.75	40.81	17.30	23.93	8.77	3.99		Currently Negative	
2	600109	1			10.04	12.87	13.92	14.30			Currently Negative	
4	20004	7	14.49		16.65	14.52	38.92	4.35	48.66	79.00	Positive	
5	400066	2	7.99	4.12	7.54			0.95	2.55	2.65	Currently Negative	
7	700032	4	16.99	7.50	38.81			1.63	6.50	1.68	Currently Negative	
8	700034	3	8.43	10.31		1.64	12.51	2.10			Currently Negative	
8	700034	5	9.86	30.77		5.90	15.20	3.43			Currently Negative	
9	300095	2	9.56	12.43	15.98	8.97	25.69	2.48	2.80	2.81	Currently Negative	
9	300095	3			9.73	11.03	14.37	15.41	2.89	2.21	Currently Negative	
11	401114	1	13.97	9.04	11.81			18.15	2.17	4.78	Currently Negative	
11	304320	3							1.23	1.23	Currently Negative	
12	300049	5									Currently Negative	
13	1000	1			9.60	12.01	18.83	22.64	4.40	3.30	Currently Negative	
14	300049	2			10.23	8.79	12.52	3.70	76.99	1.16	3.30	Uncertain
15	301020	2									Currently Negative	
18	401763	1	34.25			57.00	11.31		1.02	0.88	1.60	Currently Negative
19	700171	7	9.82	8.77	40.03	9.29	32.48		2.98	2.98	Currently Negative	
20	200522	3							1.50	1.67	Currently Negative	
21	500415	1	9.82	11.02	6.54	11.59		3.27			Currently Negative	
22	601006	3							7.37		1.12	Currently Negative
22	201079	1									Currently Negative	
24	200347	5	5.35		10.73	11.96	14.14		4.42	3.48	Currently Negative	
25	200068	5	13.26		11.79	5.92	20.80		1.54	5.89	1.68	Currently Negative
26	6500353	3	18.92	14.62	21.92		14.60				2.47	Currently Negative

Page 1 of 15 Johne's Individual Cow Summary - Printed From: QMMS Manager (v 1.2.002) On 03/06/2011 at 15:40:51 © Sumit Computer Systems Ltd

Quality Milk Management Services Ltd Johne's Herd Summary

Bulk Value: 16.55
Test Date: 24/05/2011

Percentage of Herd Positive: 6.4
Percentage of Herd Uncertain: 6.8
Percentage of Herd Negative: 86.8



Page 1 of 1 Johne's Herd Summary - Printed From: QMMS Manager (v 1.2.002) On 03/06/2011 at 15:41:03

Quality Milk Management Services Ltd Johne's Results By Code

Submission: 11/05/2011
Bulk Value: 16.55
Bulk Result: Negative

Sampled On: 03/06/2011
Tested On: 03/06/2011
Reported On: 03/06/2011



Code	Value	Code	Value	Code	Value
2	-1.92	61	2.13	140	1.60
3	79.00	62	6.17	141	1.95
4	2.81	63	13.11	144	0.23
5	2.65	64	53.46	146	0.01
6	1.68	65	2.79	148	2.15
8	22.25	66	1.26	149	1.50
9	2.81	70	1.01	154	0.45
10	1.64	72	20.11	156	0.22
13	1.23	74	1.80	157	0.00
17	2.51	76	79.03	160	2.07
18	1.68	78	14.81	161	2.25
17	2.51	78	1.60	162	0.00
21	2.23	83	2.87	163	1.12
21	2.23	84	1.60	164	11.63
23	21.40	89	3.37	168	1.73
24	2.48	97	1.26	174	1.06
25	1.68	98	2.25	170	0.56
26	2.48	99	1.26	174	1.06
28	3.79	90	3.37	163	0.79
29	11.32	91	3.79	168	4.82
30	3.38	94	2.02	180	3.49
31	4.44	98	2.02	180	2.64
33	3.23	97	1.46	201	10.13
34	4.44	98	1.46	202	1.68
36	1.16	102	0.96	203	2.50
36	1.16	101	4.05	209	3.75
37	1.16	102	0.96	211	0.29
40	3.99	103	3.26	236	1.92
41	6.62	106	3.91	241	1.40
42	4.71	106	33.14	240	3.00
43	4.22	106	2.80	241	3.00
44	4.11	107	2.80	244	2.81
45	0.84	111	3.26	247	1.37
47	2.12	112	3.26	278	1.81
48	1.40	112	1.44	287	0.81
49	1.23	114	1.80	314	1.95
51	4.33	121	1.13	320	3.77
52	2.12	123	1.80	321	0.68
53	13.21	124	4.77	344	3.27
54	2.87	125	2.74	348	1.67
55	8.37	126	4.30	350	2.86
57	4.80	134	1.95	352	2.79
58	1.33	135	4.50	353	2.09
60	14.48	139	3.17	387	6.52

Page 1 of 3 Johne's Results By Code - Printed From: QMMS Manager (v 1.2.002) On 03/06/2011 at 15:41:05 © Sumit Computer Systems Ltd

Viewing Results in SUM-IT Software

Herds that are using any of the SUM-IT on-farm software range (Quality Milk Manager, DairyMate or Total Dairy) can also view their MAP ELISA results within bespoke reports within the software. This facilitates rapid viewing of results alongside other reports and individual cow results and statuses in their individual cow record.

Access Johne's results within SUM-IT Software

View cows sorted by current status

View latest results and current animal status

Analyse results for the whole herd or by group/parity



QMMS Johne's Disease Testing - FAQs

Why Johne's Disease Test?

The impact of Johne's disease on dairy herd profitability has come to the fore in recent years and it is now understood that this disease can be having a significant impact in some herds. Effective management of the disease is best achieved with a targeted testing and management regime. QMMS offers a cost effective and evidence based Johne's disease testing service and is the only service in the UK which is fully integrated with on farm software.

Do I have to milk record with QMMS to use the MAP ELISA service?

No - dairy herds not already milk recording with QMMS can be sent a kit - please call 01749 871171 or email enquiries@qmms.co.uk. Farms that use QMMS for milk recording can use samples collected for routine milk recording purposes.

Do I have to collect milk from all the cows every time I sample?

Initially, **all** cows currently in milk as well as the bulk tank are sampled and tested for antibodies to MAP to give an estimate of the herd prevalence. The herd screen is then repeated so that all cows are tested at least three times, three months apart; this allows cows to be initially classified as 'positive', 'uncertain' and 'currently negative'. Cows that test 'positive' on at least 2 of three occasions are not subsequently re-tested but are labelled 'positive'. Cows that test 'currently negative' and are in lactation 3 are retested every 6 months; those that are in lactation 4 and above are re-tested every 12 months. This is because studies have shown that the peak prevalence of sero-conversion is in cows aged between 2 and 4 years

Do I have to cull a cow if she is labelled positive from one sample?

No, a cow shouldn't be culled on the basis of a single test, primarily due to the inherent sensitivity and specificities of the testing process. If the herd policy is to aggressively pursue the disease then additional testing such as a faecal PCR test to confirm the disease status is recommended. In other cases the cow should be managed as if positive until the results of subsequent tests are known.

Can I sample cows for a MAP ELISA screen if I have recently had a TB test?

Concurrent testing for bovine tuberculosis (bTB) using purified protein derivative tuberculin has the potential to introduce false positives, *ie* cause the milk Johne's ELISA test specificity to fall. We therefore recommend herds that have had a bTB test in the last 60 days avoid using milk samples for MAP ELISA testing.

Do I need to sort all my samples into cow number order?

No, we actually discourage this practice as it leads to the potential introduction of systematic errors into the milk recording process.

How do samples get to the laboratory?

Once you phone us to confirm when the samples will be ready, we will arrange courier collection; samples are delivered to us the next working day. You can of course deliver your own samples (and save on the courier costs) if you so wish.

Do you provide paper reports?

Our service is designed to be paperless with all data traveling electronically. However, paper reports can be provided if required (at a small additional cost).

How do I pay?

You only pay for the tests performed, no more - no less. We invoice monthly and offer substantial regular testing discounts linked to prompt payment.



Interpreting MAP ELISA Results

We are committed to offering a 'joined-up' approach to clients using our MAP ELISA service, with evidence-based interpretation of results and support available to your veterinary surgeon.

Firstly, it is important to realise the herd objective:

- An emphasis on a *'test and cull'* approach to eradication requires very high test **specificity** to ensure an animal that may not be infected with MAP is not (incorrectly) labelled as 'positive'. Milk ELISA testing will result in some apparent positives being 'false' positives and therefore culling a cow based on one test result is not recommended. At least two positive tests should be obtained before making definitive decisions.
- An emphasis on risk management of positive (and therefore likely infected) cows requires a high test **sensitivity** to ensure that as many animals as possible that may be infected are labelled 'positive'.

Secondly, current evidence from scientific studies offers an opportunity to *target* sampling more effectively to at-risk animals and significantly reduce the cost of monitoring through testing some animals less frequently. This approach is offered exclusively by QMMS in the UK through our 'selective' testing regime.

Thirdly, risk management of cows allows cows that are 'positive' to be considered HIGHLY INFECTIOUS: these cows do not enter the calving yards and are managed as a high risk group. Milk yield is already likely to be reduced or can be expected to reduce in the future. Cows that test 'uncertain' are considered MODERATELY INFECTIOUS: these cows are allowed to calve but calving pens must be cleaned and disinfected, calves born to 'uncertain' cows must be removed immediately after birth and colostrum from these cows must not be used to feed replacement young-stock or pooled and stored frozen.

Testimonials

"We have been milk recording with QMMS for several years and cannot fault the service we have received. The QMMS team is always friendly and willing to help in any way they can. They not only provide us with reliable milk recording results but also offer fantastic mastitis control advice. Their speedy service is second to none and we cannot recommend them enough."

Nick and Lucy Tyler, 600 cows (Wiltshire)

"Johne's disease creeps through the herd and operates under the radar. Therefore when doing regular milk recording, we periodically monitor Johne's at the cow level, without any additional fuss or bother and at minimal cost and hassle. The results are easily interpreted and the hands on practical advice from QMMS enables us to monitor and put in place a strategy to minimise its impact in difficult financial times."

Robert Ham, 260 cows (Somerset)

"The novel management reports provide an invaluable insight into management on farm"

Rob Clapp, 800 cows (Somerset)

"A friendly service eager to please and readily available for advice!"

Alan Franks, 220 cows (Somerset)



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Don't follow the herd ...

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