

29 October 2003

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Further to your request to provide a reference from a user of the Contec Madcap LIMS software, I am pleased to document our experience.

SAITL Dairy Laboratory is an independent laboratory owned by the Fonterra and Tatua Cooperative Dairy Companies and is briefed with performing independent component and quality testing on bulk milk collections from our member companies in the upper half of the North Island. We also perform work for other dairy companies and a large amount of individual cow herd improvement sample testing for Ambreed. We currently use some 30 madcap terminals connected to a server, and a further 10 terminals from the Clandeboye milk testing laboratory in the South Island are connected through a thin client connection.

SAITL was formed 19 years ago and has been using madcap for all of that time. We have been closely associated with Contec Group International and the development of madcap for this period.

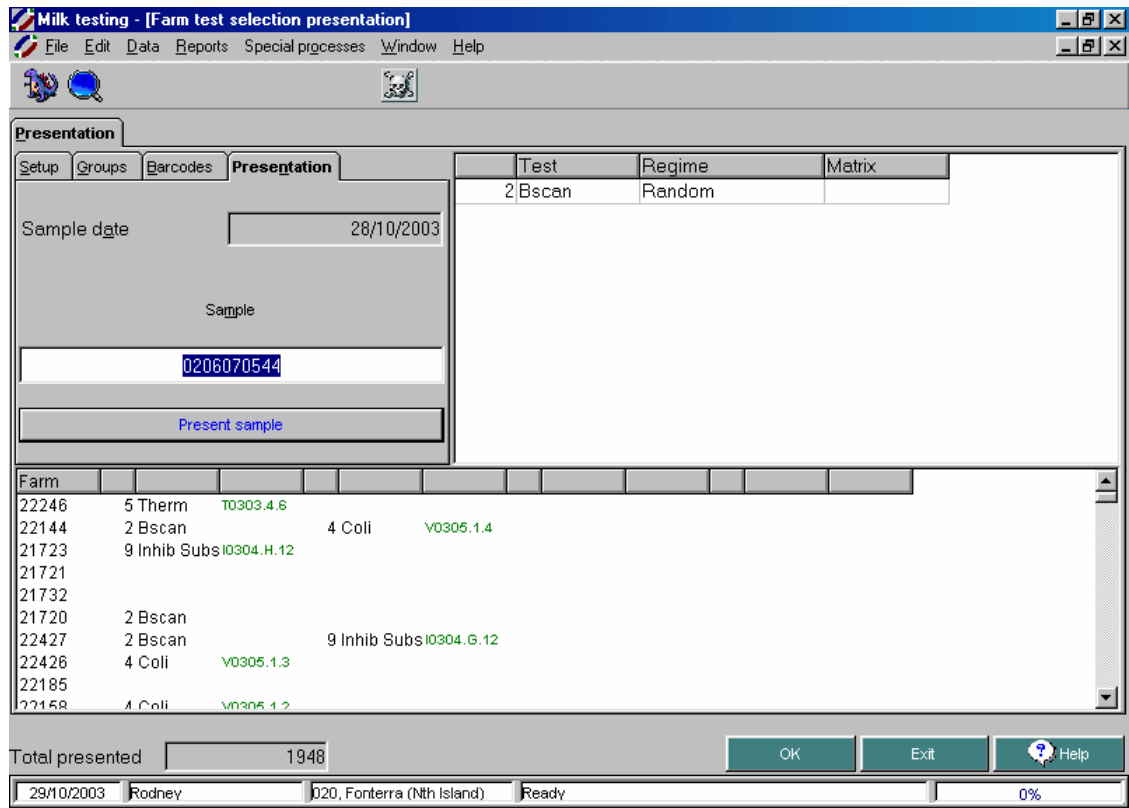
On a routine basis we are currently processing:

- 6500 bulk milk samples per day for fat, protein, lactose, total solids, freezing point, and somatic cells.
- 3000 individual cow samples for fat, protein, lactose, total solids, and somatic cells per day.
- 4000 bulk milk samples per day for quality tests including BactoScan, coliform plate count, thermotolerant plate count, inhibitory substances, IgG, foreign matter, and senses.
- A total of some 58,000 results per day and 17 million results per year.

A brief description of how we use madcap for routine milk testing follows. There are of course too many functions to describe in this document but the key functions for sample selection, testing and data entry, data storage, and result confirmation and transmission are described:

1. Samples presented for quality testing are selected for different assays according to defined testing regimes and protocols for follow-up testing after downgrades:

(See next page)



2. Samples are tested on automated instruments or manually and results entered accordingly. The following screen depicts automatic data capture and result entry from a Foss BactoScan:

Milk testing - [Analyser data entry for sample date 28/10/2003]

File Data Tools Reports Window Help

Queue sample Testing mode: Testing

Results		Communications	Monitor	Queue	Commands	Messages
Pos	Sample	Pos	Sample	BScan	Comment	
10	0207376922.1.1	10	0207375064.1.1	11 000		A
1	0204121617.1.1	9	0207375713.1.1	4 000		A+
2	0204121879.1.1	8	0207376505.1.1	5 000		A+
3	0204122254.1.1	7	0206071765.1.1	8 000		A+
4	0204122293.1.1	6	0205574037.1.1	5 000		A+
5	0204121558.1.1	5	0206070963.1.1	3 000		A+
6	0204121560.1.1	4	0207370633.1.1	5 000		A+
7	0204121569.1.1	3	0207375866.1.1	4 000		A+
8	0204122100.1.1	2	R9920020	6		
9	0204122257.1.1	1	D0202017072.1.1	57 000		C-Grade
10	0204178873.1.1	10	0206070544.1.1	4 000		A+
1	0204879030.1.1	9	0206073137.1.1	8 000		A+
2	0204878705.1.1	8	0206071496.1.1	7 000		A+
3	0204879029.1.1	7	0207375203.1.1	3 000		A+
4	0204879214.1.1	6	0207375360.1.1	5 000		A+
5	0204878648.1.1	5	0207375130.1.1	11 000		A
6	0204879013.1.1	4	0206072400.1.1	13 000		A
7	0204122622.1.1	3	0207375958.1.1	6 000		A+
8	0204879085.1.1	2	0206073130.1.1	7 000		A+
9	0204879042.1.1	1	0207376160.1.1	4 000		A+
10	0204122500.1.1	10	0202018526.1.1	6 000		A+
		9	0206073346.1.1	7 000		A+

29/10/2003 Saitl 020, Fonterra (Nth Island) Ready 0%

Other assays are performed in a standard 12\*8 micro titre plate format. The following screen depicts a madcap defined sample identification matrix in a standard format:

Raw Milk testing - [Matrix listing]

File Edit Data Tools Utilities Reports Special processes Window Help

Parameters Report

Date	Matrix	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
10/2003	I0103	N	70608	74960	75030	74323	74375	76604	77474	74279	78279	10050	N
	R2	N	74956	74336	77613	74326	74073	77661	77045	74233	74145	11327	19516
	R3	N	74120	74344	74747	79604	73944	77902	77821	73862	74376	19475	19518
	R4	75109	74138	75038	74782	74425	74378	77578	N	73858	77872	18614	14258
	R5	74102	75117	74965	79606	79602	74017	77539	74246	74185	74147	18661	18760
	R6	74791	77389	74968	74734	77569	76603	77297	73994	77563	78282	14329	18750
	R7	75139	74125	74087	74749	74978	77574	77447	74286	73966	14426	11439	18757
	R8	75140	74727	77614	79610	74274	73998	74363	77077	77585	14343	19573	14420

Local Network File Screen Start OK Exit Help

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Results are automatically captured in a defined format from a device such as an ELISA reader or a Nephelometer:

Raw Milk testing - [Matrix analyser entry]

File Edit Data Tools Utilities Reports Special processes Window Help

Detail

Sample date: 28/10/2003 Test: 5 IgG Matrix: C6102

	1	2	3	4	5	6	7	8	9	10	11	12
1	0	0	0	0	0	0	0	385	673	671	688	877
2	716	869	756	659	564	944	643	539	876	553	769	728
3	827	567	866	678	1198	203	768	667	810	547	509	595
4	604	640	1025	406	193	441	918	453	812	739	612	450
5	634	680	830	552	1164	746	457	621	666	739	796	926
6	801	577	619	725	794	622	800	589	574	937	845	1024
7	874	510	795	1297	671	700	865	892	934	498	349	176
8	529	522	1059	777	492	828	348	472	882	1044	1129	1026

Item Value

Sample

Id

Comment

Format

Sample information

Matrix options

Remove

Save matrix

File results Cancel OK Exit Help

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After quality control procedures are completed, madcap is used to match the sample identifier to the appropriate result and results are filed.

- Supplier results are maintained in individual records with full traceability of variances and retests. The following screen depicts the component records for an individual supplier with details of retests for fat on 28/10/03:

The screenshot displays the 'Raw Milk testing - [Farm sample enquiry]' application. The main window shows a table of test results for various dates from 18/10/2003 to 28/10/2003. The 'Fat' column is highlighted in yellow for the entry on 28/10/2003. A pop-up window titled 'Date 28/10/2003, Pickup 1, Vat 1 3.75' provides a detailed view of the fat test results, including a table with columns for Result, Comment, Type, Reason, Variance, Method, Date, and User.

Date	Pck	Vat	Fat	Pro	Lac	T/S
28/10/2003	1	1	5.02	3.75	5.03	14.46
27/10/2003	1	1	5.14	3.78	4.98	14.55
25/10/2003	1	1	4.87	3.74	4.98	14.24
24/10/2003	1	1	4.70	3.75	4.98	14.06
23/10/2003	1	1	4.79	3.83	5.03	14.27
22/10/2003	1	1	5.08	3.83	5.07	14.60
21/10/2003	1	1	5.01	3.91	5.10	14.65
21/10/2003	2	1	5.42	3.75	5.08	14.88
20/10/2003	1	1	5.13	3.90	5.15	14.85
20/10/2003	2	1	5.11	3.84	5.09	14.48
19/10/2003	1	1	4.71	3.89	5.06	14.09
19/10/2003	2	1	5.83	3.88	5.07	15.21
18/10/2003	1	1				
18/10/2003	2	1				

Fat		Pro		Lac		T/S		
Result	Comment	kg	Type	Reason	Variance	Method	Date	User
4.38	0.00		Original		P1-	Cf1	29 October 2003, 09:26:11	Initial
5.02	0.00		Duplicate			Cf1	29 October 2003, 09:31:20	Amandas
5.05	0.00		Duplicate			Cf1	29 October 2003, 09:52:09	Amandas
5.02	0.00		Adjustment	Instrument Malfunction		Manual	29 October 2003, 14:35:29	Mergo

- Results, which meet all quality control parameters, are released for transmission, and are automatically compiled into a file every 20 minutes and transferred electronically in an agreed format to the client.
- Results which exceed quality control parameters, or which may result in a penalty being applied to a supplier, are captured by madcap and not released to the transmission system. All captured results are individually examined, adjusted if appropriate, and authorised for release to the transmission system.

Madcap has proved robust and reliable and we are able to configure most changes and new operations in-house. We have had minimal need for urgent Contec assistance in case of system failure but have received prompt and excellent service when required. We have a requirement each dairy season for madcap modifications and improvements, and receive prompt and economical service.

I would welcome any enquiries from your clients.

Yours sincerely

Dave Malcolm  
Technical Manager

**This reference was written by Mr Dave Malcolm M.Sc (Hons), who is Technical Manager of the SAITL Dairy laboratory (The largest Milk Testing Laboratory in the Southern Hemisphere). He has been associated with the milk testing industry for the past 25 years and currently sits on a number of national and international bodies in this field. Mr Malcolm is currently the Chairman of the Standing Committee for Analytical Methods for Additives and Contaminants for the International Dairy Federation.**