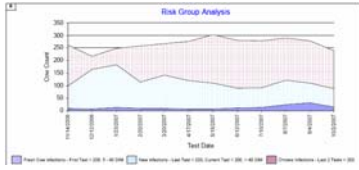
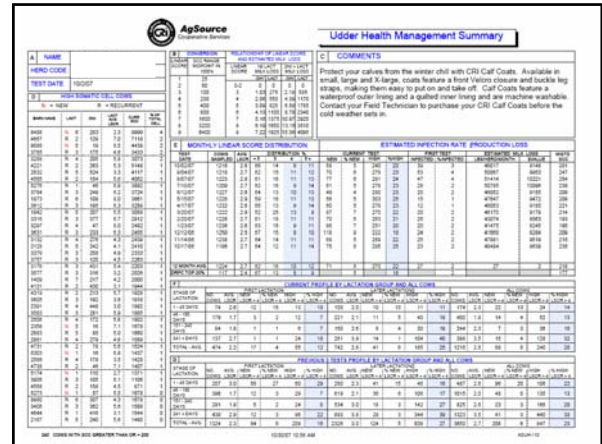


The New Udder Health Management Summary and Report from AgSource Cooperative Services – A User Guide

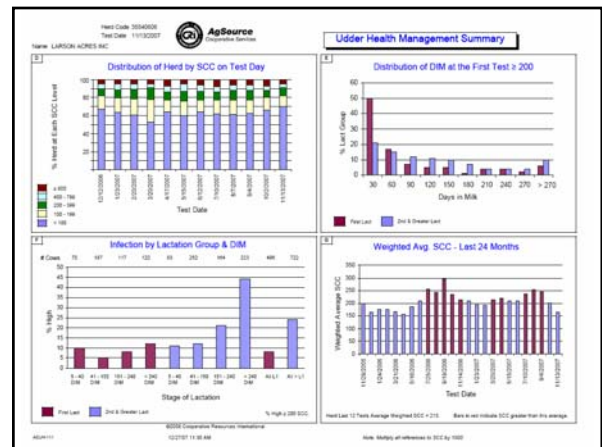
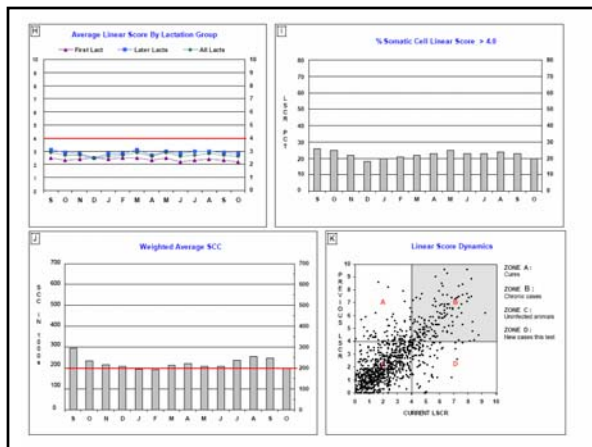
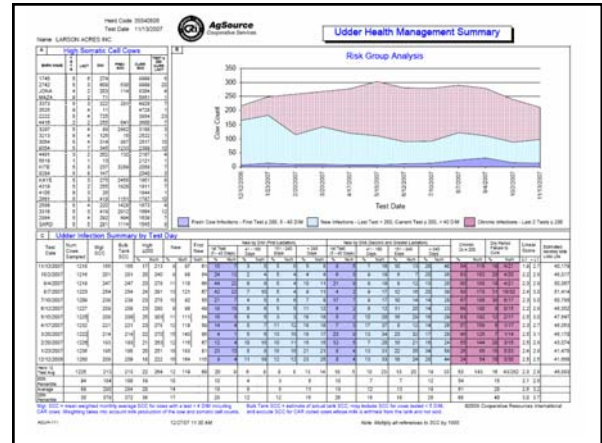


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Aims

- To create a new set of reports that maximize the use of monthly SCC data
- Facilitate sorting the data to reduce the workload for the consultant/farmer
- Utilize data that was missing in previous reports due to CAR coding
- Describe the month by month changes in SCC and create individual cow reports to facilitate individual cow decisions
- Re-program to improve decision making

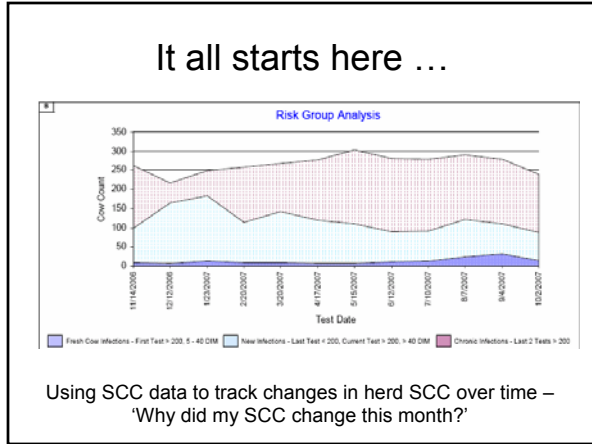


The new UHM Report does the work of classifying cows into risk groups for you.

Color coding is consistent with the UHM Summary (Red=chronic, Dark Blue=Lactating new, Dark Blue=Fresh new)

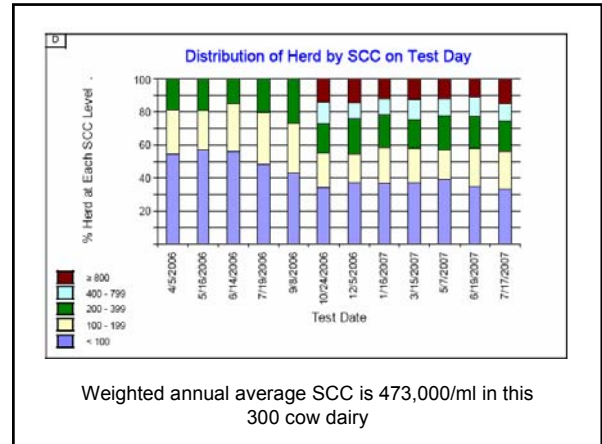
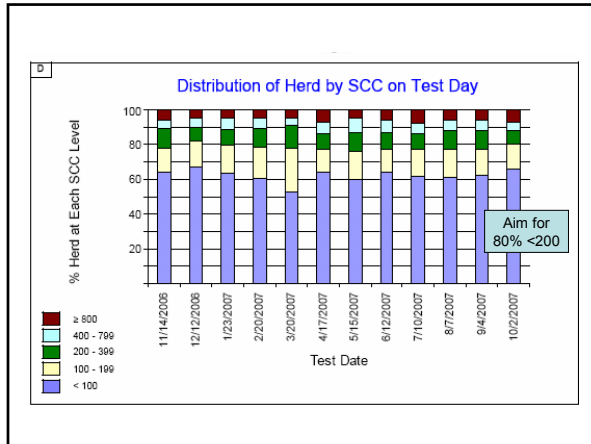
- ### New UHM Cow Report
- A. Chronic Cow List
 - B. Dry Period Failure to Cure List
 - C. Dry Cow List
 - D. Fresh Cow Infection List – Cows 5 to 40 DIM
 - E. Lactating Cow New Infection List – Cows >40 DIM and beyond first test
 - F. Response to New Infection List
 - G. CAR (condition affecting record) Code List

You have to believe that a 200,000/ml threshold is predictive of infection status....



We are not trying to create a report that accurately predicts whether an individual cow is truly infected or not.

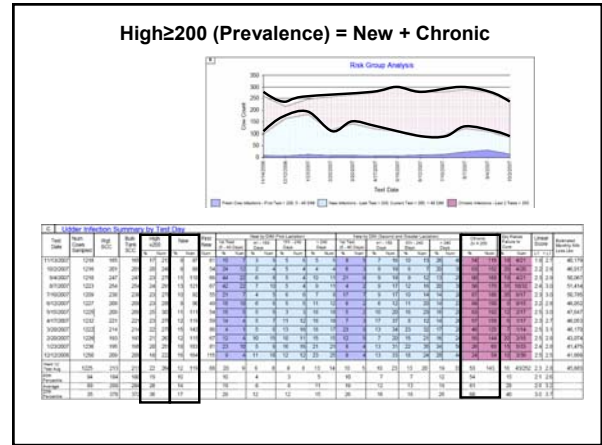
We are simply trying to explain why SCC might change over time.



Weighted annual average SCC is 473,000/ml in this 300 cow dairy

Herd Prevalence

- The cows testing ≥ 200 SCC belong to three main risk groups:
 - Fresh cows and heifers 5-40DIM ≥ 200 at first test
 - Lactating Cows >40DIM ≥ 200 at the current test that were <200 at the previous test
 - These are the NEW INFECTIONS
 - Cows that were ≥ 200 at the previous test that are ≥ 200 at the current test
 - These are the CHRONIC INFECTIONS



So, what's a new infection?

New Infection Comparison

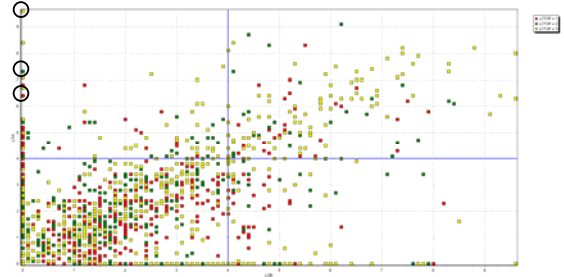
	Old UHM	New UHM	DC305
Definition	<200 at previous test and ≥ 200 at current test		
New Infections allowed per lactation	1	≥ 1	≥ 1
First test new infection risk denominator	# cows 1-45 DIM (no reference to previous lactation)	# cows tested 5-40DIM that tested <200 last test before dry off	# cows drylg >0 log1>0. Drylg assigned at dry off.
Denominator used in calculation of new infection risk %	# cows on test	# cows <200 previous test	# cows on test unless use the ly option

Pros and Cons

- More likely to have better predictive value than any given individual cow is infected/uninfected if we confine NEW INFECTION to one test ≥ 200 SCC per lactation
- BUT, the downside to that approach is:
 - We lose the ability to track SCC change over time at the herd level – cannot answer the question why the SCC rose or dropped each month
 - Rates/Risks that use the whole herd on test as a denominator are insensitive to changes in new infection and cannot be compared across herds as the # infected cows varies widely between herds
 - We sensor 20-25% of the cows in the herd from ever having another new infection after first test and assume that all new infections fail to cure
 - The old new infection risk at first test for mature cows did not reference the last test of the previous lactation...

The Scatter-Plot

Graph lgsccl for lact>0 by prvlgl lctgplzm



PRVLT	MAJSCM	SOLM	DCODE								
PRVLT	MAJSCM	SEALAT	DCODE								
10/2/07	34	3.5	2.3	14	18140	64	3077	4.4	6	13	
1/23/07	30	3.4	3.1	2.3	137	30010	109	12	0.1	9	14
2/20/07	18	3.0	2.6	1.1	2720	99	13	0.1	9	13	
3/20/07	66	1.7	3.1	2.4	129	30160	110	67	0.4	8	15
4/17/07	134	3.3	3.0	2.4	112	29460	108	79	2.6	8	14
5/15/07	342	3.0	2.5	1.1	3070	112	109	3.1	8	18	
6/13/07	190	3.8	2.6	1.8	11400	121	24	1.0	8	16	
7/10/07	198	3.6	2.4	1.4	11910	130	23	0.9	8	18	
8/7/07	224	3.0	2.6	1.9	14480	124	19	0.6	8	13	
9/4/07	294	1.9*	3.1	2.7	14170	126	0	0	12	0	
10/2/07	282	4.2	4.3	1.2	14980	127	3999	4.4	5	2	

This is a fresh cow, correctly classified

This is a new infection, but she has a zero last test due to a CAR code. By chance, she is correctly classified as a new infection

This cow is mistakenly classified as a new infection because she had a zero at last test (CAR code). She had 5 tests >200 prior to that – so she is a CHRONIC!

Get rid of the zeros by removing the \z from the command

Graph lgsccl for lact>0 by prvlgl lctgplm

or create a table....

Sum lgsccl=4 prvlgl=4 for lgsccl>0 prvlgl>0

LSA	LSB	LSB
>=4.0	69	155
<4.0	770	71
	839	226
	78%	22%

In this herd, 226/1065=22% cows were infected at the previous test and ineligible to become a new infection

New Infection Rate is 6% right?

But 69/839=8.2%....

DC305 tells you the # New Infections expressed as a % of the cows on test 69/1065=6.5%

What about herds where there are lots of chronic infections?

LGSCC	PRVLG	PRVLG
>=4.0	40	115
<4.0	444	9
	185	144
	56%	44%

New Infection Rate is quoted at 12%

Actual New Infection Rate is 40/185=22%

44% cows were ineligible to become a new infection!

First Test New Infection Rates

DIM	New by DIM (First Lactation)						New by DIM (Second and Greater Lactation)									
	41-150 Days		151-240 Days		>240 Days		41-150 Days		151-240 Days		>240 Days					
%	Num	%	Num	%	Num	%	Num	%	Num	%	Num					
88	24	12	2	4	5	4	4	18	3	9	13	8	7	20	33	
110	44	22	6	8	5	4	10	11	21	9	9	16	9	12	13	25
121	42	22	7	10	5	4	9	11	4	2	9	17	12	16	20	39
92	21	7	4	5	6	6	7	8	17	7	9	17	10	14	14	28
90	18	10	6	6	5	5	11	12	6	2	6	12	11	20	14	23
111	16	5	5	5	3	3	18	18	5	2	10	20	16	29	16	29
119	14	4	5	7	11	12	18	18	7	3	17	37	8	12	14	26
143	4	1	5	6	13	16	18	17	23	9	13	34	23	32	17	28
116	12	4	10	15	10	11	15	15	12	5	7	20	15	21	16	24
185	23	10	5	8	16	16	21	21	8	4	13	31	22	35	34	58
164	9	4	11	18	12	12	23	25	8	4	13	33	18	24	28	44
100	14	6	7	10	8	9	7	8	4	3	9	16	12	15	20	30
126	20	9	6	9	8	9	13	14	10	4	10	23	14	20	19	32

The new UHM gives you accurate first test infection rates monthly and an annual average for L1 and >L1

... find these cows in Block D of the UHM Report

D Fresh Cow Infection List - 5 to 40 DIM, First Test ≥ 200															
Barn Name	Crit Num	Lact Num	Emb	Day Milk	305 ME Ranking (MIL)	Due Date	Cur Lact Avg Lb	305 Day Est Loss Lbs	B7 SCC	94 SCC	102 SCC	Cur Lact Tests ≥ 200	Prev Lact Tests ≥ 200	First Infection or Repeat	
3163	9124	4	7	64	-6060		4.5	1463				234	1	2	FIRST
3637	10081	3	27	69	-2668		5.0	1750				403	1	5	FIRST
4526	10068	2	37	79	-5512		3.1	644		23		459	1	3	FIRST
4666	10008	2	29	83	-4432		5.0	1750				400	1		FIRST
4852	10993	2	38	109	1021		4.3	1348		160		339	1	7	FIRST
5006	11140	1	21	51	-7474		4.4	660				257	1		FIRST
5068	11230	1	21	27	-12330		4.7	743				317	1		FIRST
5303	11443	1	16	72	-1275		6.8	1300				1437	1		FIRST
5332	11472	1	40	41	-9955		4.6	715				303	1		FIRST

New Infection Analysis by Parity, Test Day and DIM

New	First Test	New by DIM (First Lactation)						New by DIM (Second and Greater Lactation)										
		41-150 Days		151-240 Days		>240 Days		41-150 Days		151-240 Days		>240 Days						
%	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%	Num					
9	61	10	3	8	5	4	5	8	3	7	16	10	11	20	46			
9	54	24	13	2	4	5	4	4	6	9	19	6	7	20	33			
110	66	44	22	6	8	5	4	10	11	21	9	9	19	12	13	25		
121	67	42	22	7	10	5	4	9	11	4	2	9	17	12	16	20	39	
10	92	55	21	7	4	5	6	6	7	8	17	7	9	17	10	14	14	28
9	90	49	18	10	6	6	5	5	11	12	6	2	6	12	11	20	14	23
11	111	54	16	5	5	3	3	18	18	5	2	10	20	16	29	16	29	
12	119	59	14	4	5	7	11	12	16	16	7	3	17	37	8	12	14	26
15	143	86	4	1	5	6	13	16	17	23	9	13	34	23	32	17	28	
12	115	67	12	4	10	15	10	11	15	12	5	7	20	15	21	16	24	
16	183	81	23	16	5	6	16	16	21	21	8	4	13	31	22	35	34	58
15	164	115	9	4	11	16	12	12	23	25	9	4	13	33	18	24	29	44
12	119	68	20	9	6	8	8	13	14	10	5	10	23	13	20	19	33	
10																		
14																		
17																		

New Infections = 12 + 4 + 4 + 4 + 3 + 19 + 7 + 35 = 88

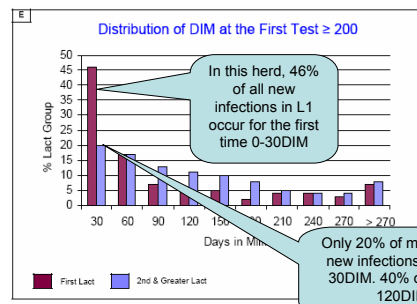
But what about the problem of allowing repeat new infections?

- It would be nice to know many of the new infections occurred for the first time in a lactation – First New in Block C
- Epidemiologically, the timing of the first new infection is important – use Block E
- Deciding whether an individual cow is infected or not is an individual decision – use the UHM report

What if I want to know how many of the 'new infections' were first time new infections in a lactation?

Upper Infection Summary by First Day																
Year	Day	Dim	SCC	Emb	Day Milk	305 ME Ranking (MIL)	Due Date	Cur Lact Avg Lb	305 Day Est Loss Lbs	B7 SCC	94 SCC	102 SCC	Cur Lact Tests ≥ 200	Prev Lact Tests ≥ 200	First Infection or Repeat	
12/12/2008	12/19	185	185	185	185	185	185	185	185	185	185	185	185	185	185	45776
12/12/2008	12/19	281	281	281	281	281	281	281	281	281	281	281	281	281	281	46187
12/12/2008	12/19	247	247	247	247	247	247	247	247	247	247	247	247	247	247	162807
12/12/2008	12/20	284	284	284	284	284	284	284	284	284	284	284	284	284	284	11444
12/12/2008	12/20	236	236	236	236	236	236	236	236	236	236	236	236	236	236	16390
12/12/2008	12/21	286	286	286	286	286	286	286	286	286	286	286	286	286	286	46352
12/12/2008	12/21	298	298	298	298	298	298	298	298	298	298	298	298	298	298	41347
12/12/2008	12/21	231	231	231	231	231	231	231	231	231	231	231	231	231	231	46785
12/12/2008	12/21	216	216	216	216	216	216	216	216	216	216	216	216	216	216	4170
12/12/2008	12/26	188	188	188	188	188	188	188	188	188	188	188	188	188	188	41478
12/12/2008	12/26	285	285	285	285	285	285	285	285	285	285	285	285	285	285	41388
12/12/2008	12/26	211	211	211	211	211	211	211	211	211	211	211	211	211	211	46352
12/12/2008	12/26	282	282	282	282	282	282	282	282	282	282	282	282	282	282	21232
12/12/2008	12/26	272	272	272	272	272	272	272	272	272	272	272	272	272	272	41312

'First New' provides the # of new infections that occurred for the first time in a lactation. Note that this is not expressed as a rate as in the old UHM.



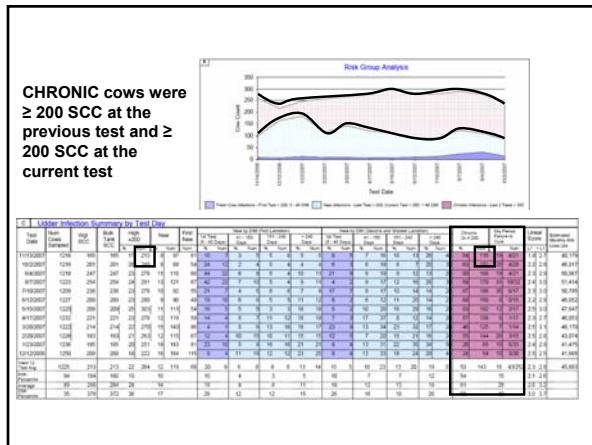
Block E expresses the timing (DIM) of the first time a cow is tested ≥ 200 SCC in a lactation as a proportion of all of the first time new infections occurring for all L1 and >L1 currently milking in the herd.

E Lactating Cow New Infection List - Cows >40 DIM

Barn Name	Crit Num	Lact Num	DIM	Daily Milk	305 ME Ranking (Mik)	Due Date	Curr Lact Avg LS	305 Days Est Loss	S7 SCC	S4 SCC	100 SCC	Curr Lact Tests > 200	Prev Lact Tests > 200	First Infection or Repeat
1846	6775	6	529	61	2361	3/4/2008	1.2	0	24	197	341	1		FIRST
1974	6955	4	431	76	5948	6/22/2008	2.4	234	190	195	216	2	0	REPEAT
2013	7088	5	235	55	7256	8/13/2008	3.9	1112	271	165	271	8		REPEAT
2128	7462	5	242	89	2958	2/26/2009	4.1	1225	405	184	2410	5		REPEAT
2241	7577	5	94	136	4229	6/18/2008	3.1	644	88	36	364	1		FIRST
2251	7615	5	799	72	1180	1/30/2009	6.3	1348	1369	196	307	6	7	REPEAT
2321	8028	4	448	75	9529	OPEN	3.0	585	81	74	180	3	2	REPEAT
2401	8048	5	312	61	6362	6/23/2008	2.4	234	79	121	276	1		FIRST
2458	8137	5	269	53	554	1/2/2009	2.1	59	36	132	852	2	1	REPEAT
2565	9817	4	432	42	-864	4/9/2009	2.0	0	157	161	204	1		FIRST
2569	9818	5	41	92	-5427		3.9	1112	101	128	1	3		REPEAT
2587	9329	5	165	93	995	5/28/2008	4.4	1404	657	131	225	3		REPEAT
2653	9541	5	85	90	-5329	7/2/2008	5.0	1750	273	129	1600	2	8	REPEAT
2736	8566	4	374	54	4966	12/26/2007	3.0	585	29	162	244	4	2	REPEAT
2898	8746	4	188	77	-2001	3/19/2008	2.0	0	42	51	258	1	1	FIRST
2904	8752	3	384	71	4839	1/23/2009	3.4	819	139	198	276	5	3	REPEAT
2926	8778	4	314	66	-3773	2/27/2009	2.2	115	16	76	311	2	3	REPEAT
2945	8790	4	332	61	5336	1/2/2009	1.8	2	89	123	212	1	1	FIRST
2969	8818	3	318	40	5877	12/20/2007	3.6	906	160	87	494	4	1	REPEAT
3076	9013	2	610	66	8096	OPEN	2.3	176	84	140	305	4		REPEAT
3183	9146	4	361	131	2496	7/2/2008	3.3	761	243	314	2		REPEAT	
3271	9253	3	347	48	3423	12/18/2007	2.7	416	96	95	223	1	3	FIRST

F Response to New Infection List

Barn Name	Vid ID	Lact Num	DIM	Daily Milk	305 ME Ranking (Mik)	Due Date	Curr Lact Avg LS	305 Days Est Loss	S7 SCC	S4 SCC	100 SCC	1113 SCC	Curr Lact Tests > 200	Prev Lact Tests > 200	Infection Response
1846	6775	6	529	61	2361	3/4/2008	1.2	0	24	197	341	1			IMPROVED
2398	2398	5	281	110	-3477	6/4/2008	6.8	2881	181	181	181	2	14		IMPROVED
2401	2401	5	394	42	6382	6/23/2008	2.6	351	121	271	238	2	1		IMPROVED
2565	2565	4	474	28	-864	4/9/2009	2.2	1175	161	201	276	2	2		IMPROVED
2898	2898	4	330	89	-1028	3/18/2008	2.1	59	81	281	181	1	1		IMPROVED
3183	3183	4	48	112	-3183		4.1	1225	405	184	2410	5			IMPROVED
3421	3421	3	198	81	1987	6/28/2008	2.8	265	84	282	88	2	1		IMPROVED
3617	3617	3	353	39	993	1/5/2009	2.7	410	128	534	28	2	2		IMPROVED
4821	4821	4	188	89	893	7/27/2008	4.5	1202	148	388	13	2			IMPROVED
4818	4818	4	304	81	688	1/16/2009	2.1	88	114	101	101	4	1		IMPROVED
4338	4338	2	258	83	8748	8/4/2008	1.4	0	16	287	101	1	1		IMPROVED
4338	4338	2	258	83	8748	7/2/2008	1.4	0	16	287	101	1	1		IMPROVED
4419	4419	2	212	31	-1264	4/9/2009	3.0	396	128	281	207	2	2		IMPROVED
4483	4483	2	128	128	128	OPEN	3.2	762	14	213	484	4	2		IMPROVED
N/A	4483	2	103	84	4474	8/10/2008	3.0	585	128	239	18	1	2		IMPROVED
4819	4819	2	188	18	3458	OPEN	2.1	89	28	281	281	2	4		IMPROVED
4819	4819	2	201	12	3163	8/16/2008	2.1	89	28	281	281	1	1		IMPROVED
4819	4819	2	174	102	2888	8/7/2008	1.9	88	18	281	18	1	2		IMPROVED
4839	4839	2	187	47	16200	OPEN	3.2	762	169	289	3112	2	4		IMPROVED
4888	4888	2	143	143	143	OPEN	3.2	762	169	289	3112	2	4		IMPROVED
4818	4818	2	143	143	8743	8/16/2008	1.5	0	1170	18	289	18	1		IMPROVED
4822	4822	2	83	49	-1170		4.0	1917	401	181	18	1	1		IMPROVED
4888	4888	2	71	44	-4873		4.0	1917	401	181	18	1	1		IMPROVED



New vs Old First Test New Infections

10 new infections 1-45DIM in the old UHM =

- 3 true first test new infections +
- 2 second test new infection <45DIM +
- 1 first test new infection at 45DIM +
- 4 dry period fail to cure cows

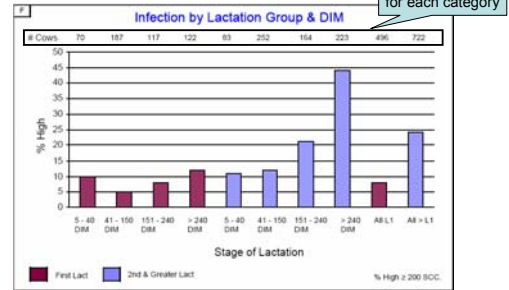
Barn Name	Cow Num	Last Lact DIM	Daily Milk	305 ME Ranking (Milk)	Curt Lact Avg Lb	305 Day Est Loss Lbs	Prev Lact SCC	Curt SCC	Prev Lact Tests ≥ 200	Predict % SCC Contribution to Risk	Notes
2358	8005	5	10	88	-5613	7.1	2964	1326	1079	14	1
4622	10764	2	11	54	-7906	5.5	2048	380	556	7	0
4788	10929	2	8	56	-6517	4.1	1229	357	213	8	0
1008	9477	5	19	71	-7793	8.5	3803	4916	6433	8	2

Cows that have 7-14 tests ≥ 200 SCC in the last lactation should not be classified as a First Test New Infection!

Predict which cows will fail to cure in the dry period from the Dry Cow List ... prepare to track these cows next lactation

Barn Name	Cow Num	Last Lact DIM	Last Daily Milk	305 ME Ranking (Milk)	Due Date	Last Lact Avg Lb	305 Day Est Loss Lbs	Last Lact SCC	Last Lact Tests ≥ 200	Notes
000	7192	7	462	58	7310	10/17/2007	3.5	878	213	8
1861	6366	6	309	71	-17	11/21/2007	2.3	176	90	
2120	7305	5	303	79	6309	10/31/2007	1.4	0	101	
2184	7517	4	414	43	1270	11/21/2007	2.6	488	169	3
2190	9210	5	412	48	4379	12/16/2007	2.9	537	176	1
2208	7632	5	489	57	6755	11/19/2007	3.3	761	240	5
2331	7955	5	309	55	4293	11/14/2007	3.0	565	621	4
2338	7962	5	308	56	-881	11/21/2007	1.3	0	61	
2356	8003	5	303	48	-3005	10/31/2007	2.7	410	112	1
2382	8028	4	327	102	7551	11/13/2007	2.5	176	126	6
2387	8045	5	296	40	624	10/11/2007	3.7	995	792	6
2690	8473	4	343	74	4857	11/18/2007	5.7	2165	733	10
2698	8490	4	307	76	3104	11/21/2007	3.5	878	216	6
2708	8627	4	402	55	11922	10/11/2007	3.7	995	208	6

Prevalence and Population Monitors



Block F in the new UHM utilizes similar prevalence data used in the old UHM in the previous block F for those that are familiar with the old report

CURRENT PREVALENCE BY LACTATION GROUP AND ALL COWS																
STAGE OF LACTATION	NO.	Avg	Min	Max	% High	NO.	Avg	Min	Max	% High	NO.	Avg	Min	Max	% High	
1-45 DAYS	74	2.6	1.2	10	13	18	1.0	0.2	10	10	11	1.74	2.3	22	13	
46-90	179	1.7	0.3	7	12	7	2.1	0.1	6	4	18	4.0	1.6	64	4	
91-135	84	1.6	0.1	6	7	140	2.6	0.4	4	30	16	244	2.5	7	3	
136-180	137	2.7	0.1	14	14	18	3.3	1.4	1	154	40	333	1.8	53	4	
TOTAL-AVG	474	2.3	0.7	4	68	17	142	2.4	41	6	149	36	1218	2.4	61	8

- Block F is for those advisors that do not like the definition of new infections used and prefer the more traditional approach of recording the prevalence of infection (% High) in each DIM category
- Block F also provides the population at risk in each lactation group and DIM category at the current test

