

Missouri Dairy Growth Council's Dairy Cattle Reproductive Manual



February 2009



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Chapter 1

Introduction

What is a cow's job? Think of her as your employee. You provide her with housing, food & water, health benefits, etc. In return she comes to the parlor 2-3 times per day to be milked. During her time in the parlor she "works" for approximately 15 minutes. You provide for her needs and in return she "works" for 30 to 45 minutes a day. Her work is to produce high quality milk.

How does she produce high quality milk? Initially, a heifer must have a calf. At the end of gestation there is an increase in prolactin and uterine lactogenic hormones that stimulate mammary development. In subsequent years the process is repeated with each pregnancy. So, the cows must become pregnant to stimulate mammary development.

Similarly, we know that the most productive time of the lactation is during peak milk. That period occurs sometime between 30-150 days in milk (DIM). The more time a cows spends during this part of her lactation during her lifetime, the more profit she will generate. The dairyman needs to maximize this time.

Therefore, to maximize profit, cows need to become pregnant on a regular basis. To accomplish getting a cow pregnant on a consistent basis, the reproductive program of a farm needs to be a high priority. The reproductive program must also be relatively easy to implement. In this booklet you will find a practical way to improve your herd.

Improvement can be measured in a variety of ways, including days open, days to first service, calving interval, etc. However, a relatively new way of examining a herd's reproductive performance includes HEAT DETECTION RATE (HDR) and PREGNANCY RATE (PR). National average, from various databases, for HDR and PR are 35% and 14%, respectively. Herds that are in the top 10% for these parameters will have rates of greater than 60% and 20%. From experience, herds that attain greater than 20% pregnancy rates will ultimately have excess heifers waiting to come into the herd! It creates a new area on the farm to generate more profit.

Let's say there is pen with 100 cows in it and today they are all 60 days in milk (DIM). The farm has decided on 60 DIM as their voluntary waiting period, so all 100 cows are eligible to be bred. Over the next 21 days 35 of the 100 cows are bred. Therefore, the HDR is 35/100 or 35%. Subsequently, 14 of the 35 cows that were bred become pregnant. Now, 14/35 or 40% is the conception rate. However, for pregnancy rate you want to divide 14 by the 100 eligible cows or 14%.

The definition of HDR and PR follows:

$\text{HDR} = \# \text{ of cows bred} / \# \text{ of cows eligible to be bred for each 21 day period during a year}$

$\text{PR} = \# \text{ of cows pregnant} / \# \text{ of cows eligible to become pregnant for each 21 day period during a year}$

Thus, actually PR incorporates HDR and conception rate. PR equals HDR times conception rate. If you do not have a software program that figures PR for you, you can use your DHI reports. It will give you the % of heat observed (equivalent to HDR). You then can multiply this by your conception rate and get a crude estimate of PR.

There have been several articles discussing the decline of fertility in dairy cattle. This especially pertains to the lactating cow. There are several reasons for this decline, including inbreeding, increased production, time management on the farm, nutrition, etc. We do know that as a cow increases her production, two effects on her estrus expression occur. Those two effects are a decreased time in estrus and a decreased intensity of estrus expression. A cow producing 100# of milk will only spend approximately 6 hours in heat rather than the usual 18 hours (more typical of a beef cow) that we have learned. On top of that, she will make far fewer mounts than a lower producing cow. All this leads to a more difficult time for the producer to find the cow in heat.

However, the conception rate among heifers has not declined to near the extent that it has in the milking herd. So there is potential to reverse this trend of poor fertility. There has been increased emphasis on sire selection for increased fertility using daughter pregnancy rate (DPR) and services per conception (SCR). Along the same lines crossbreeding has gained some favor among producers. It is well known that the beef crossbred cows tend to be more fertile than a straightbred. There is now data indicating the same in dairy cattle. Also, the use of estrus synchronization has allowed producers to get more cows pregnant and subsequently start to put some selection pressure on fertility within their herds.

The increase in the number of pregnant cows leads to the opportunity to do more voluntary culling and/or selling of excess breeding stock. There are several ways to economically evaluate better reproduction. An increase in days open can be valued at between \$0.50-4.50 per day, a pregnant cow is worth \$250 to 600 more than an open cow, or each % point increase in PR is equal to roughly \$35 per cow. This last estimate is the basis for the reproductive calculator that is included with this booklet.

Unfortunately, no one is going to give you a bonus check for being successful in getting cows pregnant. However, with time and patience, the increase in the number of pregnant cows will allow the producer to voluntarily get rid of low producers, chronic problem cows, high somatic cell count cows, and poor fertility animals. Likewise, producers that are attaining success with their reproductive programs are now able to merchandise excess bred heifers, which is a great addition to the cash flow of the farm.

Chapter 2

Economics of Reproduction

Five ways to “Find 80 cents a Cow each day”

Mike Hutjens

- Boost Components
- Long Day Lighting
- **Fewer Days Open**
- **Higher Pregnancy Rates**
- Extra Milking

2 out of 5 suggestions pertain to Reproduction

What is the added value of a Pregnancy?

- A pregnancy is worth \$200-500



What is the cost of an extra day open?

- \$0.42 to \$4.95 a day for a day open after 110 DIM.

For examples let's use:

\$2.50/day



What is your average Days Open?

- 336 Herds on DHIA in Missouri
- Average 184 days open
- Range from 84 to 358 days open
- National Average 165.8

What is your average Days Open?

- $184 - 165 = 19$
- **\$47.5** lost due to excessive days open per cow in the herd vs national average

What is the cost of poor reproduction?

- \$35 per cow in the herd for each % point increase in **Pregnancy Rate**

What is Pregnancy Rate?

- 100 cows



How many were bred?

- **33 cows** (heat detection rate)
 - Or more importantly
- **67 cows were not bred!**

How many will become pregnant?

- 12
- Therefore
- The Preg rate is 12%

What is Pregnancy Rate?

- 100 cows
- 33 cows bred
- $33/100 = 33\%$, Heat Detection Rate
- 12 diagnosed pregnant
- $12/100 = \mathbf{12\%}$ Pregnancy Rate

- These are Missouri averages!

What is your Pregnancy Rate

- 336 Herds on DHIA in Missouri
- 12.2 annualized average
Pregnancy Rate
- National Average 15.1

What is your Pregnancy Rate

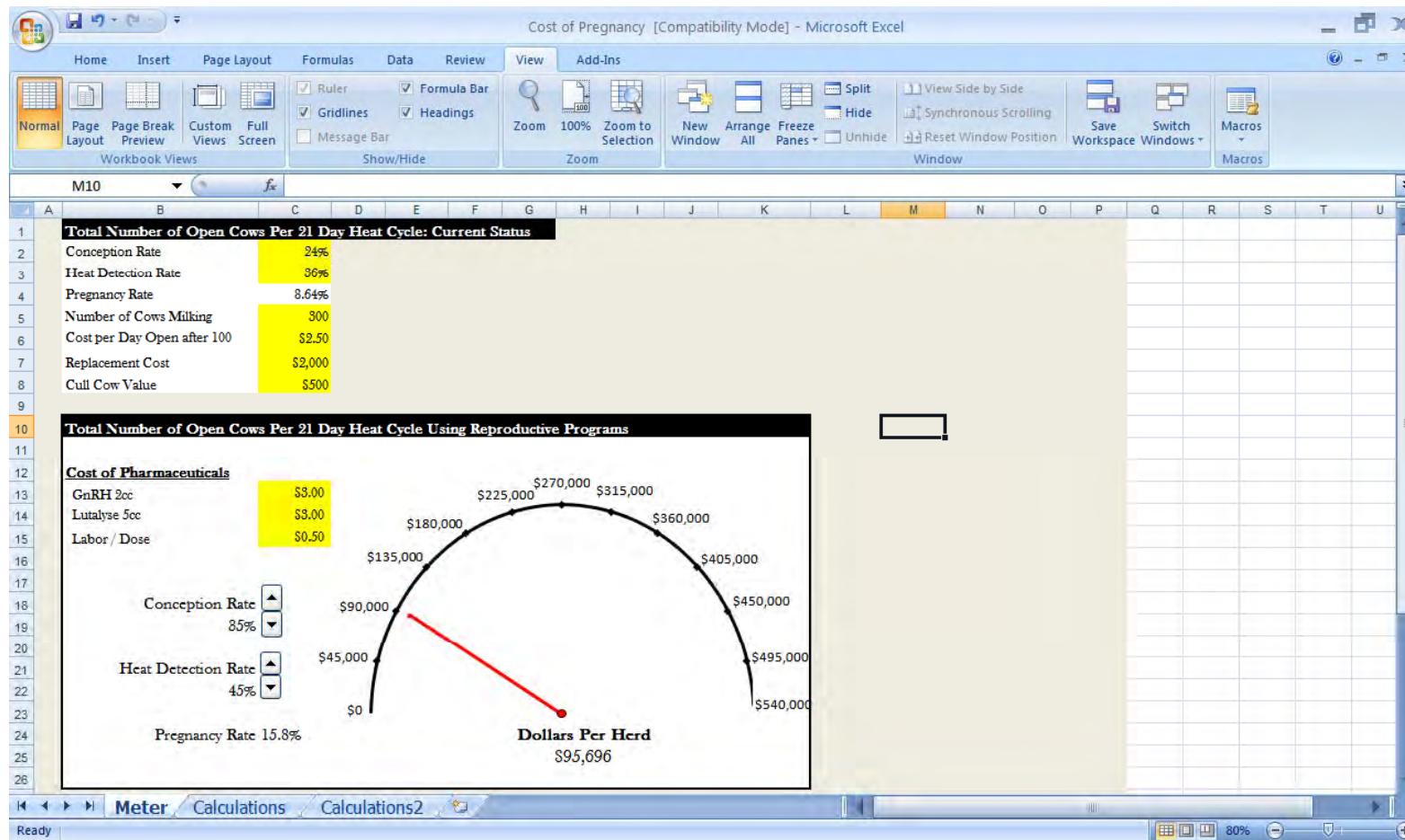
- Average herd in Missouri 110 cows
- Increasing Pregnancy rate from 12.2 to 15.1 yields:
 - **\$95.40** per cow in the herd

Using the Reproduction Economics Spreadsheet

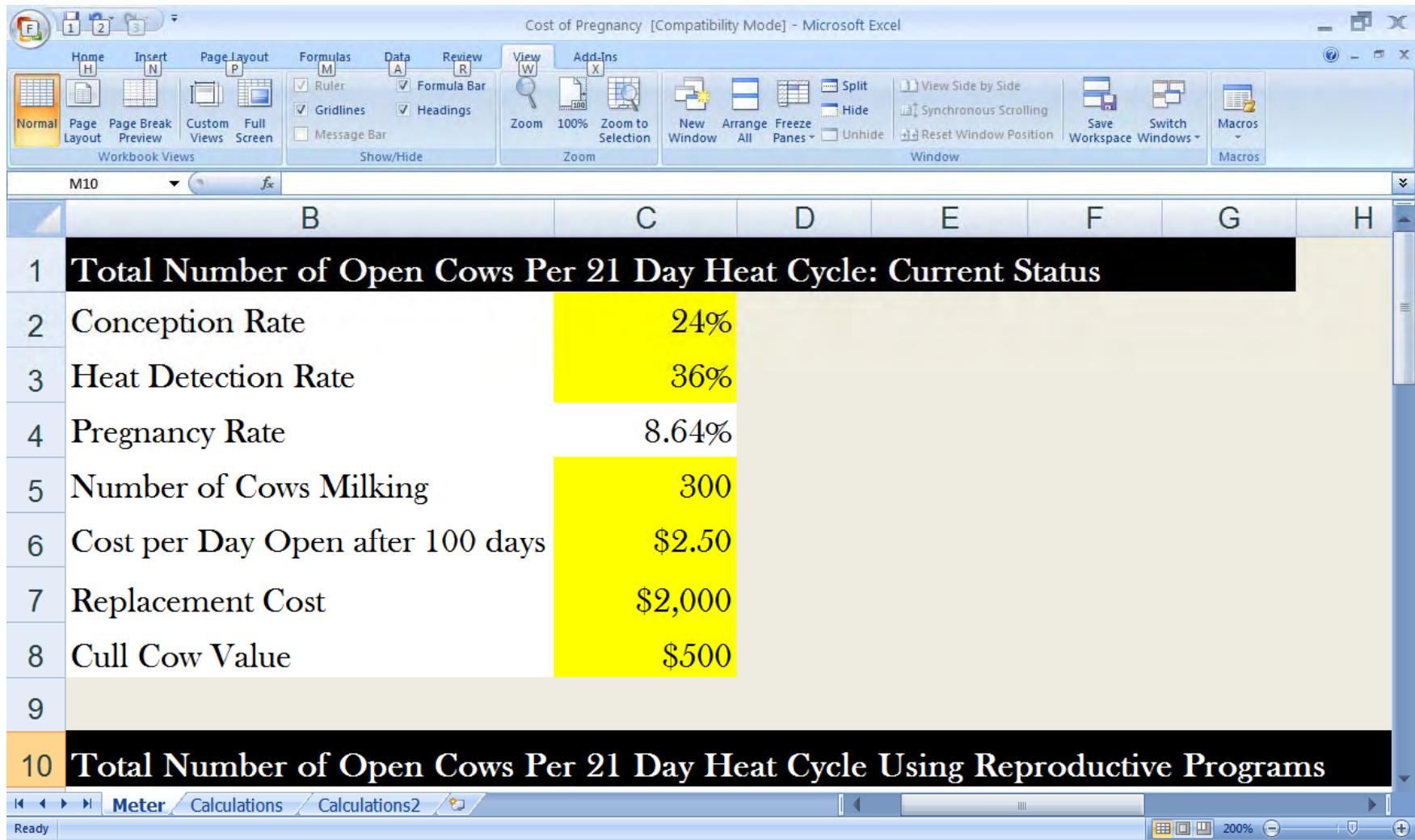
- Go to the following website to use the spreadsheet:

<http://agebb.missouri.edu/dairy/reproduction/>

Using the Reproduction Economics Spreadsheet



Put in your herd's numbers (yellow boxes)



The screenshot shows a Microsoft Excel spreadsheet titled "Cost of Pregnancy [Compatibility Mode] - Microsoft Excel". The table contains the following data:

	Total Number of Open Cows Per 21 Day Heat Cycle: Current Status	
1	Conception Rate	24%
2	Heat Detection Rate	36%
3	Pregnancy Rate	8.64%
4	Number of Cows Milking	300
5	Cost per Day Open after 100 days	\$2.50
6	Replacement Cost	\$2,000
7	Cull Cow Value	\$500
8		
9		
10	Total Number of Open Cows Per 21 Day Heat Cycle Using Reproductive Programs	

Where do you find your conception rate (CR) and heat detection rate (HDR)?

- For PC Dart users:
- Report 801
- For DHI only users:
- Report 202

PC Dart Report 801

Report Preview :

801 Herd Summary - Reproduction

UNIV. OF MO FOREMOST DAIRY - 43090006
Date of Test 1/19/2009
Overall Herd

REP PRODUCTIVE SUMMARY OF CURRENT BREEDING HERD

VMP	60	Total	Not Bred or Diag. Open			Bred But Not Diag. Preg.			Days to first service 74
			Number from VMP to 100 days	Number over 100 days	Number Diag. Open	Number Open fewer than VMP	Number Open VMP to 100 days	Number Open 101 to 130 days	
Number of Cows	93	9	3	3	38	25	18		
% Breeding Herd		10	3	3	41	27	19		

REP PRODUCTIVE SUMMARY OF TOTAL HERD

Days Open at 1st Service	Avg. Days to 1st service	Services per Pregnancy		Projected Minimum		Service or Heat Interval		
		Preg. Cows	All Cows	Calving Interval	Days Open			
Number Fewer than VMP	Number VMP to 100 days							
1st Lact	6	87	1	73	2.2	3.4	13.0	116
2nd Lact	1	42		75	3.2	4.3	13.9	143
3rd Lact	5	47		71	2.7	3.6	14.0	147
All Lact	12	176	1	73	2.6	3.6	13.5	131
% of all 1st servs	6	93	1					

Service or Heat Interval	
Interval Length	Number of Intervals
< 18	11
18-24	72
36-48	45
Other	170

ABORTIONS

This Month	Past Year	
Actual	1	4
Apparent	1	15

SUMMARY BY SERVICE SIRE

Services for Past 12 Months

Service Number	Number Services	% Successful	Service Sire
1st srv	184	32	+307
2nd srv	126	33	+313
3rd+srv	295	27	+301
All srv	605	30	+305

YEARLY REPRODUCTIVE SUMMARY

Date of Test	% Heats	Number Services	% Success	Number Confirm Preg.	Number Calving	Total Pregnant
Month Dropped	42	30	27		12	59
2/3/2008	74	83	27	53	17	93
3/17/2008	73	65	34	18	23	98
4/23/2008	73	64	28	28	20	114
5/27/2008	69	52	31	15	13	121
6/24/2008	81	50	30	16	12	128
7/22/2008	75	50	26	10	10	122
9/3/2008	77	79	25	24	4	138
10/2/2008	73	38	24	17	54	122
10/29/2008	3	1			31	119
11/20/2008					30	101
12/18/2008	84	84			20	86
1/19/2009	73	62		32	15	105
Averages	63	54	30	19	21	112
Totals		648				249

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PC Dart Report 801

Report Preview :

Close

1st Lact	6	87	1	73	2.2	3.4	13.0	116
2nd Lact	1	42		75	3.2	4.3	13.9	143
3rd+ Lact	5	47		71	2.7	3.6	14.0	147
All Lact	12	176	1	73	2.6	3.6	13.5	131
% of all 1st srvs	6	93	1					

< 18	11
18-24	72
36-48	45
Other	170

ABORTIONS

Actual	This Month	Past Year
	1	4

Apparent		15
----------	--	----

SUMMARY BY SERVICE SIRE

Services for Past 12 Months

Service Number	Number Services	% Successful	Service Sire
1st srv	184	32	+307
2nd srv	126	33	+313
3rd+ srv	295		+301
All srv	605	30	+305

Conception Rate

	Number Dry Periods	Dry Days	Number Dry Fewer Than 40 Days	Number Dry 40 - 70 Days	Number Dry More Than 70 Days
2nd Lact	56	59	3	47	
3rd+ Lact	68	76	1	47	2
All Lact	124	68	4	94	2

YEARLY REPRODUCTIVE SUMMARY

Date of Test	% Heats	Number Services	% Success-	Number Confirm Preg.	Number Calving	Total Pregnant
Month Dropped	42	30	27		12	59
2/13/2008	74	83	27	53	17	93
3/17/2008	73	65	34	18	23	98
4/23/2008	73	64	28	28	20	114
5/27/2008	69	52	31	15	13	121
6/24/2008	81	50	30	16	12	128
7/22/2008	75	50	26	10	10	122
9/3/2008	77	79	25	24	4	138
10/2/2008	73	38	24	17	54	122
10/29/2008	3	1		12	31	119
11/20/2008					30	101
12/18/2008	84	84			20	86
1/19/2009	73	82		32	15	105
Averages	63	54	30	19	21	112
Totals		648			249	

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Heat Detection Rate

0% Page 1 of 1

DHI Report 202

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1

HERD SUMMARY DHI-202

UNIV. OF MO FOREMOST DAIRY

9601 W. HIGHWAY 40
1 COLUMBIA MO 65202

PRODUCTION, INCOME, & FEED COST SUMMARY

DESCRIPTION		DAILY AVERAGE PER COW ON TEST DAY		ROLLING 30-DAY HERD AVERAGES			
TOTAL COWS		206		189.4			
COWS IN MILK		NUMBER	%	NUMBER	%		
MILK LBS. (ALL COWS)		178	86	160.9	85		
MILK LBS. (MILKING COWS)		59.7		20,482			
FAT LBS. (MILKING COWS)		2.19		751			
FAT PERCENT		3.7		3.7			
PROTEIN LBS. (ALL COWS)		1.78		620			
PROTEIN PERCENT		3.0		3.0			
MILK LBS. (MILKING COWS)		69.1					
MILKING COWS		LBS. CONSUMED	ALL COWS	LBS. CONSUMED	%ENE		
SILAGE		LBS. CONSUMED		LBS. CONSUMED	%ENE		
OTHER SUCCELENTS OR BLENDED RATIONS		LBS. CONSUMED		LBS. CONSUMED	%ENE		
DRY FORAGE		LBS. CONSUMED		LBS. CONSUMED	%ENE		
OTHER FEEDS		LBS. CONSUMED		LBS. CONSUMED	%ENE		
PASTURE		PASTURE LBS. OR NOI		DAYS	%ENE		
CONCENTRATES		LBS. CONSUMED		LBS. CONSUMED	%ENE		
VALUATION OF PRODUCT \$		12.09	10.39		3,955		
COST OF CONCENTRATES \$							
TOTAL FEED COST \$							
INCOME OVER FEED COST \$							
FEED COST PER CWT. MILK \$							
MILK BLEND PRICE		PER CWT	%FAT	%PROT	PER CWT	%FAT	%PROT

MISCELLANEOUS HERD INFORMATION

SHIPPED-TEST DAY COMPARISON		TEST DAY	YEARLY AVERAGE		ASSOC. REC'D. AT LAB		DPRC MAILED	
			MO.	DAY	MO.	DAY	MO.	DAY
		15	1	21	1	21		
SUM OF TEST DAY WITH TESTS		12210	10439					
INTEGRATED AVERAGE DAILY BULK TANK WTS (LBS)								
% DEVIATION								

REPRODUCTIVE SUMMARY OF CURRENT BREEDING HERD

BR. OF HERO HO	TOTAL COWS IN BREEDING HERD		COWS WITH NO SERVICE DATES OR DIAG. OPEN			COWS BRED BUT NOT DIAG. PREG.			
	OPEN VWP TO 100 DAYS	OPEN OVER 100 DAYS	NUMBER DIAG. OPEN	OPEN VWP TO 100 DAYS	OPEN OVER 100 DAYS	NUMBER	OPEN VWP TO 100 DAYS	OPEN OVER 100 DAYS	
81				35	23	13	43	28	16
60	7	3	3	9	4	4	73		

ELECTRONIC METERS

REPRODUCTIVE SUMMARY OF TOTAL HERD

DAYS OPEN AT 1ST SERVICE		AVG. SERVICES PER PREGNANCY		PROJECTED MINIMUM		SERVICE OR HEAT INTERVALS		SERVICES FOR PAST 12 MONTHS					
NUMBER FEWER THAN VWP	NUMBER OVER 100 DAYS	DAYS TO 1ST SERVICE	PREG. COWS	ALL COWS	CALVING INTERVAL	DAYS OPEN	INTERVAL LENGTH	NUMBER INTERVALS	SERVICE NUMBER	NUMBER SERVICE	% SUCCESFUL	SERVICE MERIT #	
5	77	72	2.2	3.3	12.9	112	LESS THAN 18	7	1ST	164	32	+324	
1	39	75	3.1	3.9	13.9	142	18-24	53	2ND	114	34	+322	
5	44	71	2.8	3.6	13.8	138	3rd+	248	3RD+	248	29	+315	
11	160	72	2.6	3.5	13.4	127	TOTAL	526	TOTAL	526	31	+320	
6	94	CURRENT ACTUAL CALVING INTERVAL	14.6				ABORTIONS	THIS MONTH	PAST YEAR	ACTUAL	1	4	
							APPARENT			APPARENT	1	14	

BIRTH SUMMARY

DAM'S LACT.	MALES		FEMALES		CALVING DIFFICULTY SCORE				
	NUM.	ALIVE	DEAD	ALIVE	DEAD	1	2	3	4&5
1	17	7	55	7	44	21	14	7	8
2+	69	7	53	2	86	26	11	1	1
TOTAL	86	14	108	9	130	47	25	8	4

COWS TO BE MILKING, DRY, CALVING, BY MONTH

MONTH	FEB	MAR	APR	MAY	JUN	JUL
* MILKING	173	173	170	164	170	148
DRY	28	22	19	20	6	25
COWS TO LEAVE	11	12	11	16	4	4
HEIFERS TO CALVE						

* ASSUMES 3.0% PER MONTH CULLING RATE.

YEARLY REPRODUCTIVE SUMMARY

DATE OF TEST	% HEATS OBS.	% SUCC-FUL	PREG RATE	NUMBER SERVICES	NUMBER CONFIRM. PREG.	NUMBER CALVING	TOTAL PREGNANT COWS
MONTH DROPPED	43	26	14	27		10	54
2-13-08	75	27	20	77	48	16	84
3-17-08	73	34	24	58	18	20	90
4-23-08	72	31	23	55	27	16	106
5-27-08	69	28	19	46	13	12	111
6-24-08	78	29	19	41	15	10	117
7-22-08	75	30	27	43	9	8	112
9-03-08	76	27	22	62	19	1	123
10-02-08	75	25	19	32	14	49	108
10-29-08			0	11	28		107
11-20-08			0		27		91
12-18-08	84			74	18		77
1-19-09	73			72	32	14	97
AVERAGES	63	31	20	47	17	18	102
TOTALS				560		219	

REMARKS:
COWS MILKED 3 TIMES DAILY FOR ALL OR PART OF THIS YEARLY PERIOD.

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Conception Rate

DAYS OPEN AT 1ST SERVICE			AVG. DAYS TO 1ST SERVICE	SERVICES PER PREGNANCY		PROJECTED MINIMUM	
NUMBER FEWER THAN VWP	NUMBER FROM VWP TO 100 DAYS	NUMBER OVER 100 DAYS		PREG. COWS	ALL COWS	CALVING INTERVAL	DAYS OPEN
1ST LACT	5	77	72	2.2	3.3	12.9	112
2ND LACT	1	39	75	3.1	3.9	13.9	142
3+ LACTS	5	44	71	2.8	3.6	13.8	138
ALL LACTS	11	160	72	2.6	3.5	13.4	127
% OF ALL 1ST SERVICES	6	94			CURRENT ACTUAL CALVING INTERVAL	14.6	

SERVICE OR HEAT INTERVALS		SERVICES FOR PAST 12 MONTHS	
INTERVAL LENGTH	NUMBER INTERVALS	SERVICE NUMBER	NUMBER SERVICE
LESS THAN 18	7	1ST	164
18-24	53	2ND	114
36-48	37	3RD+	248
OTHER	149	TOTAL	526
		ABORTIONS	THIS MONTH
		ACTUAL	4
		APPARENT	1
			14

YEARLY REPRODUCTIVE SUMMARY

DATE OF TEST	% HEATS OBS.	% SUCCESSFUL	PREG RATE	NUMBER SERVICES	NUMBER CONFIRM PREG.	NUMBER CALVING	TOTAL PREGNANT COWS
MONTH DROPPED	43	26	14	27		10	54
2-13-08	75	27	20	77	48	16	84
3-17-08	73	34	24	58	18	20	90
4-23-08	72	31	23	55	27	16	106
5-27-08	69	28	19	46	13	12	111
6-24-08	78	29	19	41	15	10	117
7-22-08	75	30	27	43	9	8	112
9-03-08	76	27	22	62	19	1	123
10-02-08	75	25	19	32	14	49	108
10-29-08			0		11	28	107
11-20-08			0			27	91
12-18-08	84			74		18	77
1-19-09	73			72	32	14	97
AVERAGES	63	3	20	47	17	18	102
TOTALS				560		219	

BIRTH SUMMARY

DAM'S LACT NUM.	OFFSPRING BORN				CALVING DIFFICULTY SCORE			
	MALES ALIVE	DEAD	FEMALES ALIVE	DEAD	1	2	3	4&5 % 4+5
1	17	7	55	7	44	21	14	7 8
2+	69	7	53	2	86	26	11	1 1
TOTAL	86	14	108	9	130	47	25	8 4

COWS TO BE MILKING, DRY, CALVING, BY MONTH

MONTH	FEB	MAR	APR	MAY	JUN	JUL
* MILKING	173	173	170	164	170	148
DRY	28	22	19	20	6	25
COWS TO CALVE	11	12	11	16	4	4
HEIFERS TO CALVE						

* ASSUMES 3.0 % PER MONTH CULLING RATE.

Heat Detection Rate

Fill in the cost of the medications and labor

Cost of Pregnancy [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Add-Ins

Normal Page Layout Preview Custom Views Full Screen

Workbook Views

Ruler Formula Bar

Gridlines Headings

Message Bar

Zoom 100% Zoom to Selection

New Window Arrange All Freeze Panes Hide

Split View Side by Side Synchronous Scrolling

Reset Window Position

Save Workspace Windows

Switch Macros

M10 fx

A B C D E

10 Total Number of Open Cows Per 21 Day Heat Cycle Using Repro

11

12 Cost of Pharmaceuticals

13 GnRH 2cc \$3.00

14 Lutalyse 5cc \$3.00

15 Labor / Dose \$0.50

16

17

Meter Calculations Calculations2

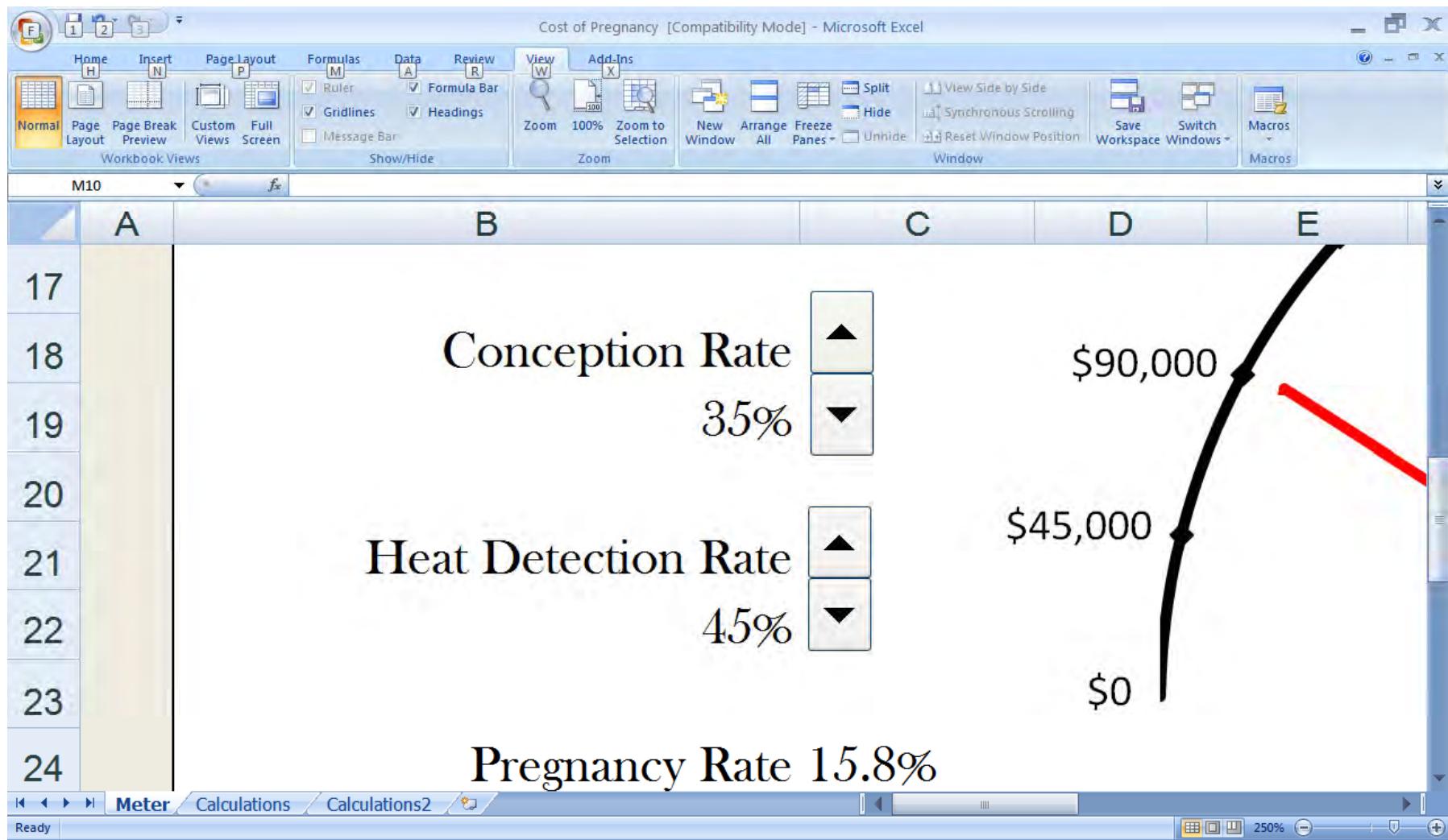
Ready 250%

The spreadsheet shows a table with the following data:

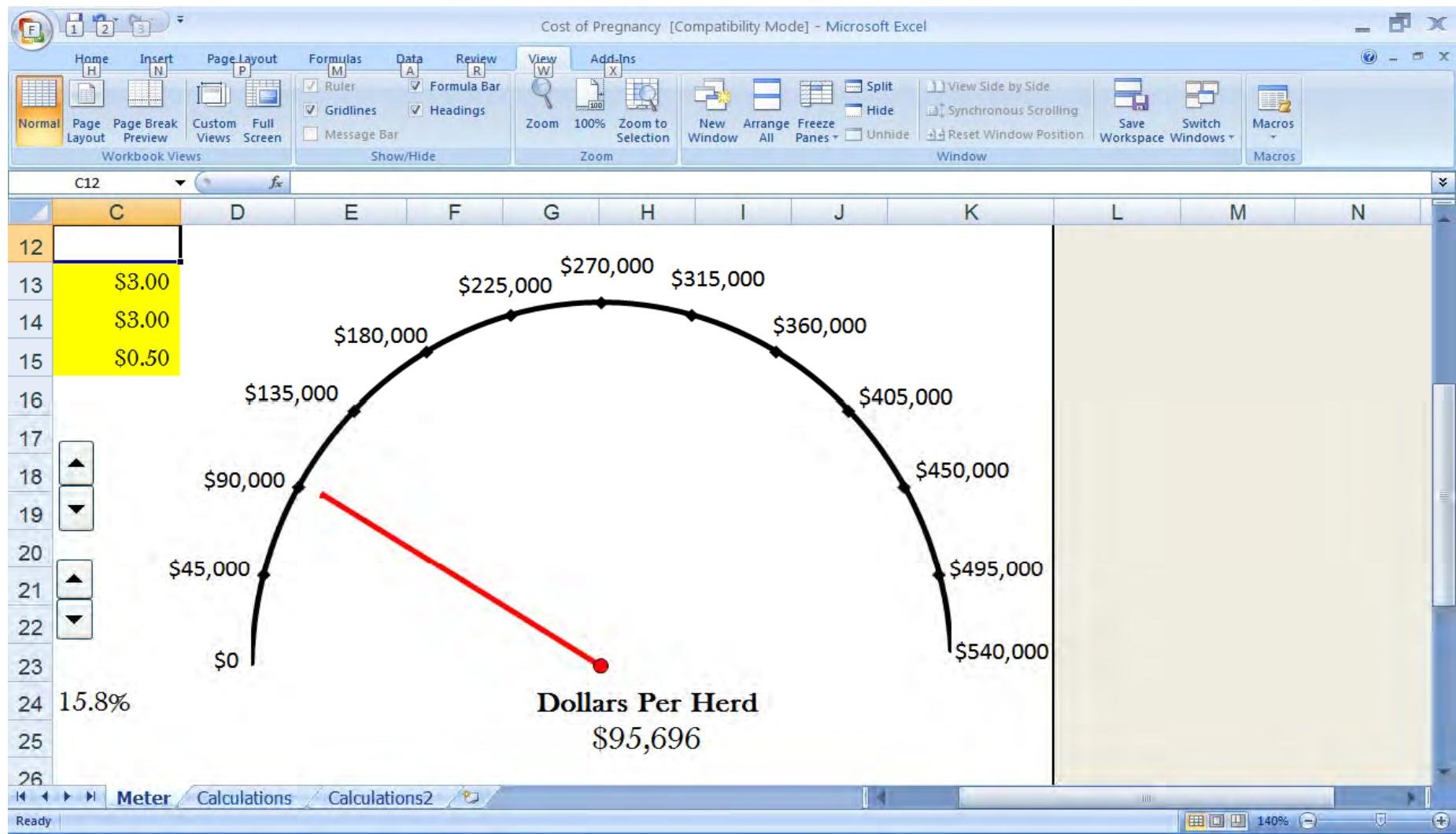
10	A	Total Number of Open Cows Per 21 Day Heat Cycle Using Repro
11		
12	B	<u>Cost of Pharmaceuticals</u>
13	C	GnRH 2cc \$3.00
14	C	Lutalyse 5cc \$3.00
15	C	Labor / Dose \$0.50
16		
17		

Below the table, there is a graph with a black line and yellow shaded areas. The graph has two labels: '\$180,000' and '\$135,000'.

Now change Conception Rate and Heat Detection Rate



Observe the change in \$/herd



Chapter 3

Creating Presynch/Ovsynch Program in PC Dart

Instructions

- The following slides will lead you through

Presynch/Ovsynch

--Click on “File”

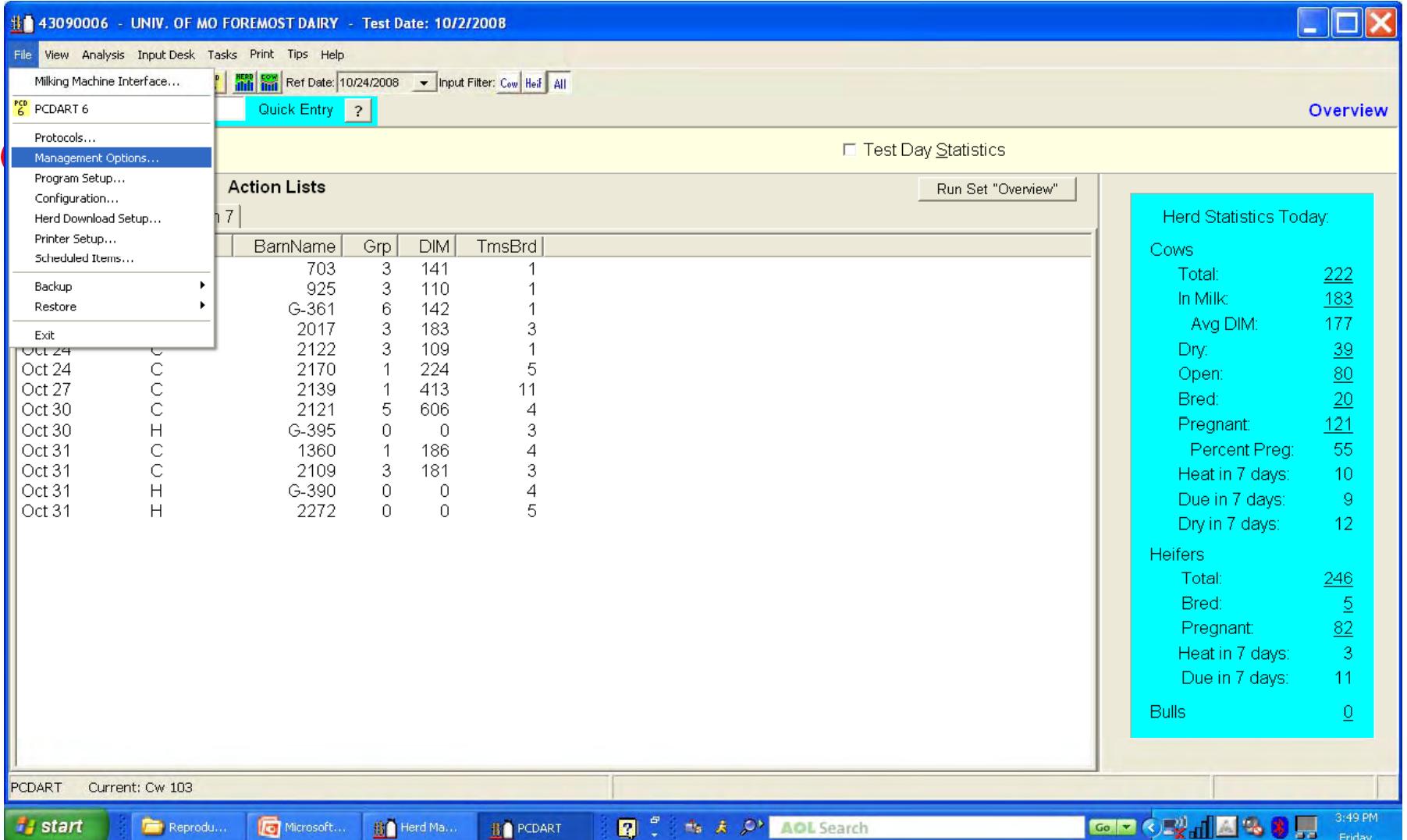
File

The screenshot shows the PCDART software interface. The title bar reads "43090006 - UNIV. OF MO FOREMOST DAIRY - Test Date: 12/20/2007". The menu bar includes File, View, Analysis, Input Desk, Tasks, Print, Tips, and Help. The toolbar has icons for various functions. The main window is titled "PCDART" and contains an "Action Lists" table with columns: NextExpHeat, AniType, BarnName, Grp, DIM, and TmsBrd. The table lists numerous cows with their details. To the right of the table is a "Herd Statistics Today:" box. It shows the following counts:

Herd Statistics Today:	
Cows	
Total:	197
In Milk:	167
Dry:	30
Open:	41
Bred:	89
Pregnant:	67
Heat in 7 days:	45
Due in 7 days:	4
Dry in 7 days:	5
Heifers	
Total:	256
Bred:	34
Pregnant:	71
Heat in 7 days:	17
Due in 7 days:	5
Bulls	
Total:	3

At the bottom, a status bar says "PCDART Current: Cw 103".

Choose “Management Options”



The screenshot shows the PCDART 6 software interface. The title bar reads "43090006 - UNIV. OF MO FOREMOST DAIRY - Test Date: 10/2/2008". The menu bar includes File, View, Analysis, Input Desk, Tasks, Print, Tips, and Help. A toolbar with icons for PCDART 6, Reproduct., Microsoft..., Herd Ma..., and AOL Search is visible. The main window has a "Quick Entry" button and a "Management Options..." menu item highlighted with a red box. The "Action Lists" table shows data for cows and heifers. A "Test Day Statistics" checkbox is present. The "Overview" section displays "Herd Statistics Today" for Cows, Heifers, and Bulls. The status bar at the bottom shows "PCDART Current: Cw 103" and the system date and time as "3:49 PM Friday".

Management Options...

Action Lists

	BarnName	Grp	DIM	TmsBrd
7	703	3	141	1
	925	3	110	1
	G-361	6	142	1
	2017	3	183	3
	2122	3	109	1
	2170	1	224	5
	2139	1	413	11
	2121	5	606	4
	G-395	0	0	3
	1360	1	186	4
	2109	3	181	3
	G-390	0	0	4
	2272	0	0	5

Test Day Statistics

Overview

Herd Statistics Today

	Cows	Heifers	Bulls
Total:	222	246	0
In Milk:	183	5	0
Avg DIM:	177	82	0
Dry:	39	3	0
Open:	80	82	0
Bred:	20	0	0
Pregnant:	121	0	0
Percent Preg:	55	0	0
Heat in 7 days:	10	3	0
Due in 7 days:	9	11	0
Dry in 7 days:	12	0	0

Cows

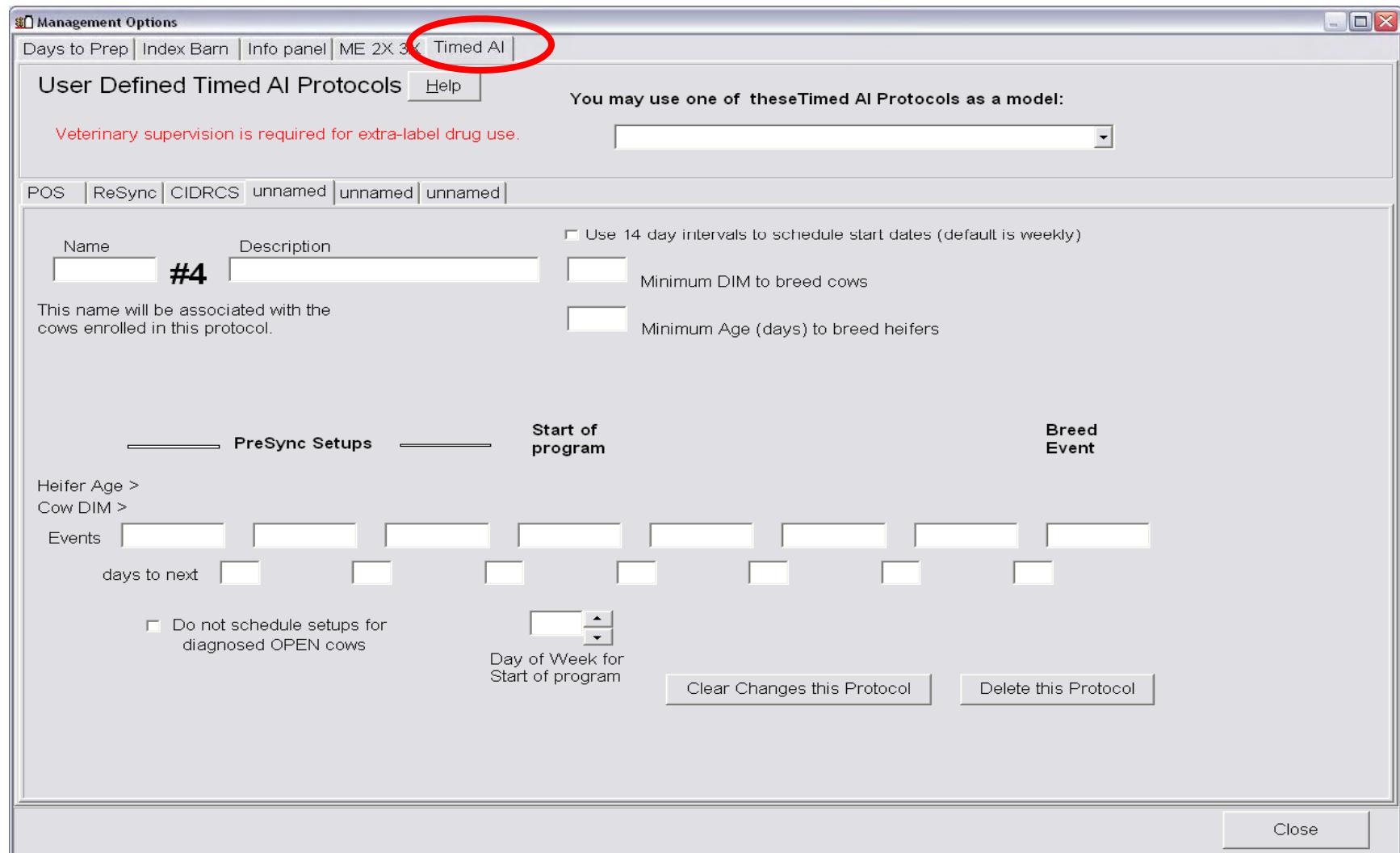
Heifers

Bulls

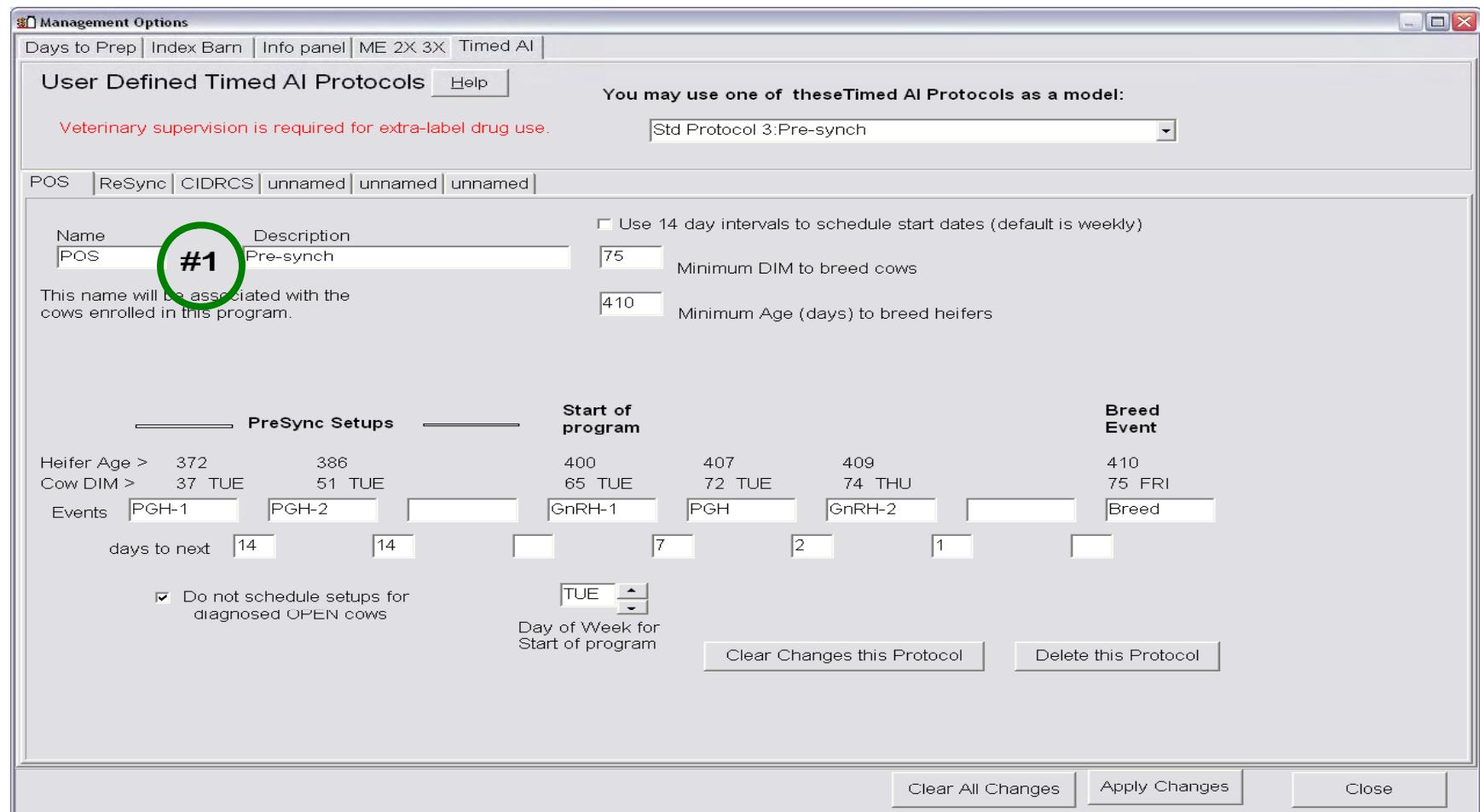
PCDART Current: Cw 103

3:49 PM Friday

--Select “Timed AI”

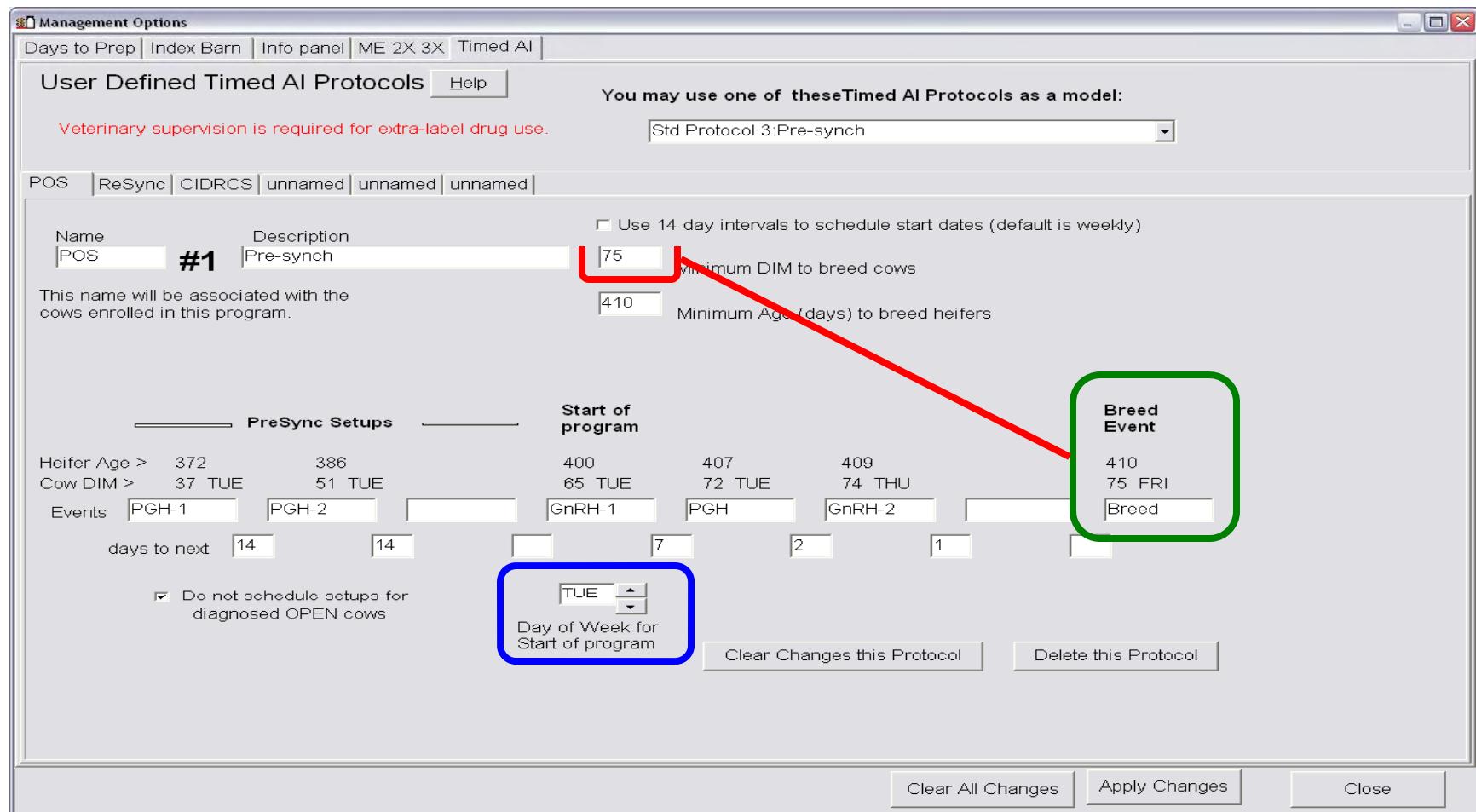


--Name Protocol from drop down menu and at #1



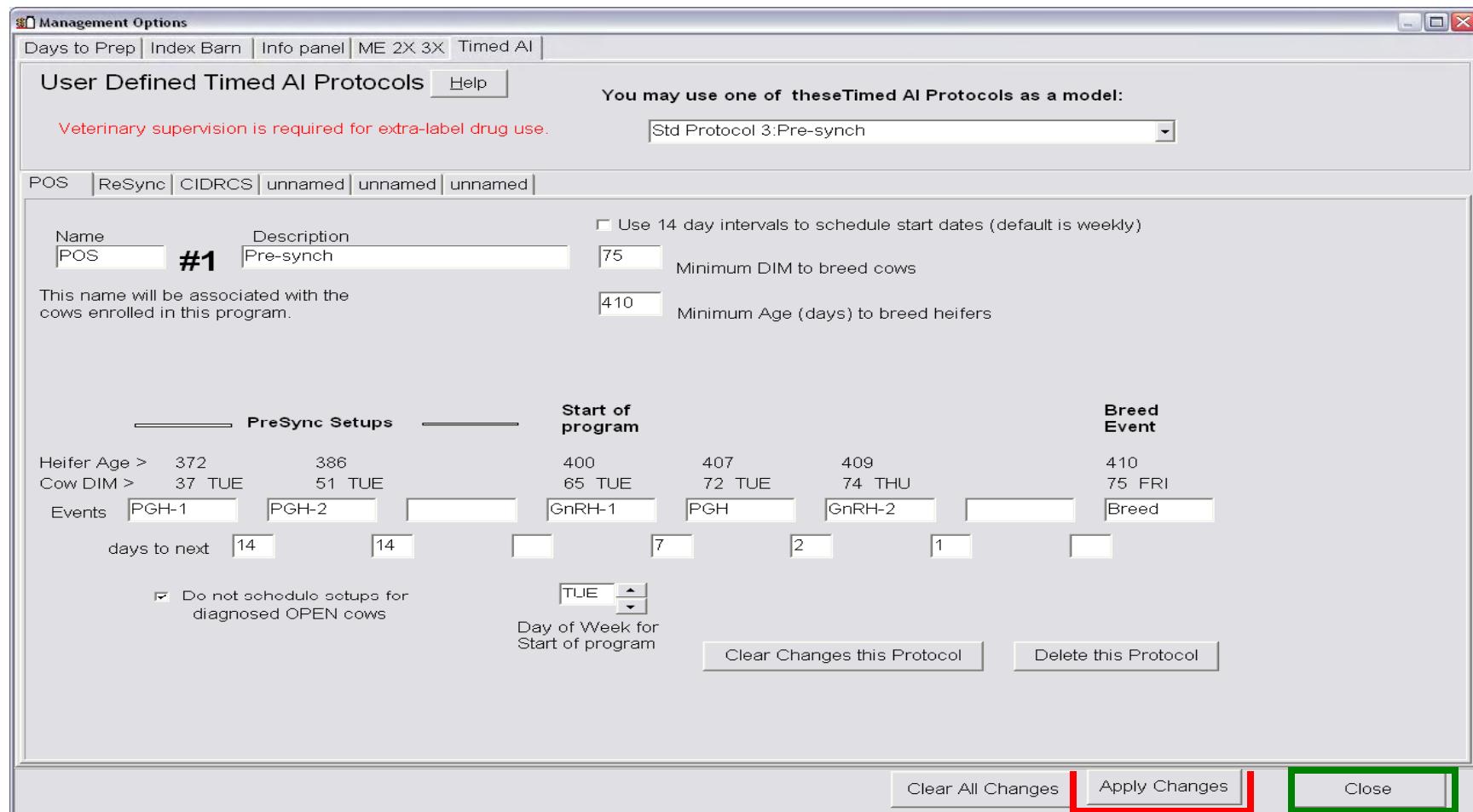
--Select “Minimum DIM to breed cows” (for breed event)

--Select “Day of week for start of program”



--Apply changes

--Close



Click on “RPT”

43090006 - UNIV. OF MO FOREMOST DAIRY - Test Date: 1/7/2008

File View Analysis Input Desk Tasks Print Tips Help

PCDART Ref Date: 1/7/2008 Input Filter: Cow Heif All

Quick Entry ? Overview

PCDART

Action Lists

Heat in 7 | Due in 7 | Dry in 7 |

NextExpHeat	AniType	BarnName	Grp	DIM	TmsBrd
Jan 07	C	656	2	144	2
Jan 07	C	2039	1	478	12
Jan 07	H	2203	0	0	1
Jan 07	H	2244	0	0	1
Jan 08	H	2199	0	0	1
Jan 09	H	J-002	0	0	8
Jan 09	H	2179	0	0	3
Jan 09	H	2217	0	0	1
Jan 09	H	2220	0	0	1
Jan 09	H	2229	0	0	1
Jan 09	H	2232	0	0	1
Jan 09	H	2242	0	0	1
Jan 09	H	2245	0	0	1
Jan 10	C	2118	1	362	8
Jan 10	H	G-378	0	0	1
Jan 10	H	2249	0	0	1
Jan 10	H	2253	0	0	1
Jan 11	C	654	2	285	3
Jan 11	C	887	3	259	3
Jan 11	C	986	4	83	1
Jan 11	C	983	4	83	1
Jan 11	C	2099	1	306	5
Jan 11	C	2131	1	123	2
Jan 11	C	2982	4	82	1

Run Set "Overview"

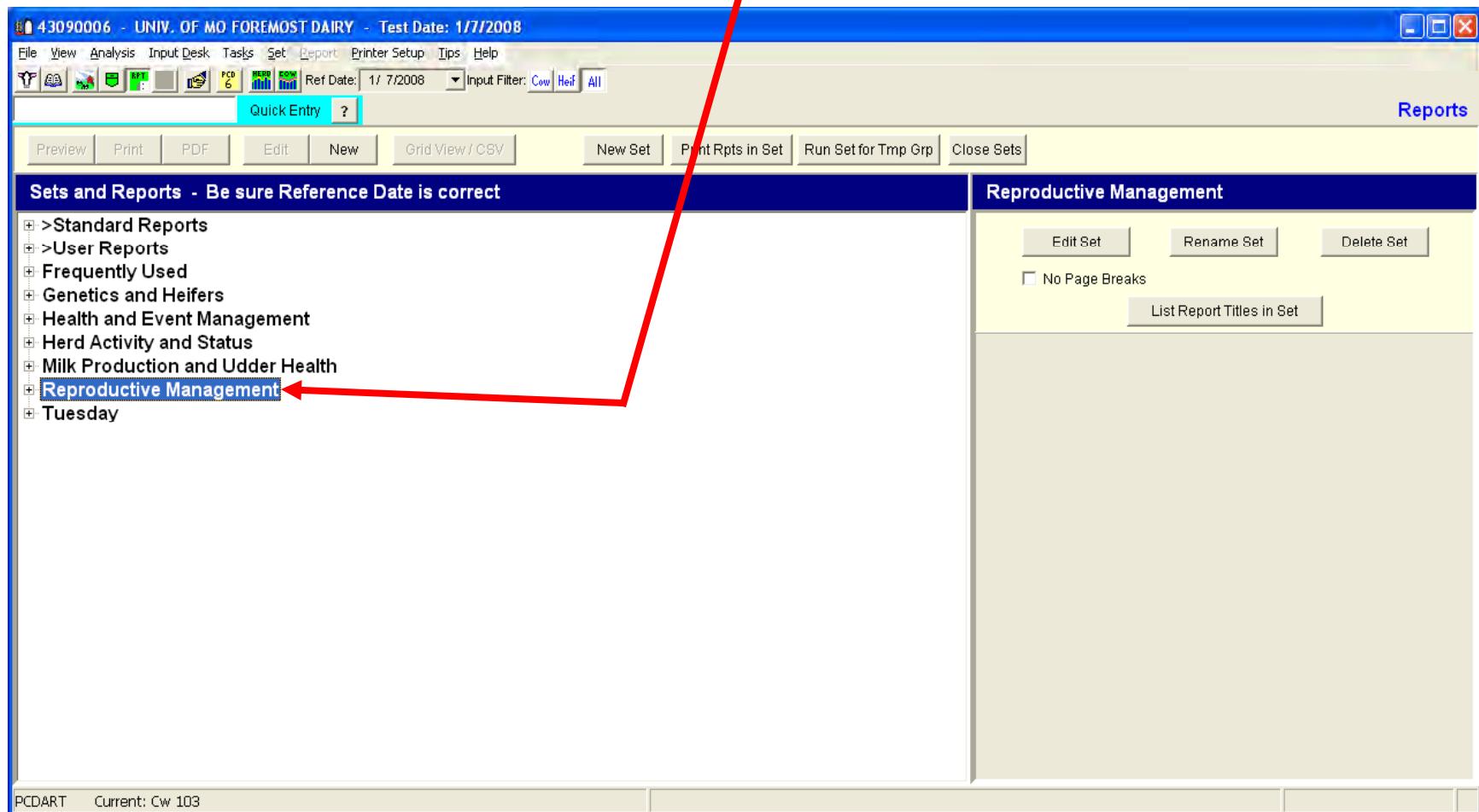
Test Day Statistics

Herd Statistics Today:

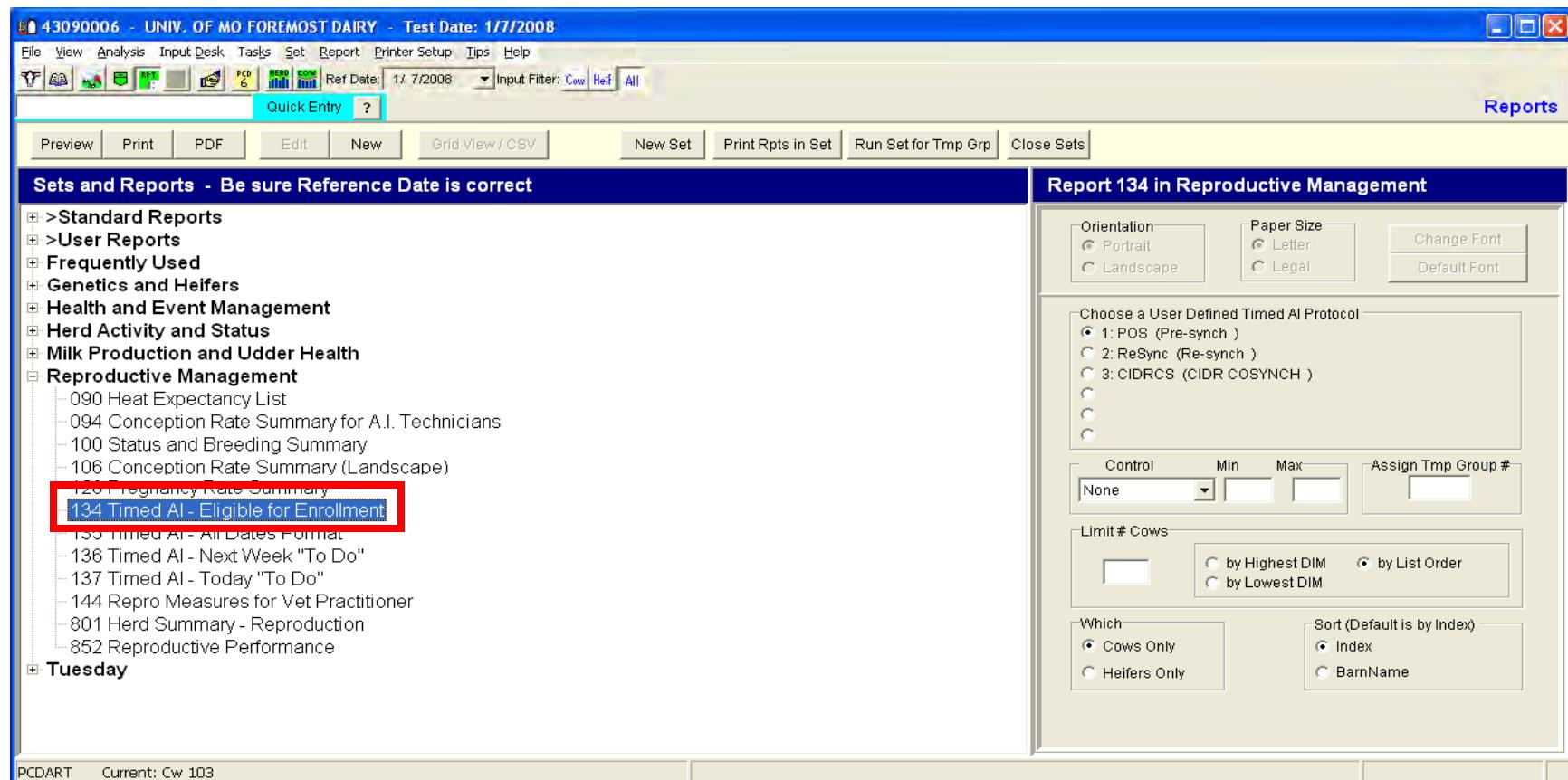
Cows	
Total:	201
In Milk:	170
Dry:	31
Open:	56
Bred:	65
Pregnant:	80
Heat in 7 days:	10
Due in 7 days:	5
Dry in 7 days:	2
Heifers	
Total:	255
Bred:	45
Pregnant:	73
Heat in 7 days:	18
Due in 7 days:	0
Bulls	3

PCDART Current: Cw 103

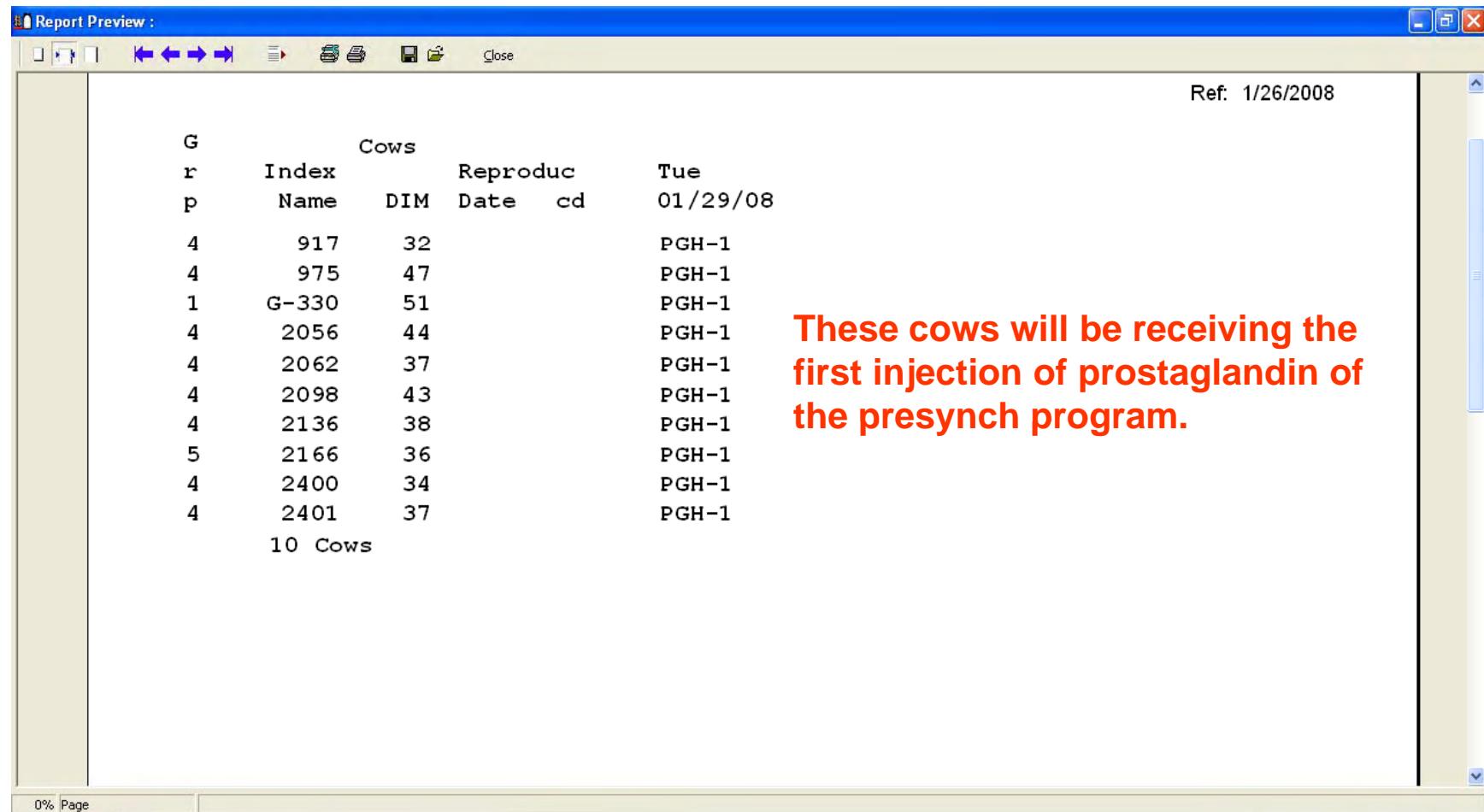
Click on Reproductive Management



Choose **report 134** (Timed AI—Eligible for enrollment) and be sure to mark the **POS (Pre-synch)** selection



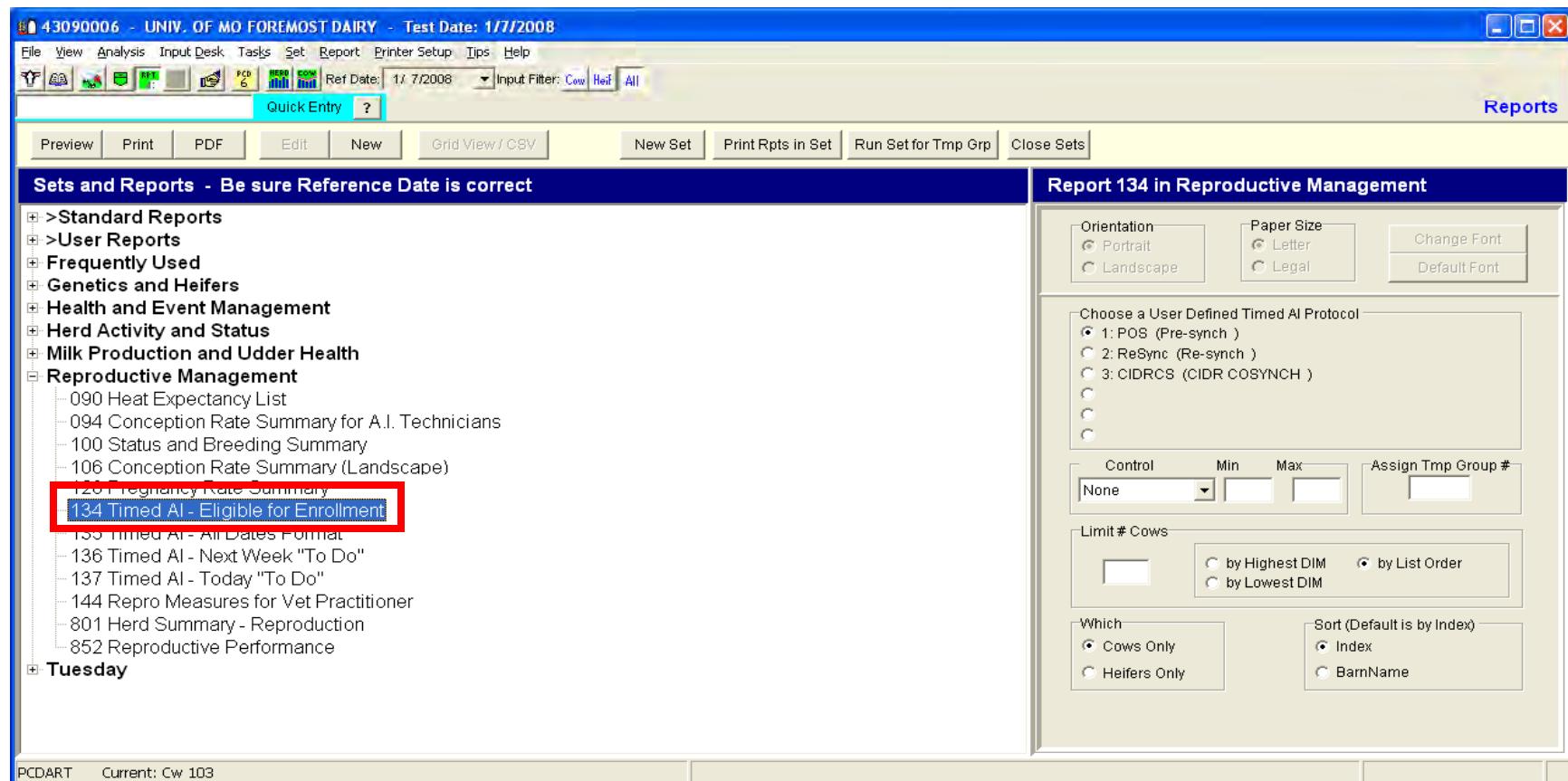
The Report will look somewhat like that below (return to previous window in PC Dart)



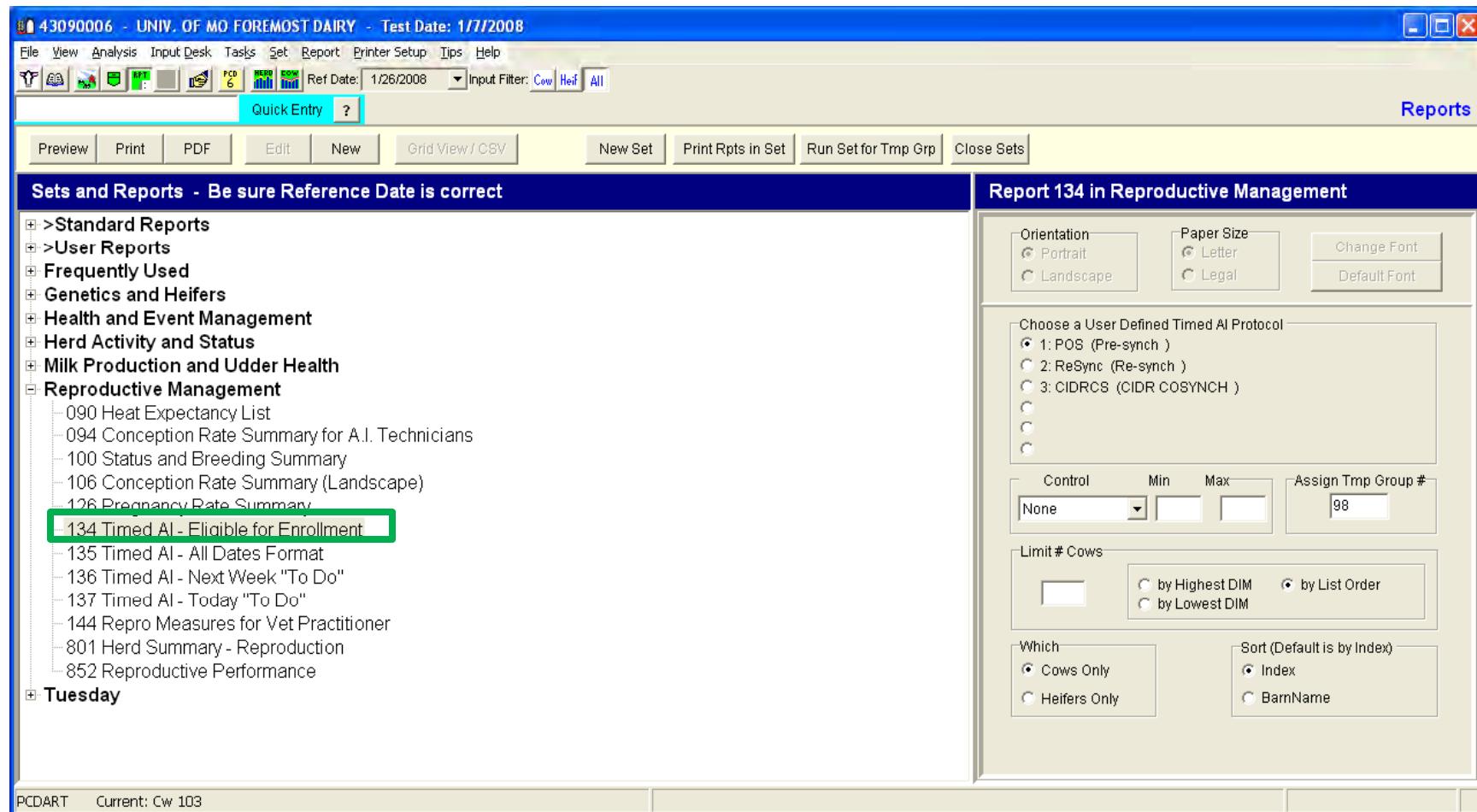
Report Preview : These cows will be receiving the first injection of prostaglandin of the presynch program.

Cows				
G	r	Index	Reproduc	Tue
	p	Name	DIM	Date
				01/29/08
4		917	32	PGH-1
4		975	47	PGH-1
1		G-330	51	PGH-1
4		2056	44	PGH-1
4		2062	37	PGH-1
4		2098	43	PGH-1
4		2136	38	PGH-1
5		2166	36	PGH-1
4		2400	34	PGH-1
4		2401	37	PGH-1
10 Cows				

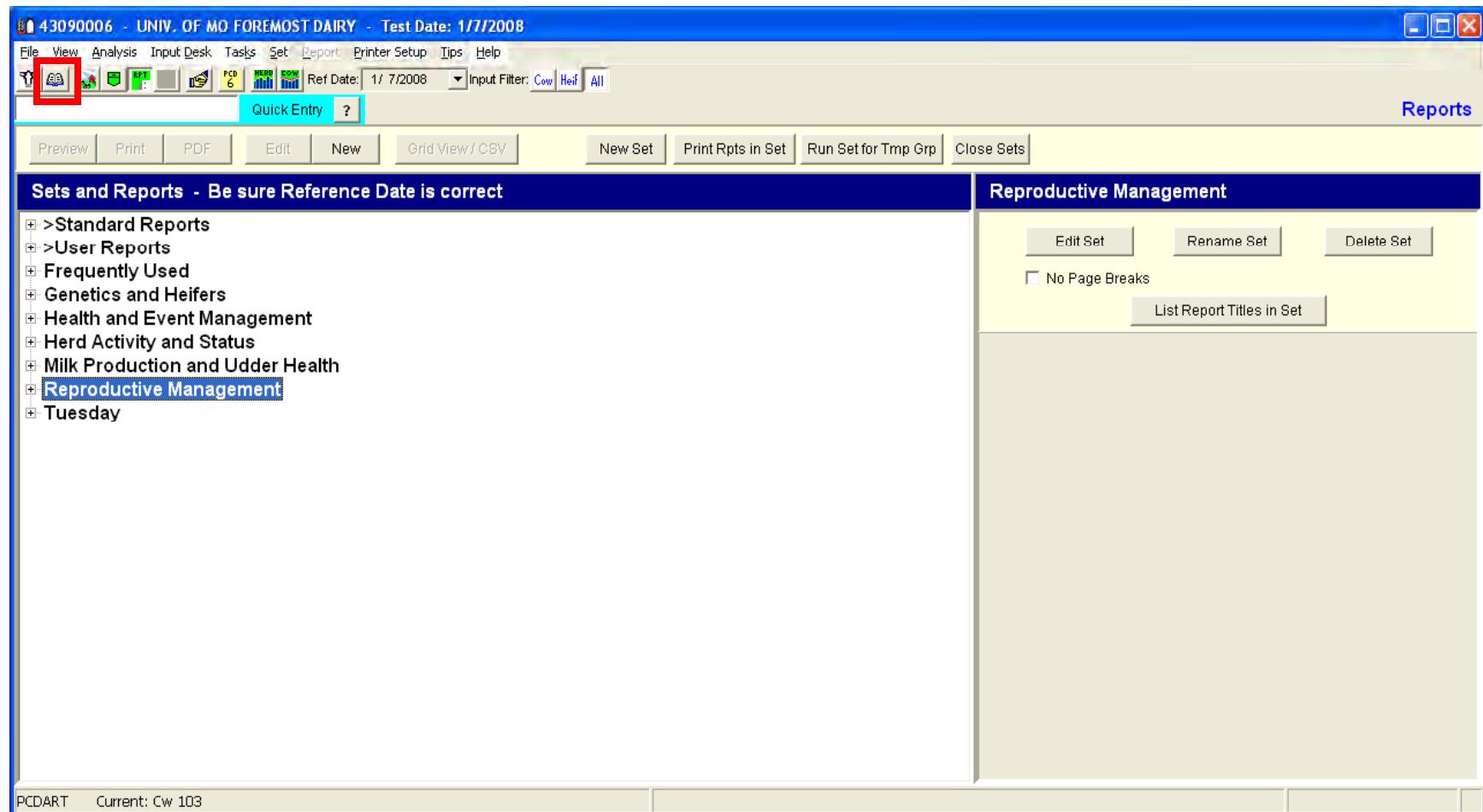
Choose **report 134** (Timed AI—Eligible for enrollment) and be sure to mark the **POS (Pre-synch)** selection



Select a “Assign Tmp Group #” (98 for example) and then choose report “134.” This will generate a report so PC Dart know which cows are in temp group 98.



Choose the Input Desk



Use the “Select Animal(s) Before Showing Input Form” and then the “Timed AI”

43090006 - UNIV. OF MO FOREMOST DAIRY - Test Date: 1/7/2008

Input Desk

Entry Method

- Enter Animal Number/Name on Input Form
- Select Animal(s) Before Showing Input Form

Date being Reported: 1/21/2008

Close

Individual Animal Procedures

Cow **Heif** **All**

Calved	Health Conditions	Bd Wt, Lct#, Dt Ent
Heat	Into Sick Herd	Birth Type
Timed AI	Out of Sick Herd	BST
Bred	Sort Gate	Body Condition
Vet / Repro Check	New Cow	Change ID
Dried	New Heifer	Change Index
Left	New Bull	Embryo Transfer
Protocol Enrollment	ID Transponder	Estimated Bred Date
Chore Done	RFID	Prostaglandin
Group Number	Heifer Growth	Sugg'd Service Sires
User Defined Fields	Turned w Bull	Temp-Group Number
		Modify Grower/Export

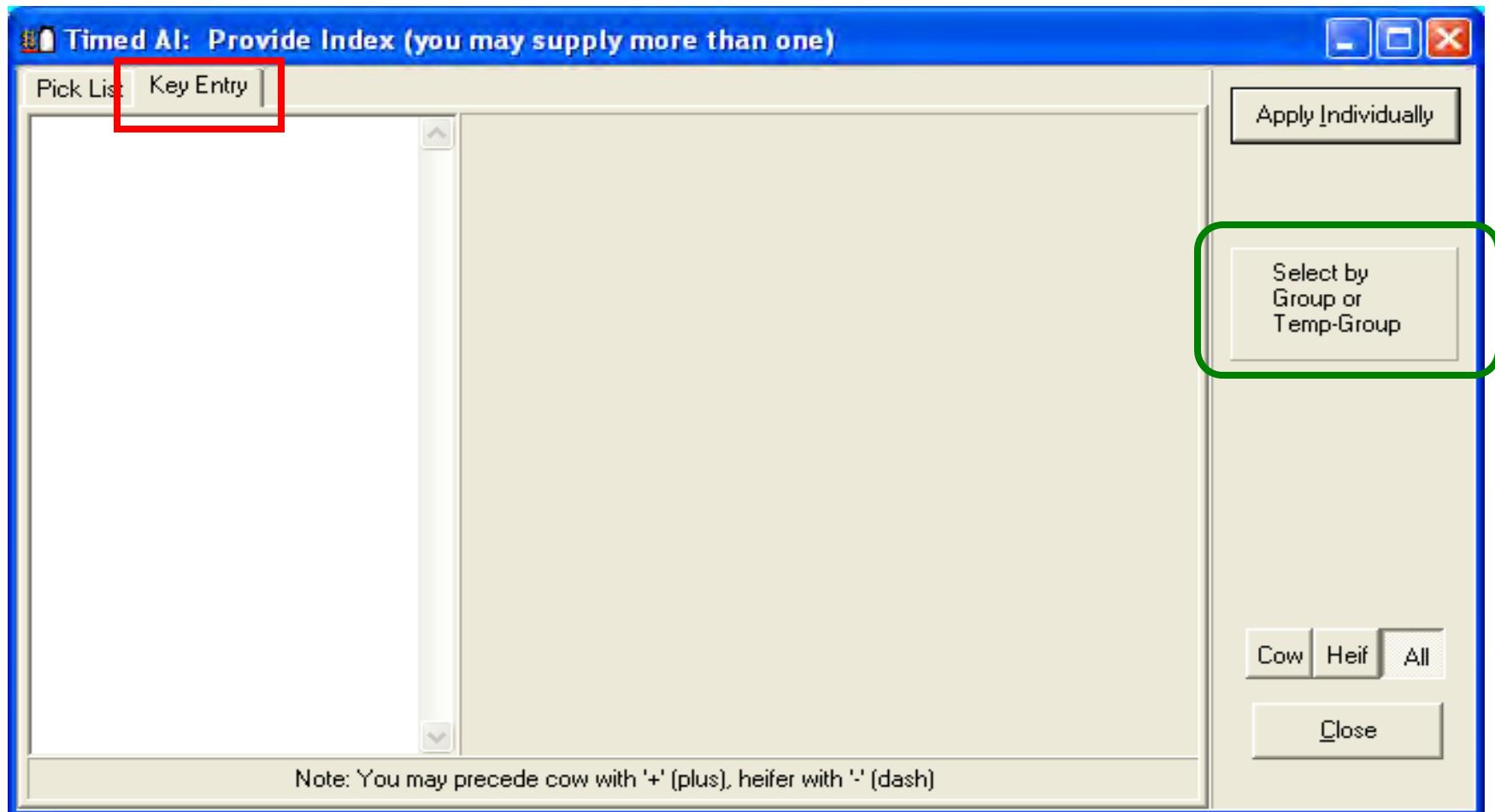
Herd Procedures

Assign Titles for U.D.Fields
Blank a U.D.Field - all animals
Zero Temp-Group # - all
Exch Grp#/Temp-Grp# - all
Move Batch to Group
Assign Health Condition ID
Bull File Functions
Review Input

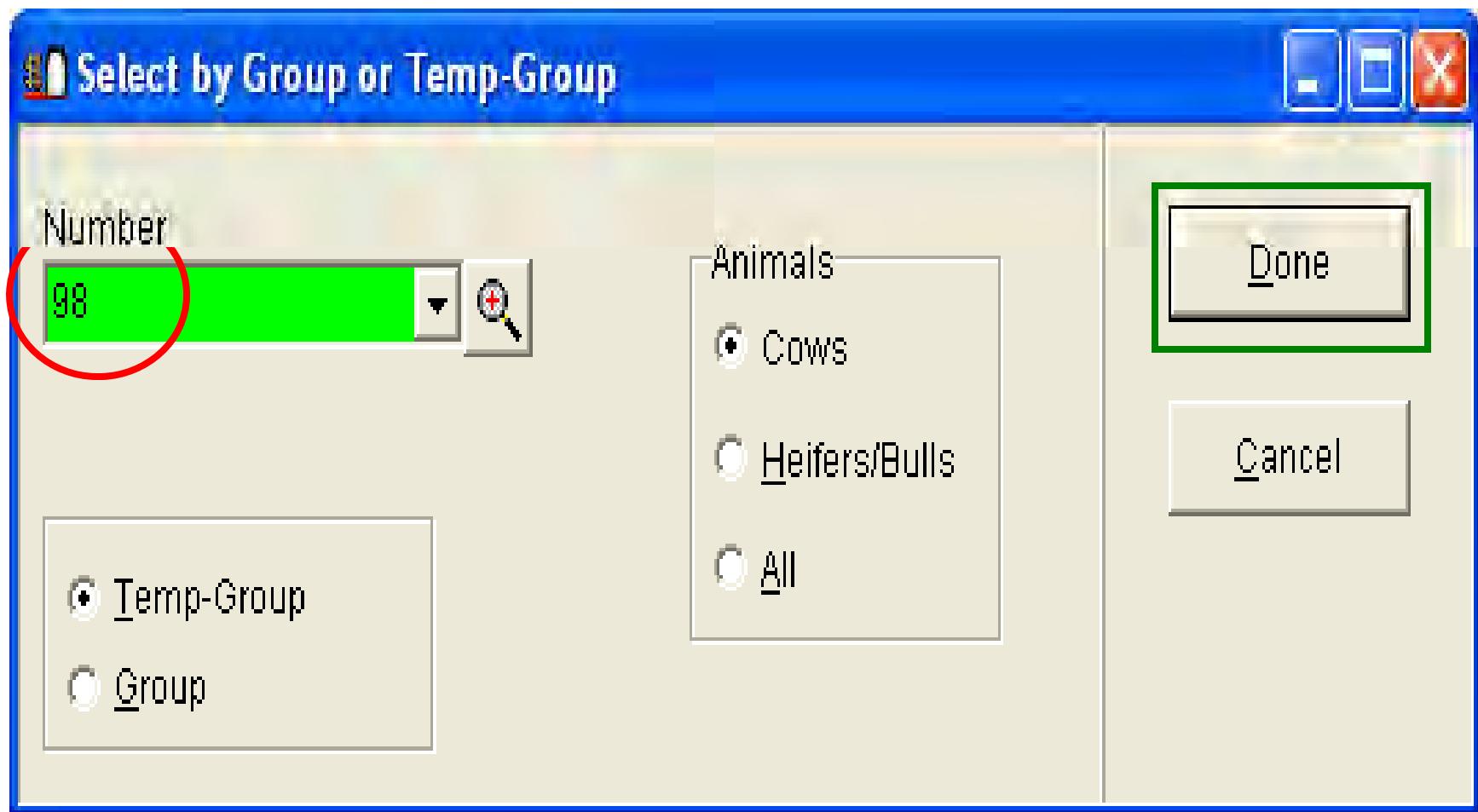
CalvedTimedAI (No chain) (No chain) (No chain) (No chain) (No chain) (No chain)

Define Chain Events

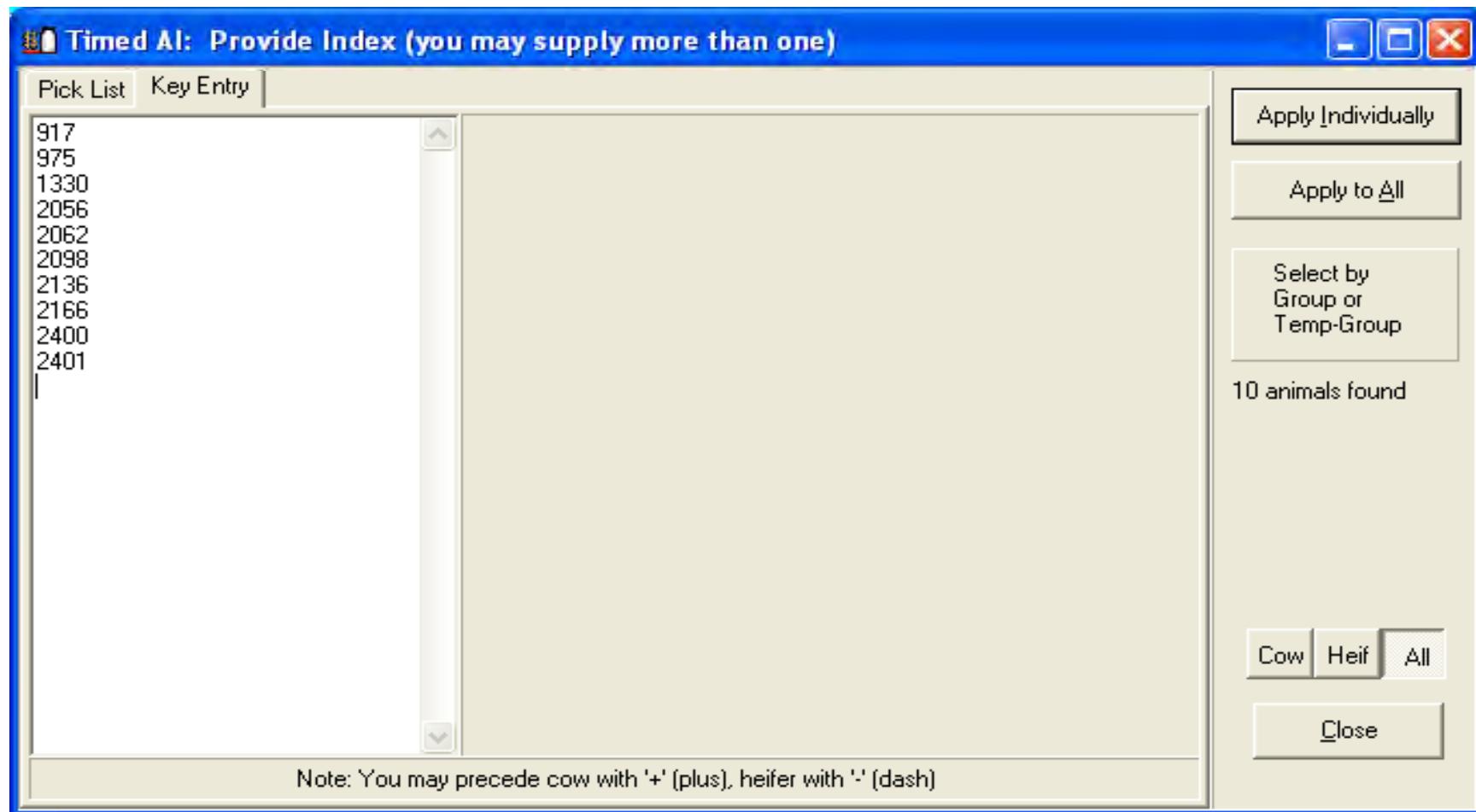
Choose the “Key Entry” Option and “Select by Group or Temp-Group”



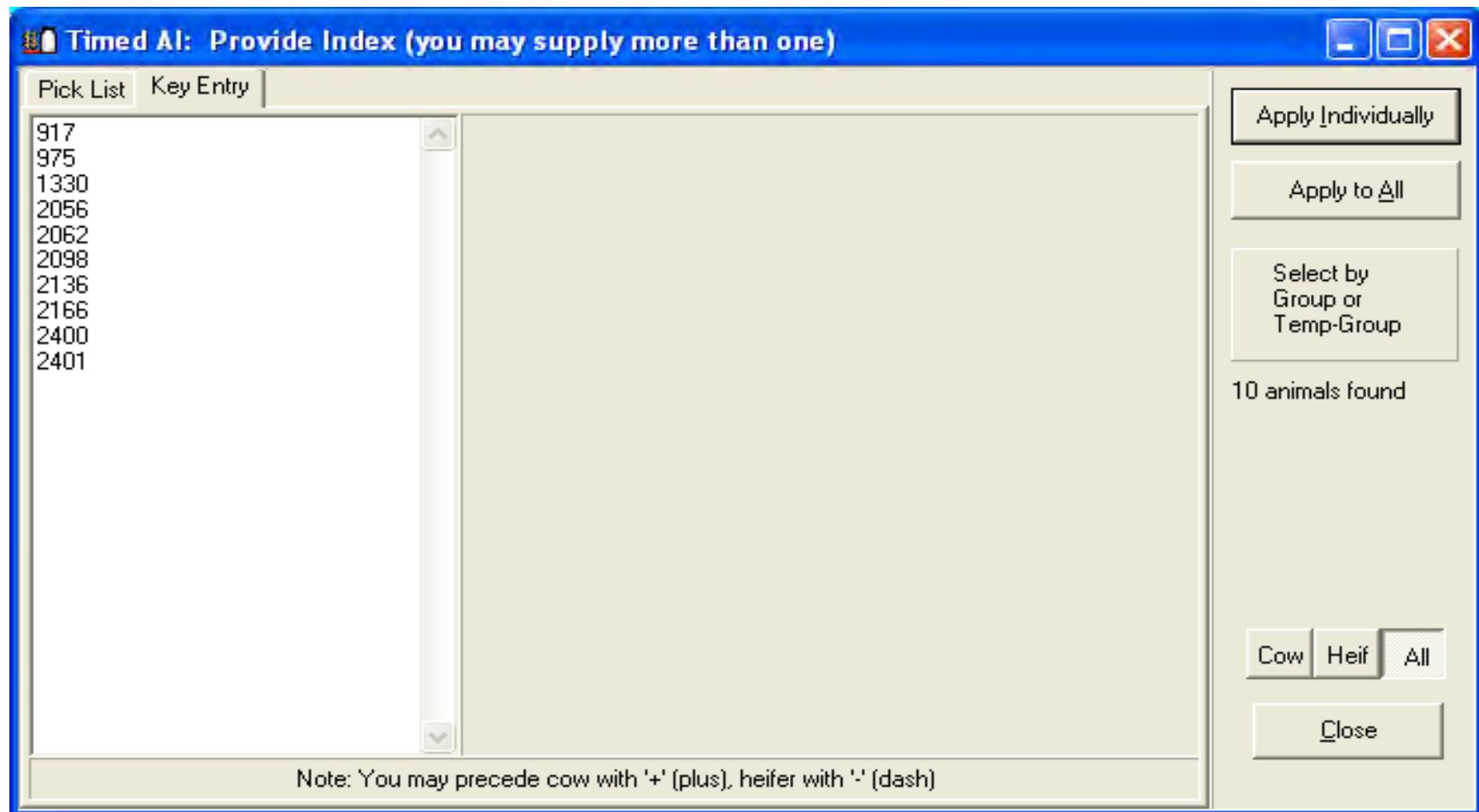
Enter your Tmp Group # (98)
and then **Done**



The selection will be similar to the screen below



Now you want to “Apply to all”



Choose “S Start her on TAI”

Choose the “TAI Reference Date”

Enter data

Cw 917 (917) **Timed A. I. (P8)**

TAI Action **S** S Start her on TAI X Exclude her from TAI
 Z Zero the start date R Remove exclusion

If bred, do not warn

TAI Reference Date She will be started on TAI as soon as possible on or after this date:

Available TAI protocols

DIM	35	49	63	70	72	73
PGH-1	PGH-2	GnRH-1	PGH	GnRH-2	Breed	
01/29/08	02/12/08	02/26/08	03/04/08	03/06/08	03/07/08	breed
		start				
		TUE				

De-select All selected animals.

Calv: 12/26/2007
DIM: 32 Milk: 112.8 Repro:
Lct#: 4 Grp 4

Choose from the “Available TAI protocols” and then “Done”

Enter data

Cw 917 (917) **Timed A. I. (P8)**

TAI Action **S** Start her on TAI **X** Exclude her from TAI
 Z Zero the start date **R** Remove exclusion

If bred, do not warn

TAI Reference Date
1/26/2008 She will be started on TAI as soon as possible on or after this date:

Available TAI protocols

DIM	35	49	63	70	72	73
PGH-1	PGH-2	GnRH-1	PGH	GnRH-2	Breed	
01/29/08	02/12/08	02/26/08	03/04/08	03/06/08	03/07/08	breed
		start				
		TUE				

Calv: 12/26/2007
DIM: 32 Milk: 112.8 Repro:
Lct#: 4 Grp 4

PC Dart will then apply the protocol to all the cows in temp group 98



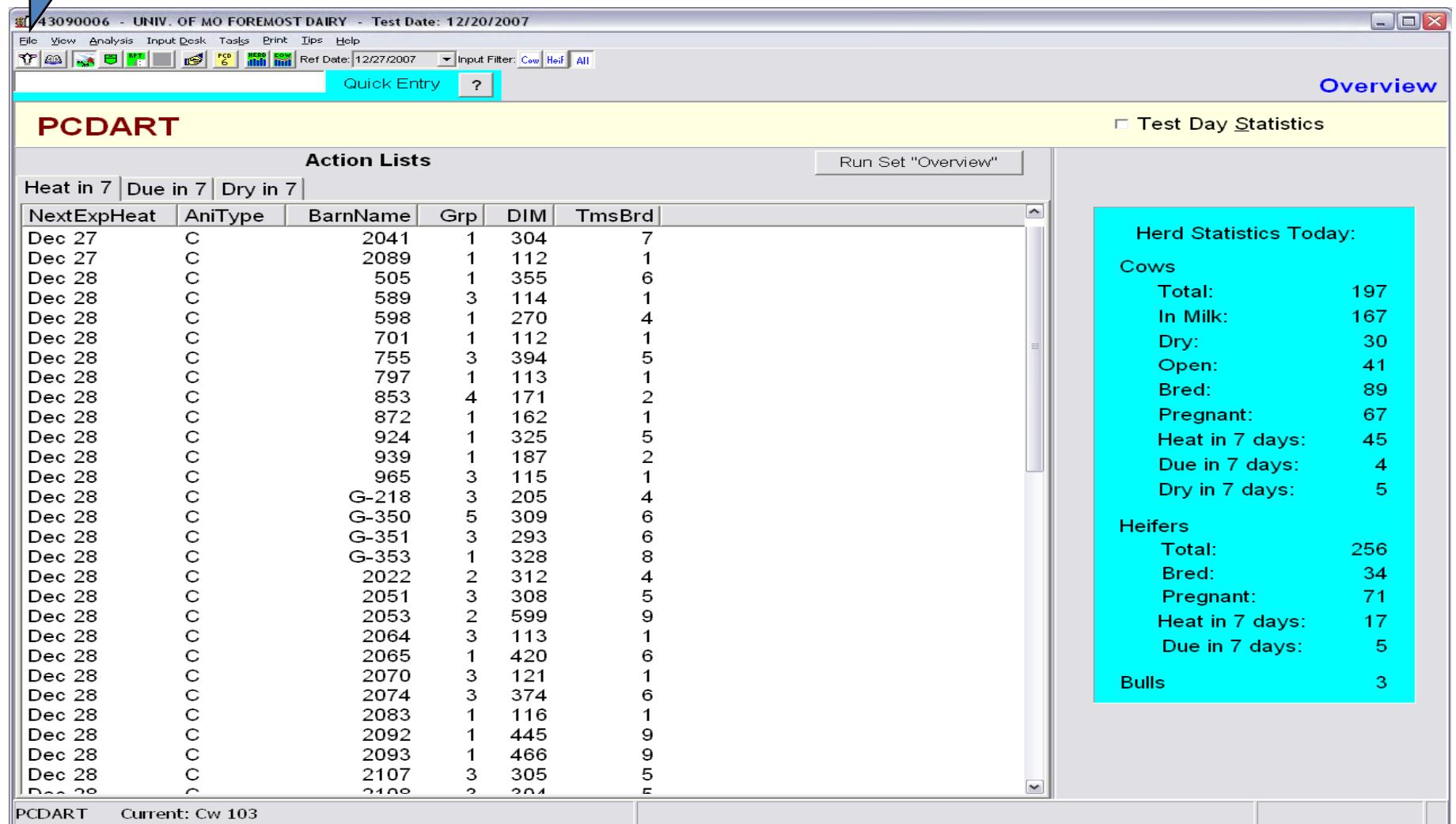
Chapter 4

Creating a Resynch Program in PC Dart

Resynch

--Click on “File”

File



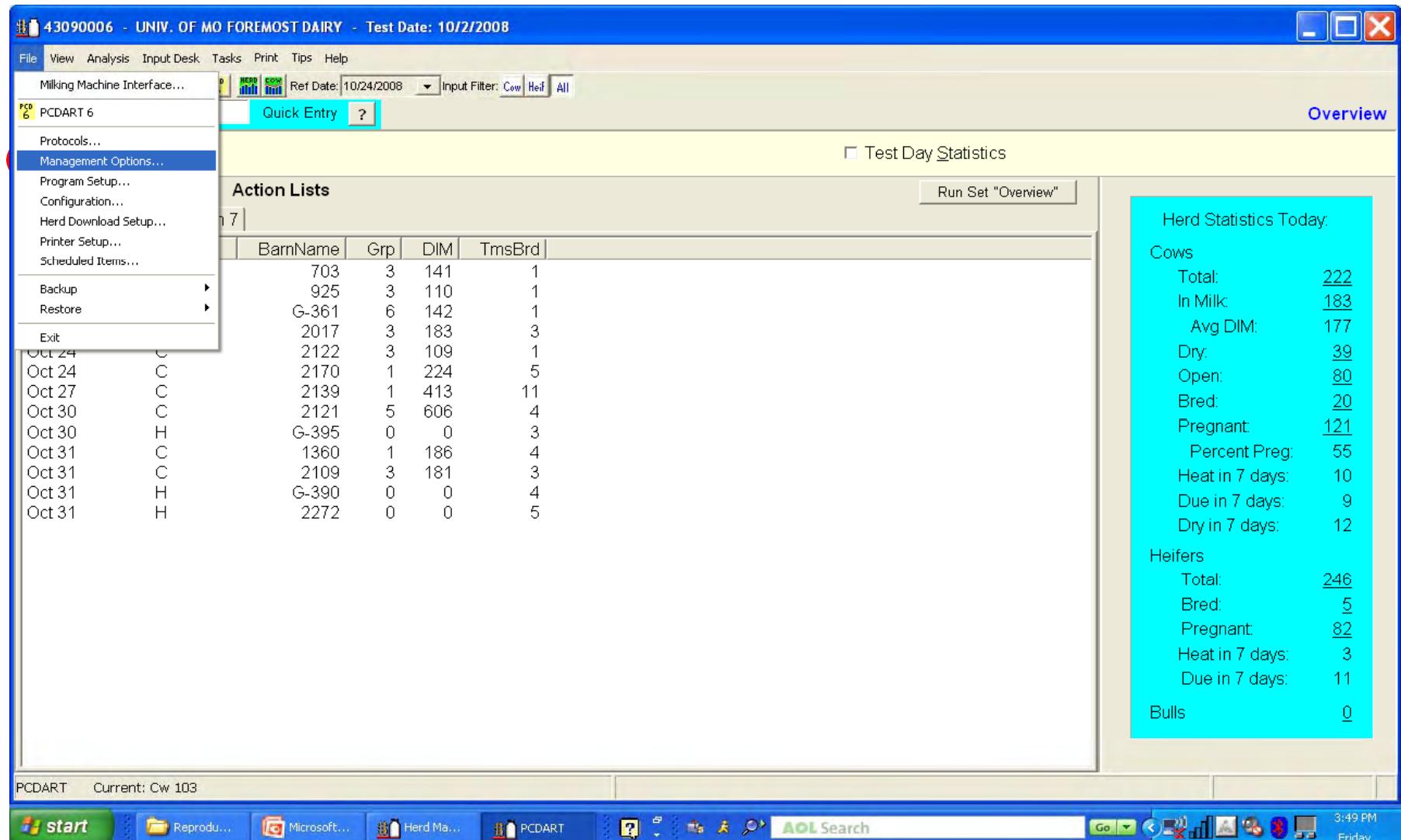
The screenshot shows the PCDART software interface. The title bar reads "43090006 - UNIV. OF MO FOREMOST DAIRY - Test Date: 12/20/2007". The menu bar includes File, View, Analysis, Input Desk, Tasks, Print, Tips, and Help. The toolbar has various icons for file operations. The main window is titled "PCDART" and contains an "Action Lists" table with columns: NextExpHeat, AniType, BarnName, Grp, DIM, and TmsBrd. The table lists numerous entries for cows and heifers. To the right of the table is a "Herd Statistics Today" box with sections for Cows, Heifers, and Bulls, showing counts for various statuses like Total, In Milk, Dry, Open, Bred, Pregnant, and counts for Heat in 7 days, Due in 7 days, and Dry in 7 days. The status bar at the bottom says "PCDART Current: Cw 103".

NextExpHeat	AniType	BarnName	Grp	DIM	TmsBrd
Dec 27	C	2041	1	304	7
Dec 27	C	2089	1	112	1
Dec 28	C	505	1	355	6
Dec 28	C	589	3	114	1
Dec 28	C	598	1	270	4
Dec 28	C	701	1	112	1
Dec 28	C	755	3	394	5
Dec 28	C	797	1	113	1
Dec 28	C	853	4	171	2
Dec 28	C	872	1	162	1
Dec 28	C	924	1	325	5
Dec 28	C	939	1	187	2
Dec 28	C	965	3	115	1
Dec 28	C	G-218	3	205	4
Dec 28	C	G-350	5	309	6
Dec 28	C	G-351	3	293	6
Dec 28	C	G-353	1	328	8
Dec 28	C	2022	2	312	4
Dec 28	C	2051	3	308	5
Dec 28	C	2053	2	599	9
Dec 28	C	2064	3	113	1
Dec 28	C	2065	1	420	6
Dec 28	C	2070	3	121	1
Dec 28	C	2074	3	374	6
Dec 28	C	2083	1	116	1
Dec 28	C	2092	1	445	9
Dec 28	C	2093	1	466	9
Dec 28	C	2107	3	305	5
Dec 28	C	2109	2	304	5

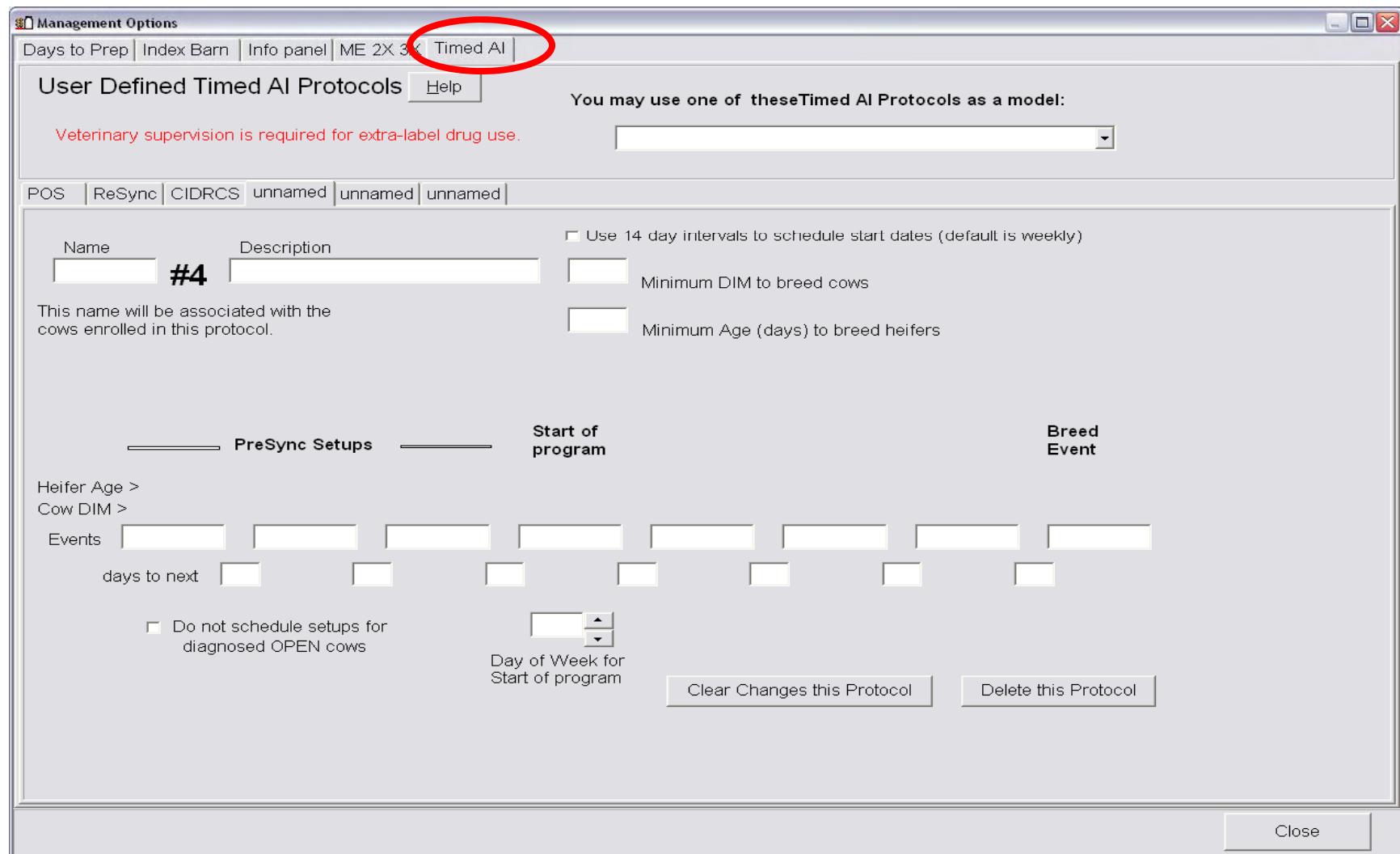
Herd Statistics Today:

Cows	
Total:	197
In Milk:	167
Dry:	30
Open:	41
Bred:	89
Pregnant:	67
Heat in 7 days:	45
Due in 7 days:	4
Dry in 7 days:	5
Heifers	
Total:	256
Bred:	34
Pregnant:	71
Heat in 7 days:	17
Due in 7 days:	5
Bulls	3

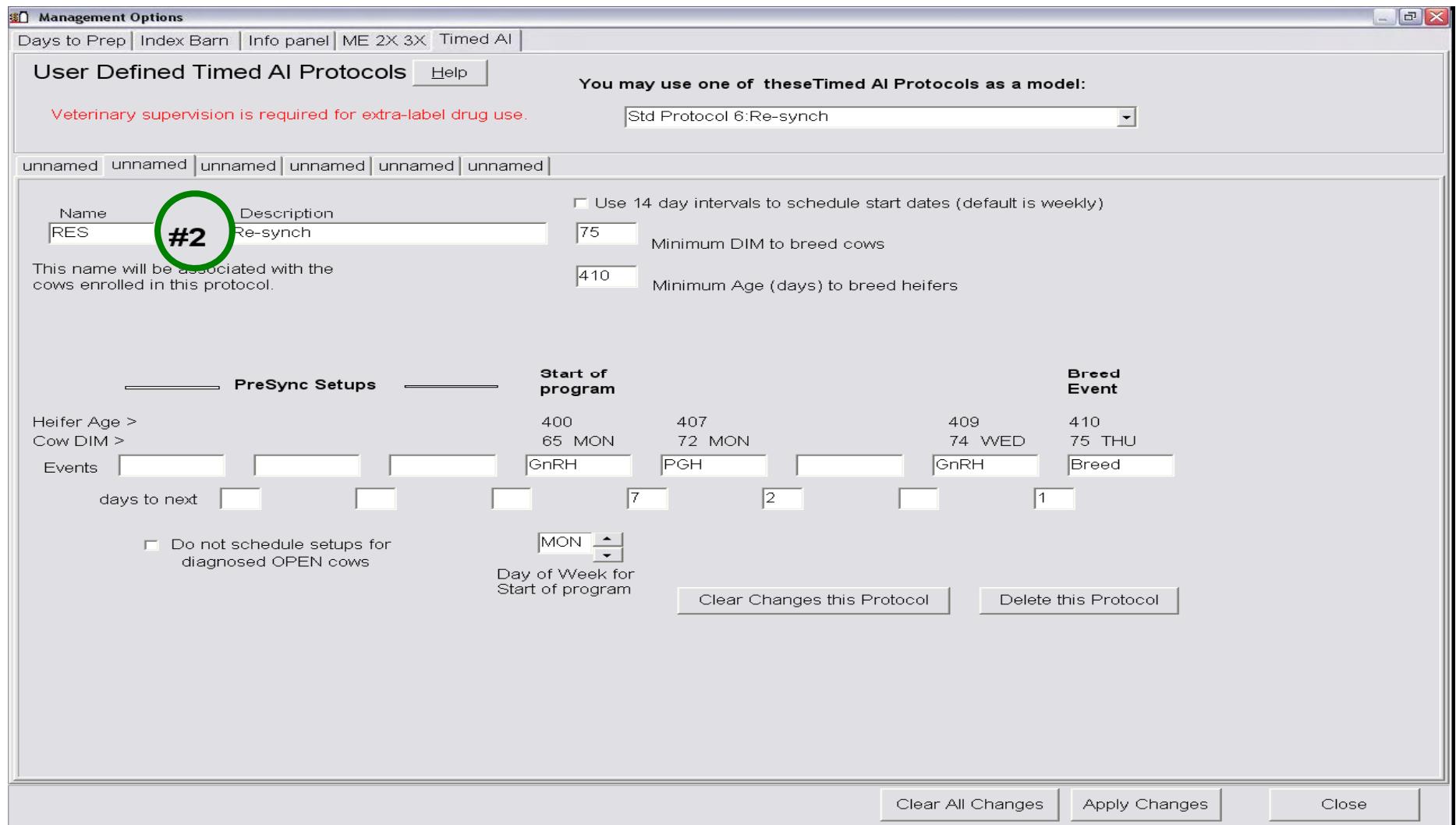
Choose “Management Options”



--Select “Timed AI”

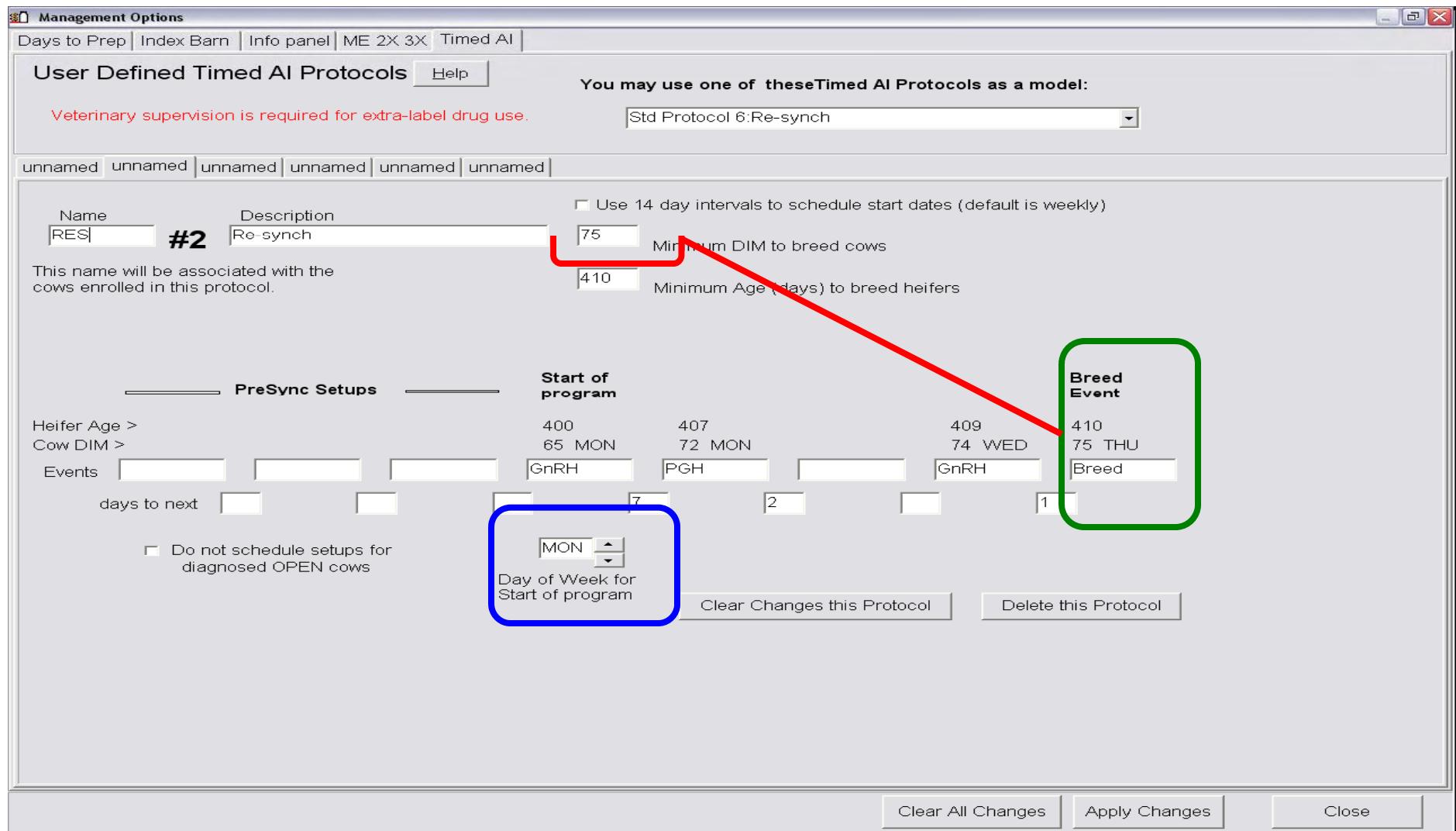


--Name Protocol from drop down menu (note name of protocol) and at #2



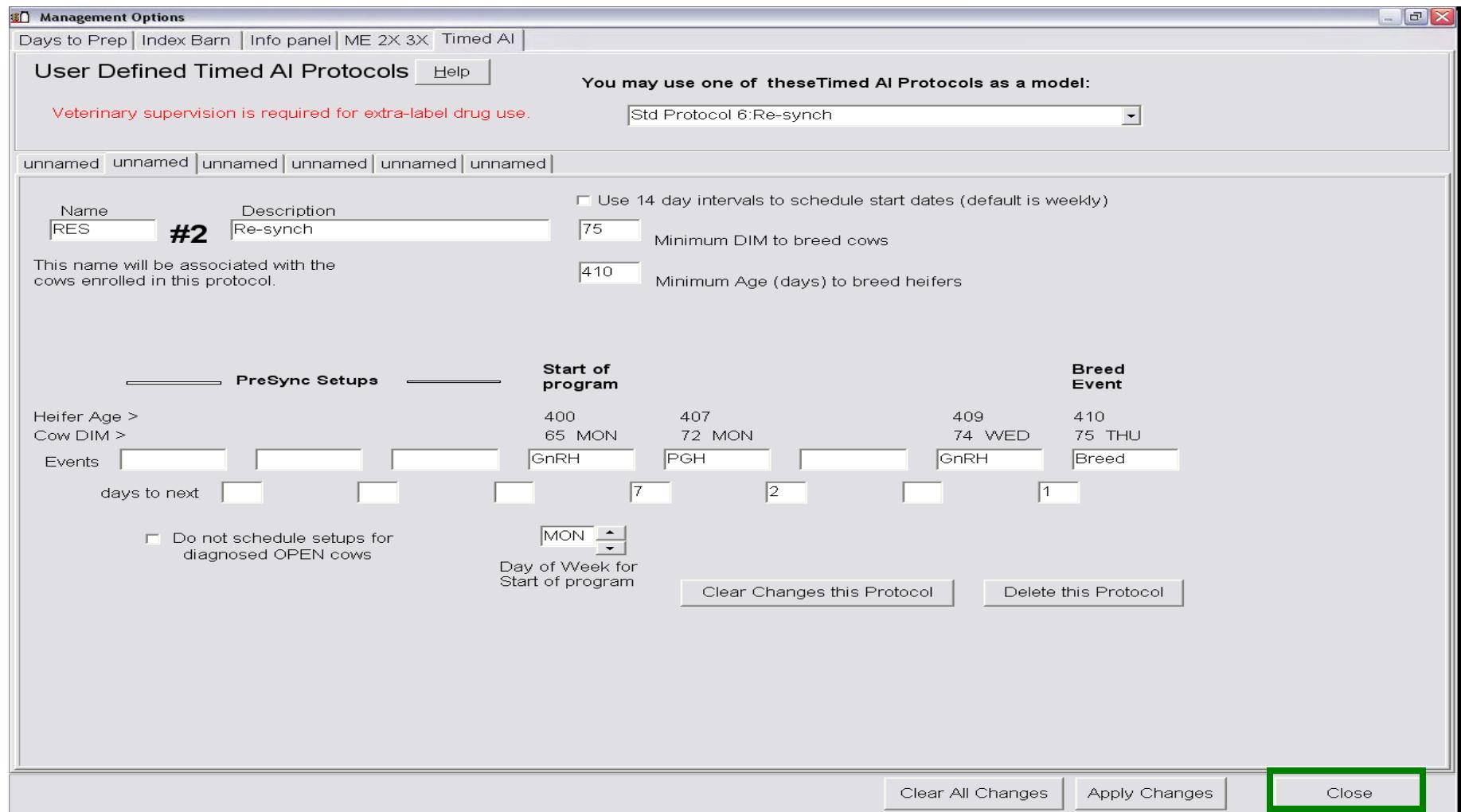
--Select “Minimum DIM to breed cows” (for breed event)

--Select “Day of week for start of program”



--Apply changes

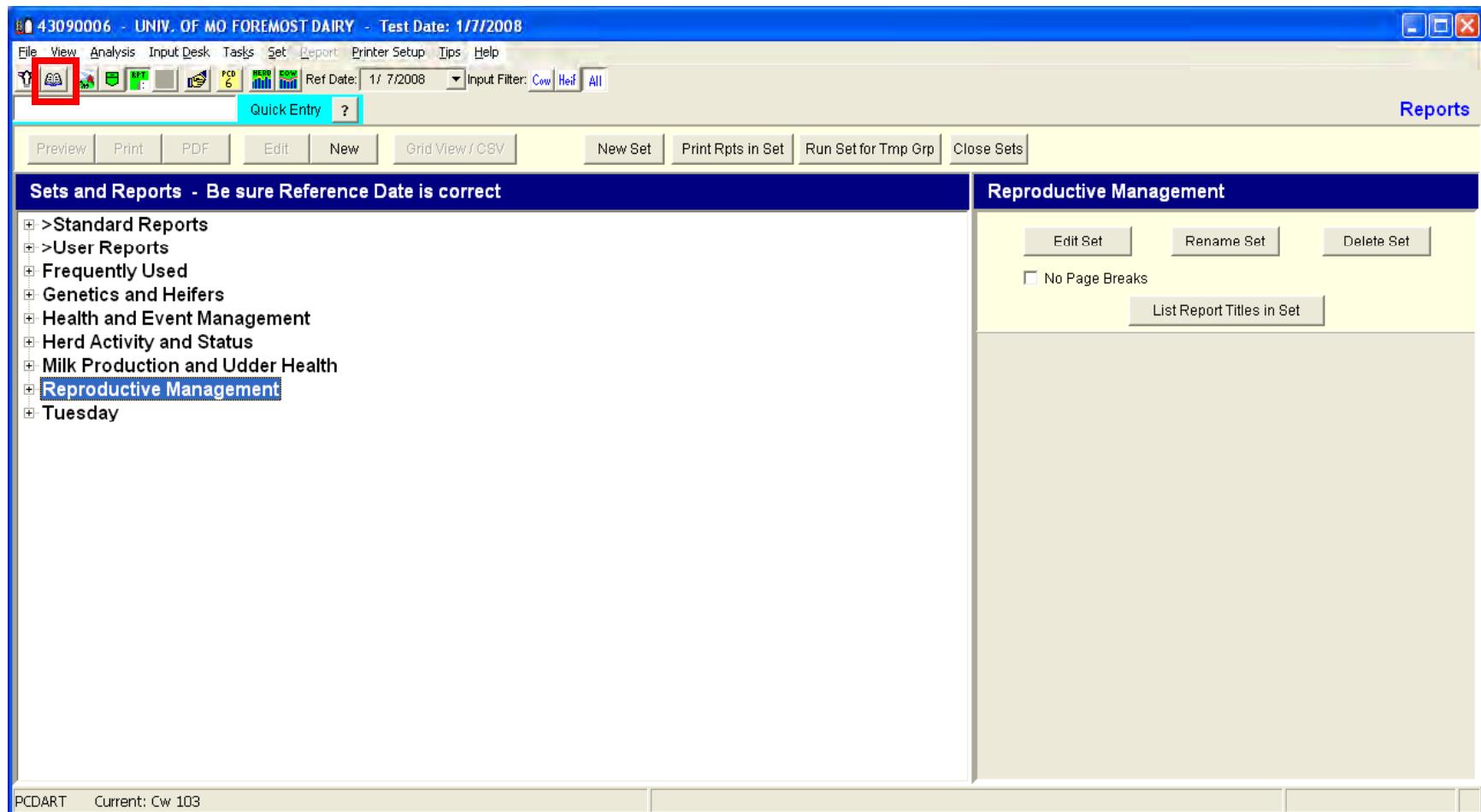
--Close



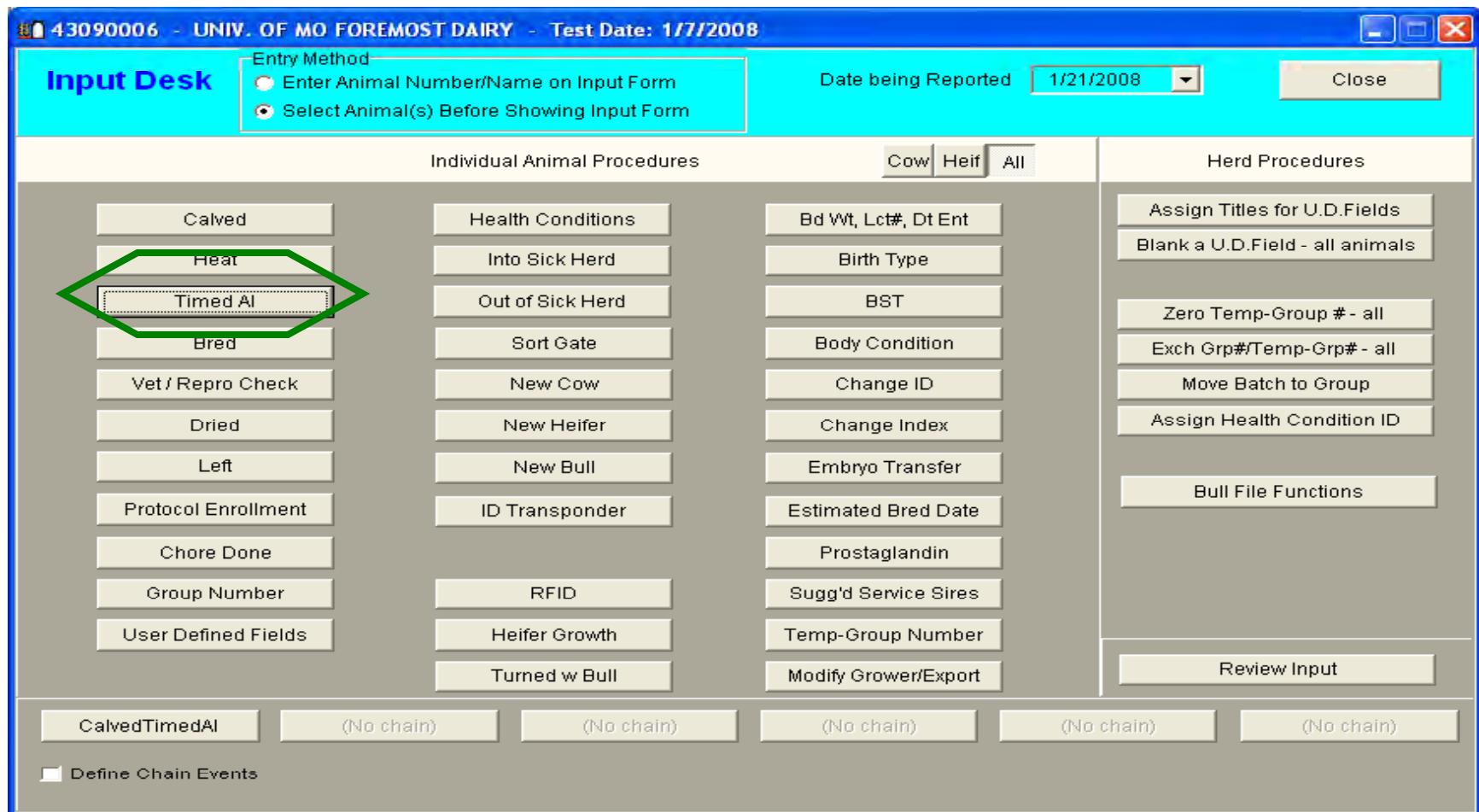
Now you will be able to enroll open cows back
into the program!

- How do you enroll open cows?

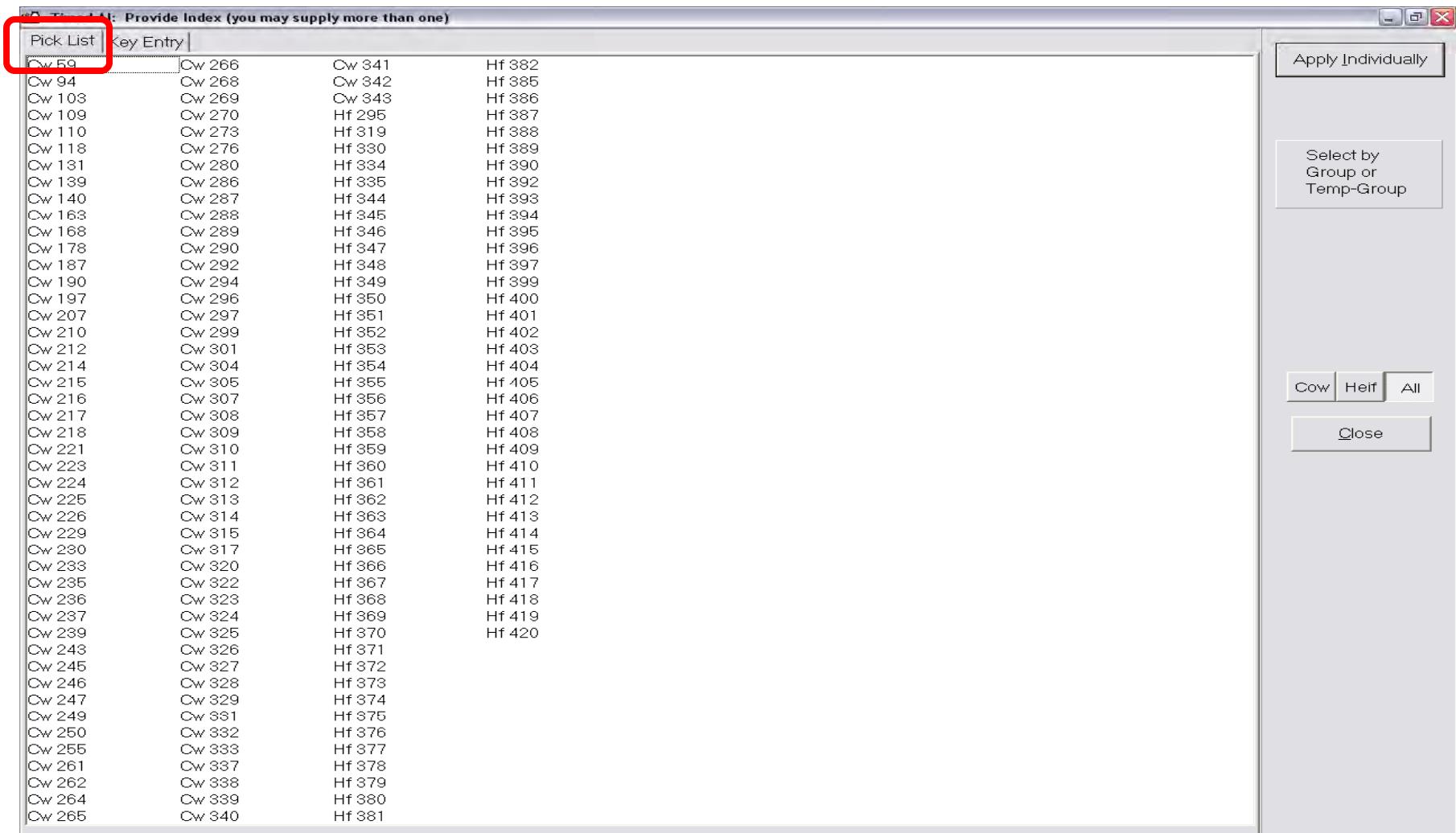
Choose the Input Desk



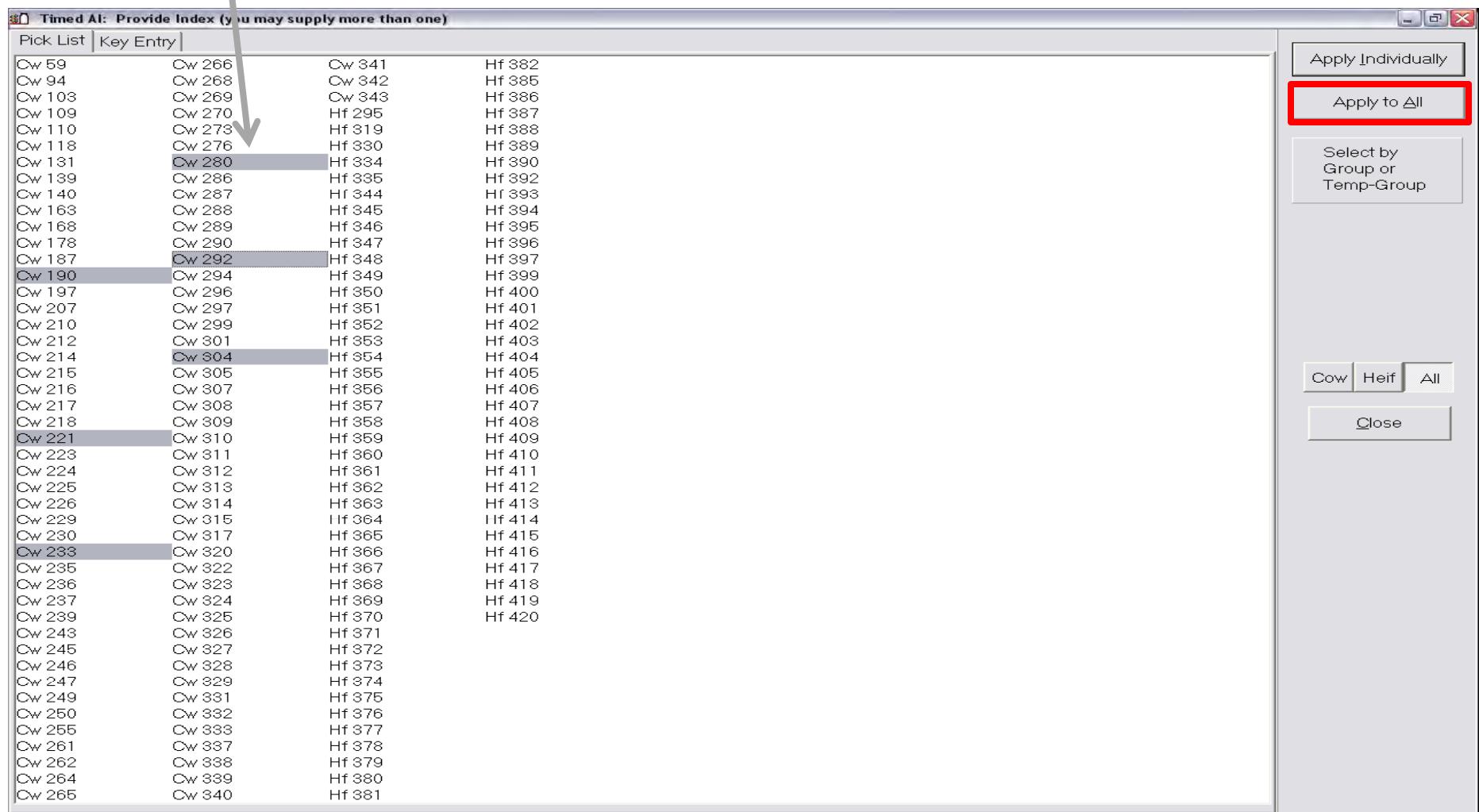
Use the “Select Animal(s) Before Showing Input Form” and then the “Timed AI”



Choose the “Pick List” Option



Click all the open cows that need to be re-enrolled and then choose “**Apply to All**”



Choose “S” for Start her on TAI and the **date** you want to start followed by the **TAI Protocol**

Enter data

Cw 59 (59) **Timed A. I. (P8)**

TAI Action <input checked="" type="radio"/> <input type="radio"/> <input type="button" value=""/>	S Start her on TAI Z Zero the start date	X Exclude her from TAI R Remove exclusion																									
TAI Reference Date <input type="text" value="10/29/2008"/> <input type="checkbox"/> If bred, do not warn She will be started on TAI as soon as possible on or after this date:																											
Available TAI protocols <input type="text" value="2: RES (Re-synch)"/>																											
<table border="0"> <tr> <td>DIM</td> <td>279</td> <td>286</td> <td>288</td> <td>289</td> </tr> <tr> <td></td> <td>GnRH</td> <td>PGH</td> <td>GnRH</td> <td>Breed</td> </tr> <tr> <td></td> <td>11/03/08</td> <td>11/10/08</td> <td>11/12/08</td> <td>11/13/08</td> </tr> <tr> <td></td> <td>start</td> <td></td> <td></td> <td>breed</td> </tr> <tr> <td></td> <td>MON</td> <td></td> <td></td> <td></td> </tr> </table>			DIM	279	286	288	289		GnRH	PGH	GnRH	Breed		11/03/08	11/10/08	11/12/08	11/13/08		start			breed		MON			
DIM	279	286	288	289																							
	GnRH	PGH	GnRH	Breed																							
	11/03/08	11/10/08	11/12/08	11/13/08																							
	start			breed																							
	MON																										
Calv: 1/30/2008 Bred: 1 6/13/2008 DaysSinceBred: 139 DIM: 274 Milk: 33.0 Repro: N Lct#: 10 Grp 0																											
<input type="button" value="Done"/> <input type="button" value="Cancel"/> <input type="button" value="De-select All selected animals."/> <input type="button" value="Cancel All"/>																											
<input type="button" value="F2-Cow Page"/> <input type="button" value="F6-View Input"/>																											

Choose “Done” and PC Dart will apply the resynch to all the chosen cows

Enter data

Cw 59 (59) **Timed A. I. (P8)**

TAI Action **S**

S Start her on TAI
 Z Zero the start date
 X Exclude her from TAI
 R Remove exclusion

If bred, do not warn

TAI Reference Date
10/29/2008 She will be started on TAI as soon as possible on or after this date:

Available TAI protocols 2: RES (Re-synch)

DIM	279	286	288	289
	GnRH	PGH	GnRH	Breed
	11/03/08	11/10/08	11/12/08	11/13/08
	start			breed
	MON			

De-select All selected animals.

Calv: 1/30/2008 Bred: 1 6/13/2008 DaysSinceBred: 139

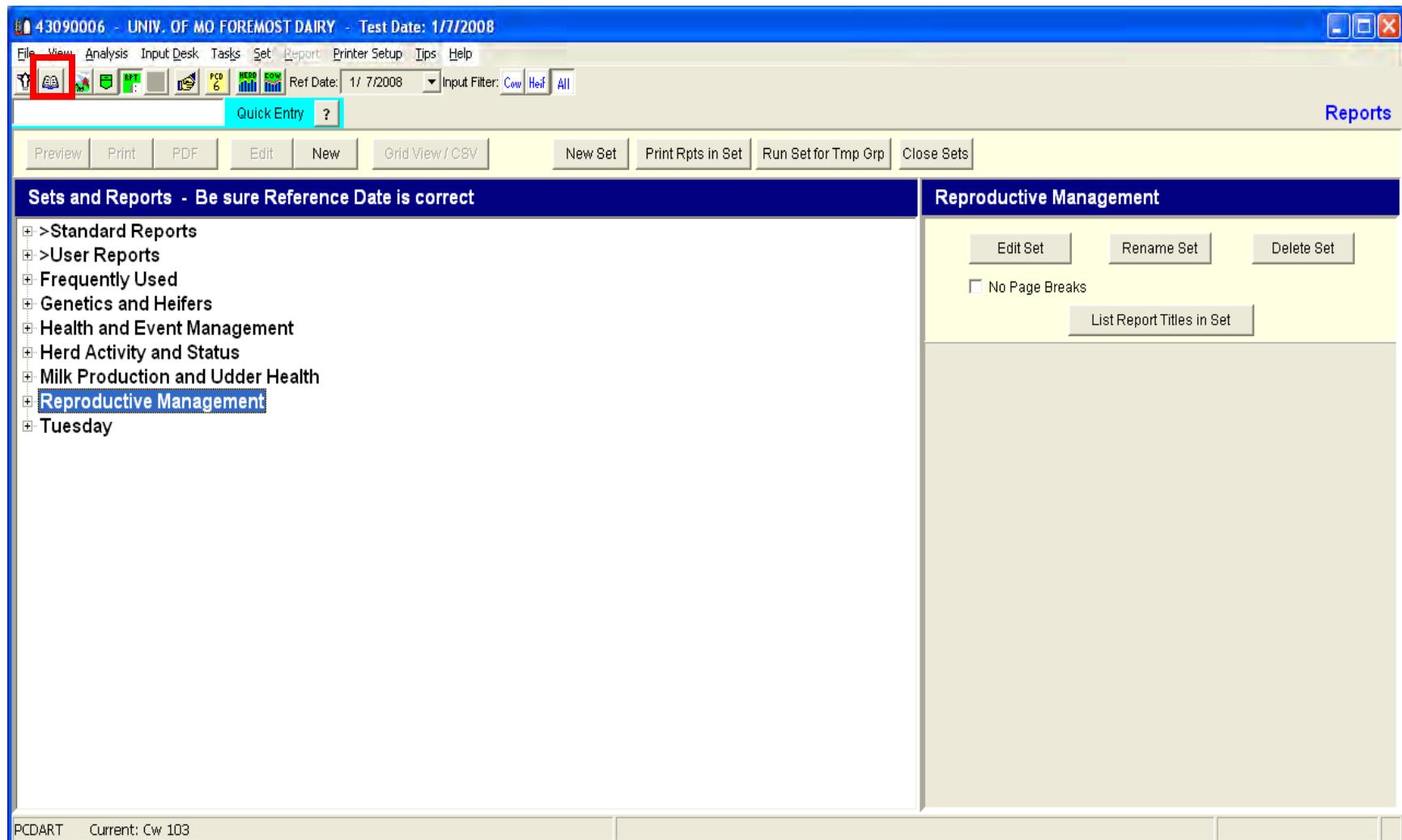
DIM: 274 Milk: 33.0 Repro: N

Lct#: 10 Grp 0

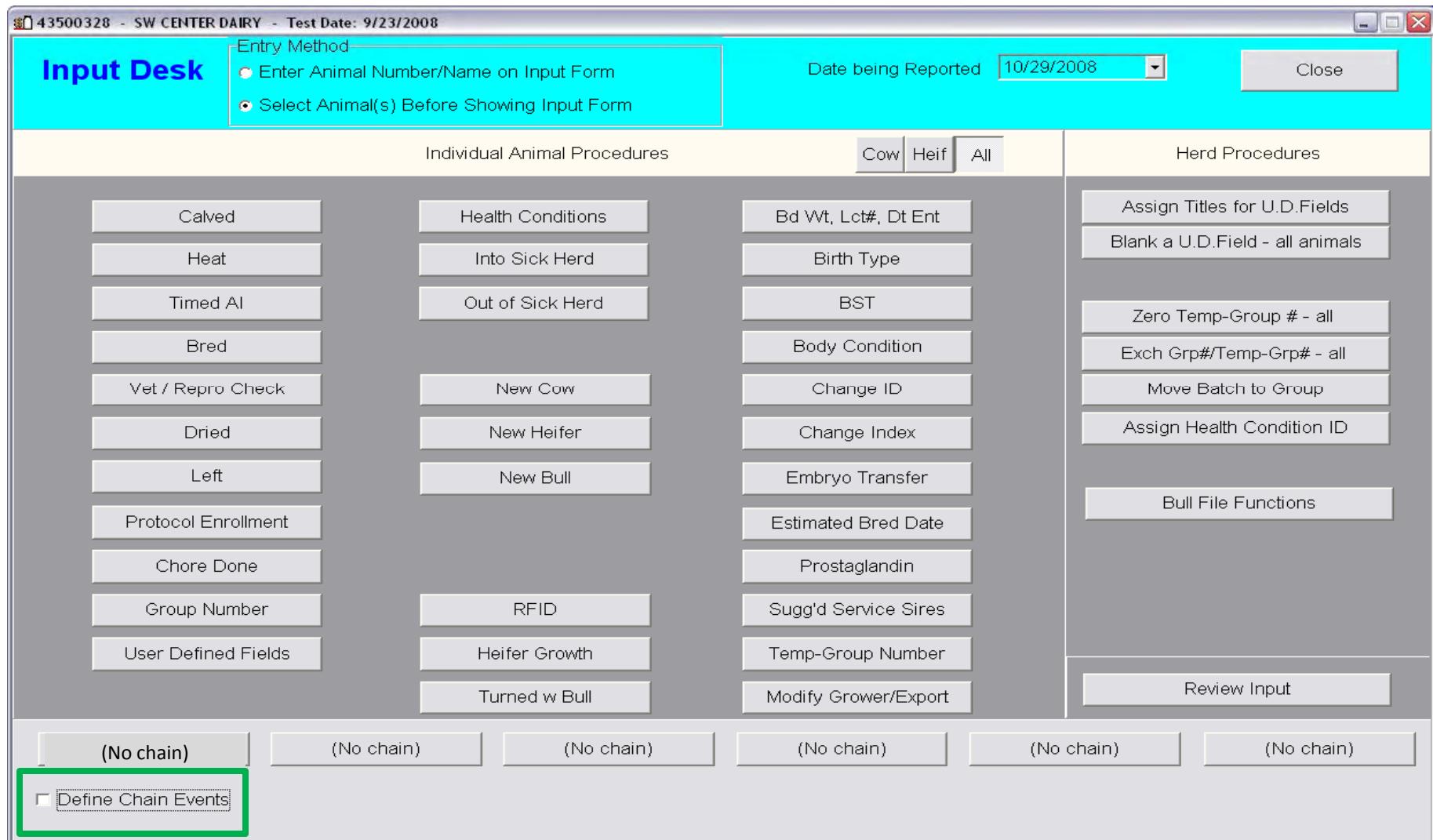
Chapter 5

Enrolling Cows into a Synchronization Program at Calving

Choose the Input Desk



Choose “Select Animal(s) Before Showing Input Form” and then check “Define Chain Events”



The screen will have changed and be similar to below

43500328 - SW CENTER DAIRY - Test Date: 9/23/2008

Input Desk

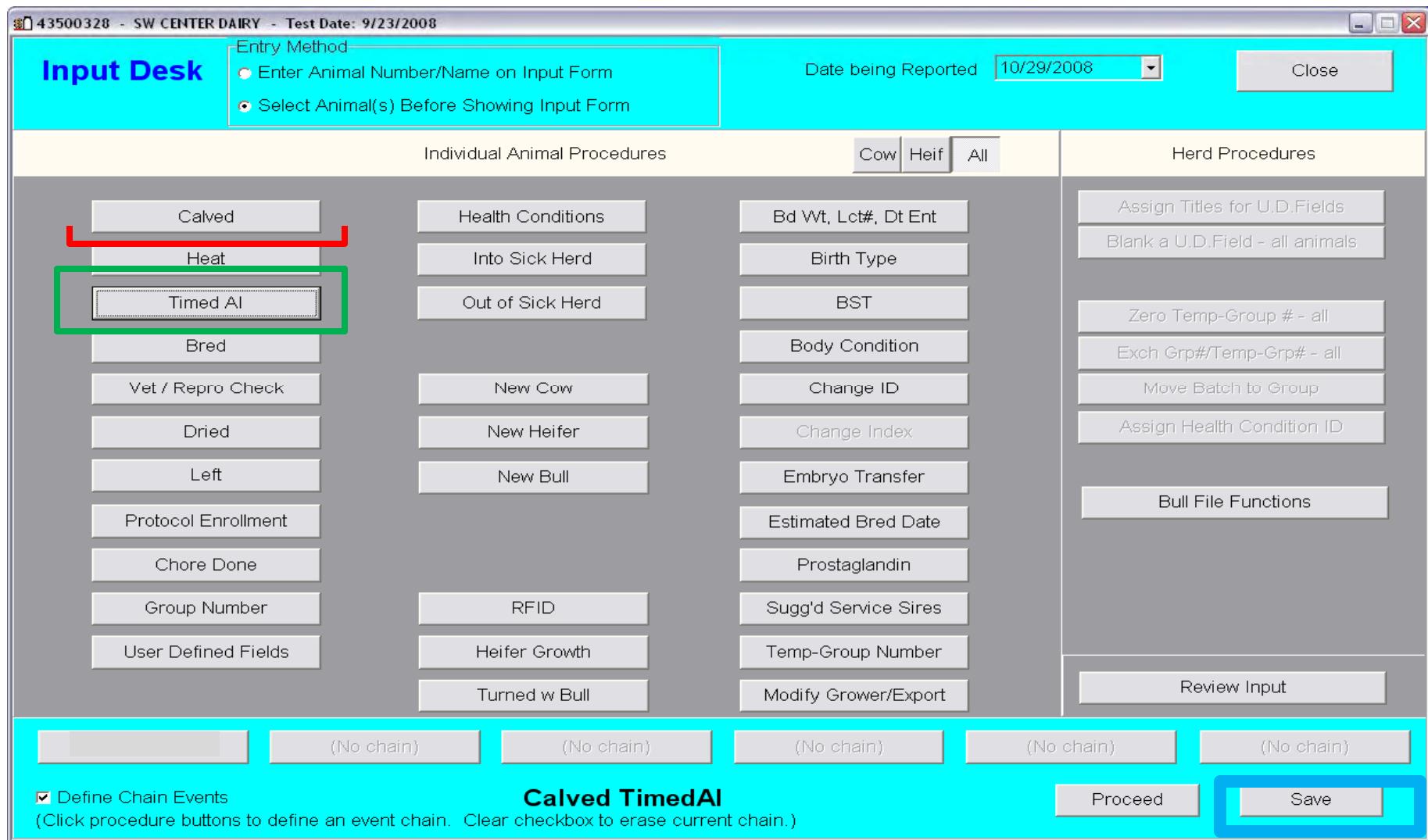
Entry Method:

- Enter Animal Number/Name on Input Form
- Select Animal(s) Before Showing Input Form

Date being Reported: 10/29/2008

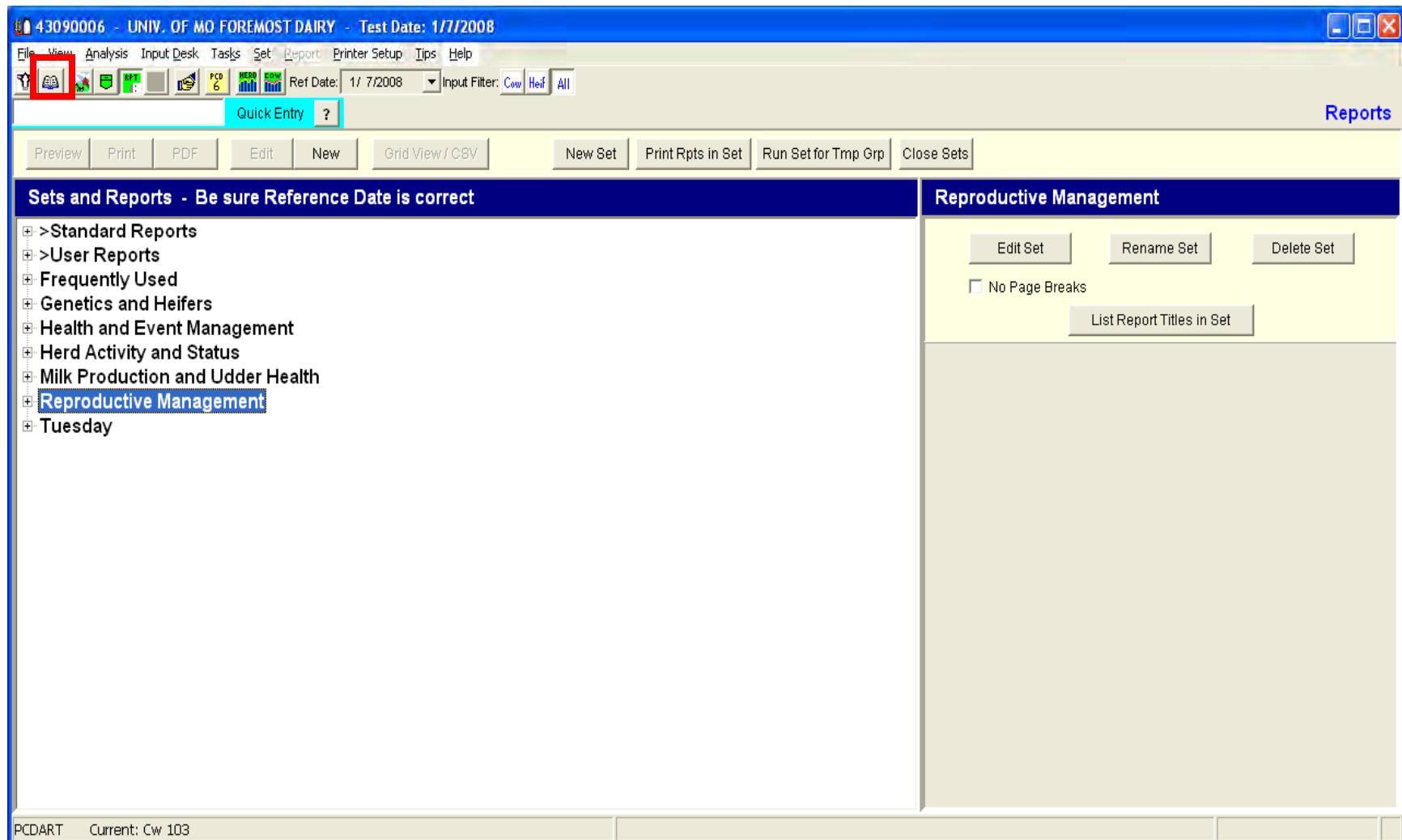
Individual Animal Procedures			Cow	Heif	All	Herd Procedures	
Calved	Health Conditions	Bd Wt, Lct#, Dt Ent				Assign Titles for U.D.Fields	
Heat	Into Sick Herd	Birth Type				Blank a U.D.Field - all animals	
Timed AI	Out of Sick Herd	BST				Zero Temp-Group # - all	
Bred	New Cow	Body Condition				Exch Grp#/Temp-Grp# - all	
Vet / Repro Check	New Heifer	Change ID				Move Batch to Group	
Dried	New Bull	Change Index				Assign Health Condition ID	
Left		Embryo Transfer				Bull File Functions	
Protocol Enrollment		Estimated Bred Date					
Chore Done		Prostaglandin					
Group Number	RFID	Sugg'd Service Sires					
User Defined Fields	Heifer Growth	Temp-Group Number					
	Turned w Bull	Modify Grower/Export				Review Input	
(No chain)		(No chain)		(No chain)			
<input checked="" type="checkbox"/> Define Chain Events (Click procedure buttons to define an event chain. Clear checkbox to erase current chain.)							
(Empty)						<input type="button" value="Proceed"/>	<input type="button" value="Save"/>

Choose “**Calved**” and then “**Timed AI**”
followed by “**Save**”



Steps to take when a cow calves

Choose the Input Desk



Choose “Select Animal(s) Before Showing Input Form” and then “CalvedTimed AI”

43500328 - SW CENTER DAIRY - Test Date: 9/23/2008

Input Desk

Entry Method

- Enter Animal Number/Name on Input Form
- Select Animal(s) Before Showing Input Form

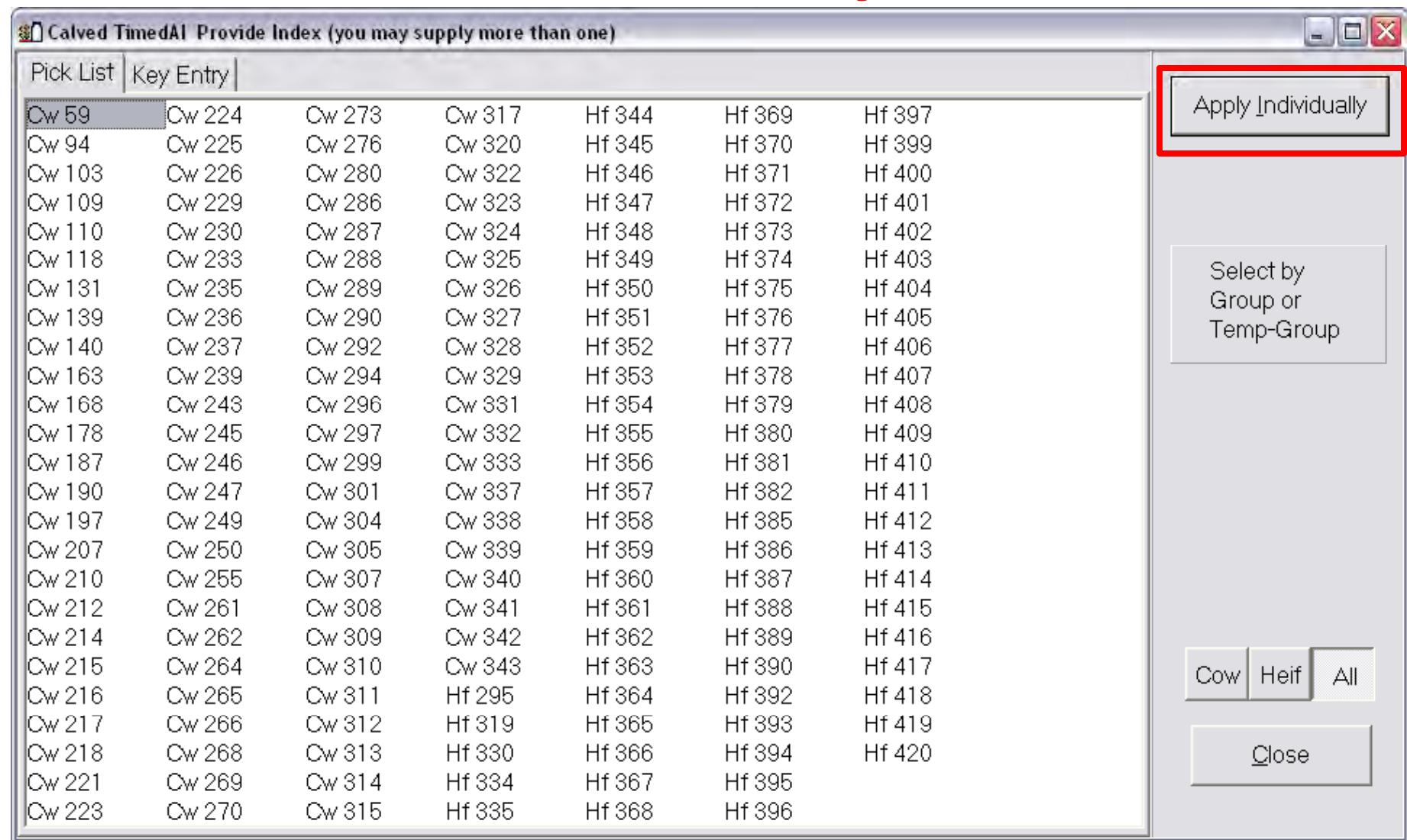
Date being Reported: 10/29/2008

Individual Animal Procedures			Cow	Heif	All	Herd Procedures
Calved	Health Conditions	Bd Wt, Lct#, Dt Ent				Assign Titles for U.D.Fields
Heat	Into Sick Herd	Birth Type				Blank a U.D.Field - all animals
Timed AI	Out of Sick Herd	BST				Zero Temp-Group # - all
Bred	New Cow	Body Condition				Exch Grp#/Temp-Grp# - all
Vet / Repro Check	New Heifer	Change ID				Move Batch to Group
Dried	New Bull	Change Index				Assign Health Condition ID
Left		Embryo Transfer				Bull File Functions
Protocol Enrollment		Estimated Bred Date				
Chore Done		Prostaglandin				
Group Number	RFID	Sugg'd Service Sires				
User Defined Fields	Heifer Growth	Temp-Group Number				
	Turned w Bull	Modify Grower/Export				Review Input

(No chain) (No chain) (No chain) (No chain) (No chain) (No chain)

Define Chain Events

Choose your “cow(s)” and “Apply Individually”



Select the appropriate information in regard to date, calf, etc and then “Done”

Enter data

Cw 59 (59) **Calved (P1)**

Calving Code: 2 Calving Date: 1029 Sex-Disp: Calf 1: 7

Set/Reset Skip

You may enter *### for days in milk

Cow's Body Wt (cwt): [] Group: 0 Birth Diff: 0

Calf's Sire Id: [] Breed: []

Done (button circled in red) Cancel

Calv: 1/30/2008 Bred: 1 6/13/2008 DaysSinceBred: 139

DIM: 274 Milk: 33.0 Repro: N

Lct#: 10 Grp: 0

F2-Cow Page F6-View Input

Choose “S” to start on Timed AI, then select the **TAI protocol**, and finally you are “**Done**”

Enter data

Cw 983 (983) **Timed A. I. (P8)**

TAI Action **S** S Start her on TAI
Z Zero the start date X Exclude her from TAI
R Remove exclusion

If bred, do not warn

TAI Reference Date
10/29/2008 She will be started on TAI as soon as possible on or after this date:

Available TAI protocols **1: POS (Pre-synch)**

DIM	28	42	56	63	65	66
PGH-1	PGH-2	GnRH-1	PGH	GnRH-2	Breed	
11/25/08	12/09/08	12/23/08	12/30/08	01/01/09	01/02/09	breed
		start				
		TUE				

Calv: 10/29/2008 **F2-Cow Page**
DIM: 1 Repro: **F6-View Input**
Lct#: 4 Grp 9

Done **Cancel**

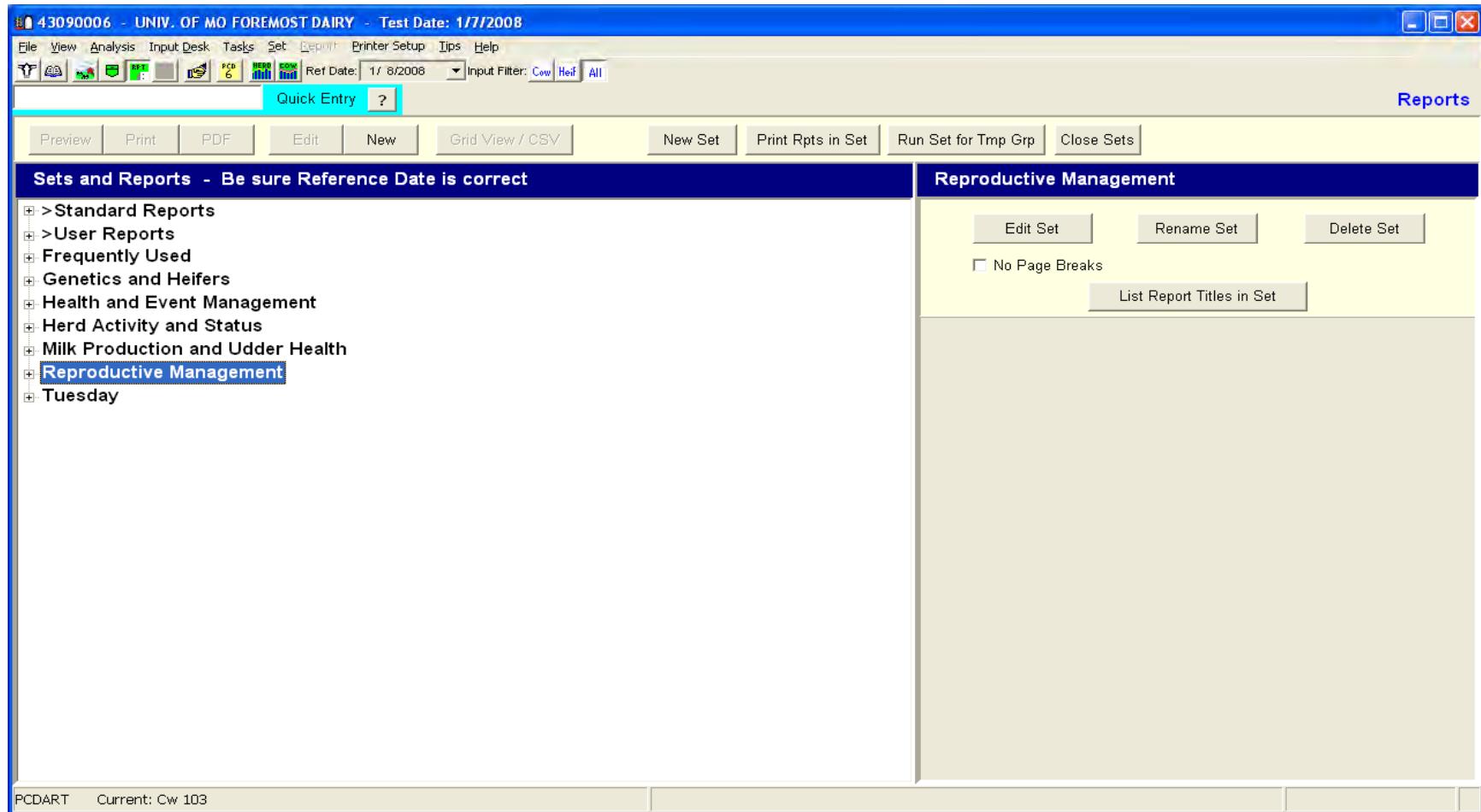
The cow will now be in the
presynch/ovsynch program!

Chapter 6

Using PC Dart Reproductive Synch Programs on a Weekly Basis

How do you apply it every week?

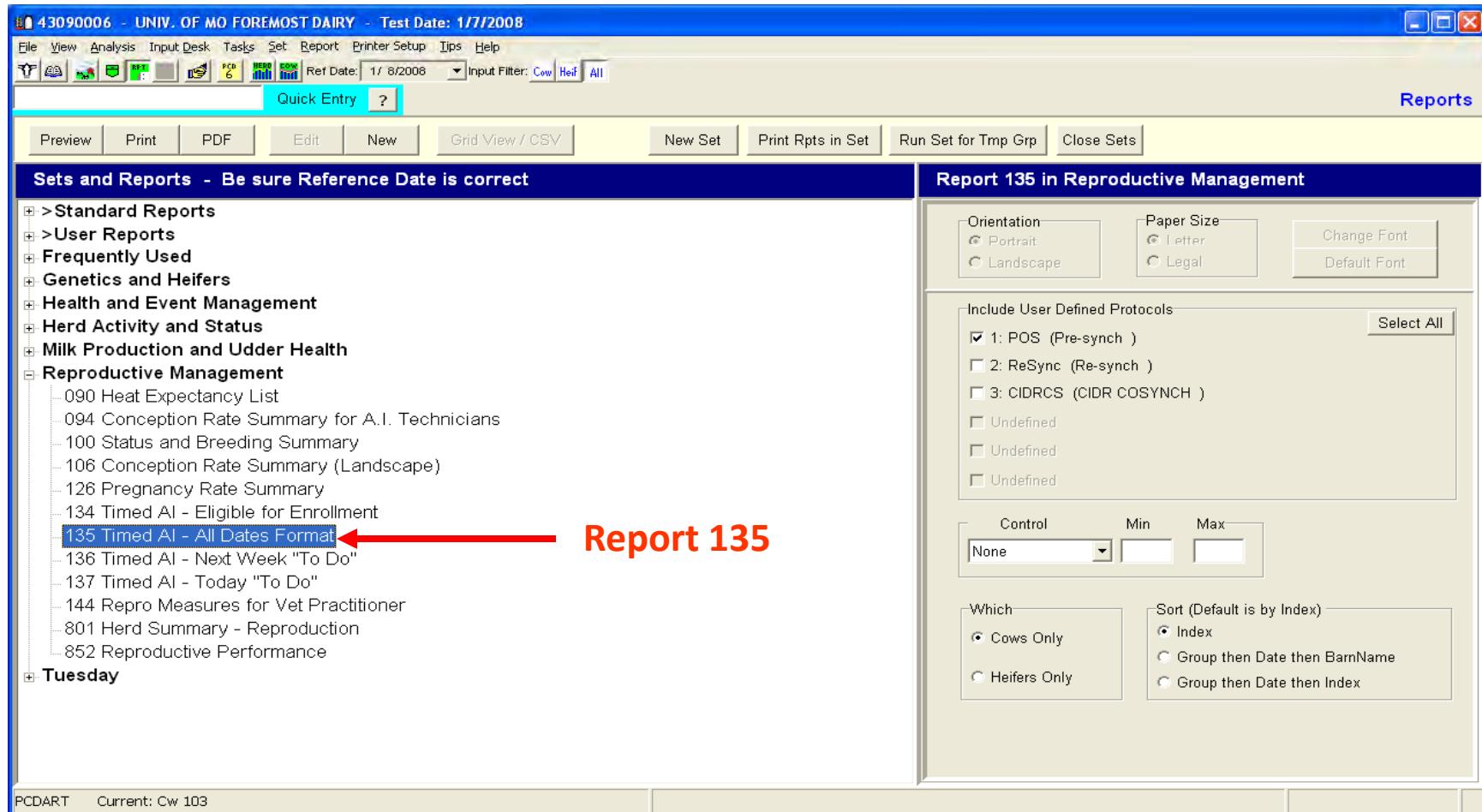
Choose “Reproductive Management”



Big Picture

- To obtain a list of all the cows ENROLLED in the program and when they should receive the proper injection, select “**report 135.**”
- This gives you an overview of what to expect
- See next slide

Click on “Include User Defined Protocol (POS) and possibly Resync”



43090006 - UNIV. OF MO FOREMOST DAIRY - Test Date: 1/7/2008

File View Analysis Input Desk Tasks Set Report Printer Setup Tips Help

Ref Date: 1/ 8/2008 Input Filter: Cow Heif All

Quick Entry ? Reports

Preview Print PDF Edit New Grid View / CSV New Set Print Rpts in Set Run Set for Tmp Grp Close Sets

Sets and Reports - Be sure Reference Date is correct

- + > Standard Reports
- + > User Reports
- + Frequently Used
- + Genetics and Heifers
- + Health and Event Management
- + Herd Activity and Status
- + Milk Production and Udder Health
- Reproductive Management**
 - 090 Heat Expectancy List
 - 094 Conception Rate Summary for A.I. Technicians
 - 100 Status and Breeding Summary
 - 106 Conception Rate Summary (Landscape)
 - 126 Pregnancy Rate Summary
 - 134 Timed AI - Eligible for Enrollment
 - 135 Timed AI - All Dates Format** Report 135
 - 136 Timed AI - Next Week "To Do"
 - 137 Timed AI - Today "To Do"
 - 144 Repro Measures for Vet Practitioner
 - 801 Herd Summary - Reproduction
 - 852 Reproductive Performance
- + Tuesday

Report 135 in Reproductive Management

Orientation: Portrait Landscape

Paper Size: Letter Legal

Change Font Default Font

Include User Defined Protocols

1: POS (Pre-synch) Select All

2: ReSync (Re-synch)

3: CIDRCS (CIDR COSYNCH)

Undefined

Undefined

Undefined

Control: Min: Max:

Which: Cows Only Heifers Only

Sort (Default is by Index): Index Group then Date then BarnName Group then Date then Index

PCDART Current: Cw 103

Output of report 135 Time AI (All Dates)

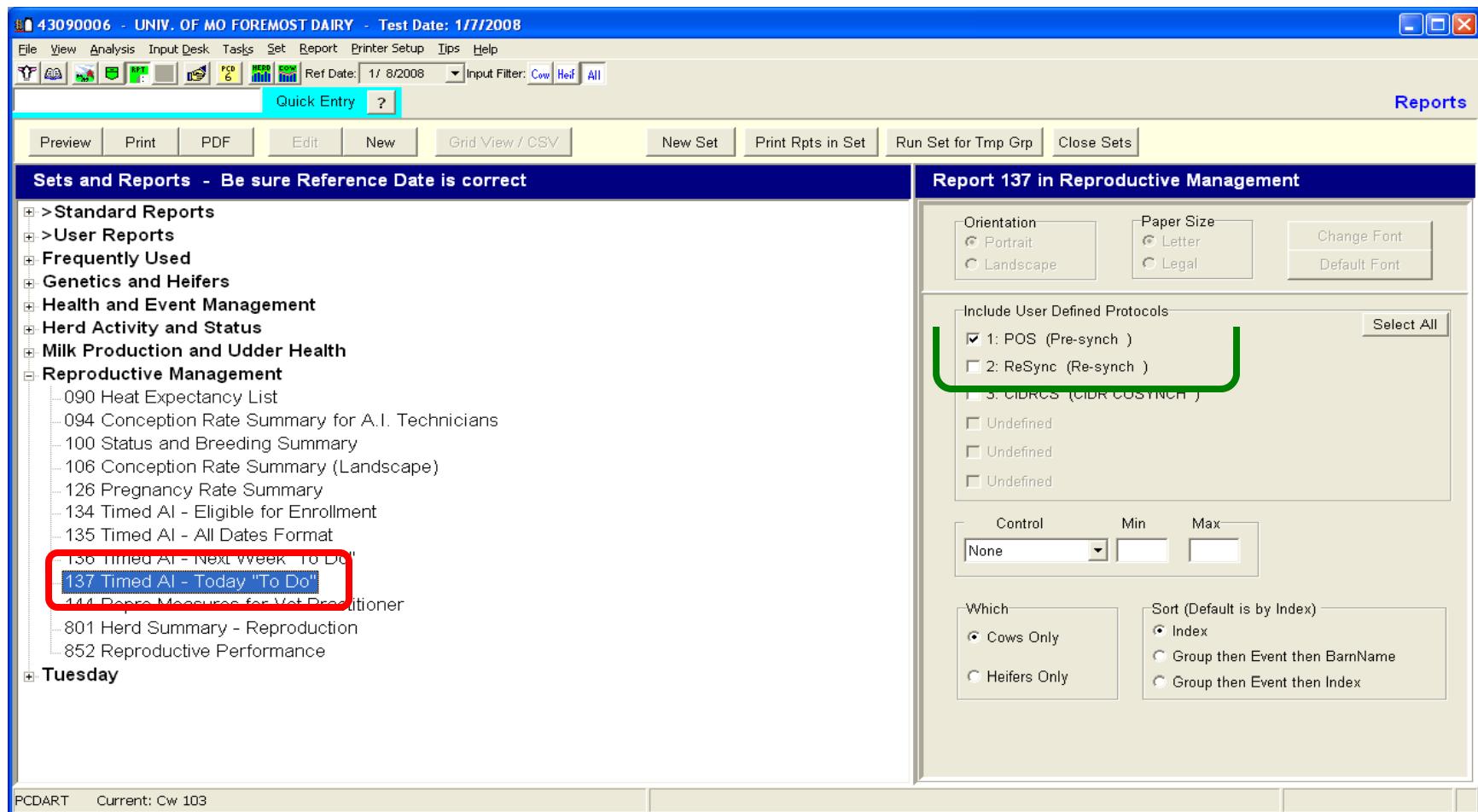
Report Preview :

Cows									
G	r	Index	TAI	PGH-1	PGH-2	GnRH-1	PGH	GnRH-2	Breed
p		Name	program						
4		209	POS	12/25	01/08	01/22	01/29	01/31	02/01
4		799	POS	01/01	01/15	01/29	02/05	02/07	02/08
1		818	POS	01/08	01/22	02/05	02/12	02/14	02/15
4		844	POS	01/01	01/15	01/29	02/05	02/07	02/08
4		877	POS	01/01	01/15	01/29	02/05	02/07	02/08
4		888	POS	12/18	01/01	01/15	01/22	01/24	01/25
4		901	POS	12/25	01/08	01/22	01/29	01/31	02/01
4		922	POS	12/11	12/25	01/08	01/15	01/17	01/18
3		946	POS	12/11	12/25	01/08	01/15	01/17	01/18
4		977	POS	01/08	01/22	02/05	02/12	02/14	02/15
4		2008	POS	12/25	01/08	01/22	01/29	01/31	02/01
4		2015	POS	12/25	01/08	01/22	01/29	01/31	02/01
4		2063	POS	01/08	01/22	02/05	02/12	02/14	02/15
2		2076	POS	12/25	01/08	01/22	01/29	01/31	02/01
3		2084	POS	12/11	12/25	01/08	01/15	01/17	01/18
4		2152	POS	12/18	01/01	01/15	01/22	01/24	01/25
1		2159	POS	12/25	01/08	01/22	01/29	01/31	02/01
4		2160	POS	01/08	01/22	02/05	02/12	02/14	02/15
4		2161	POS	12/18	01/01	01/15	01/22	01/24	01/25
3		3659	POS	01/01	01/15	01/29	02/05	02/07	02/08
20 Cows									



Injection Day!

Choose **report 137** (be sure to check the synch program, could be both POS and ReSync)



Output of Report 137

Report Preview :

Close

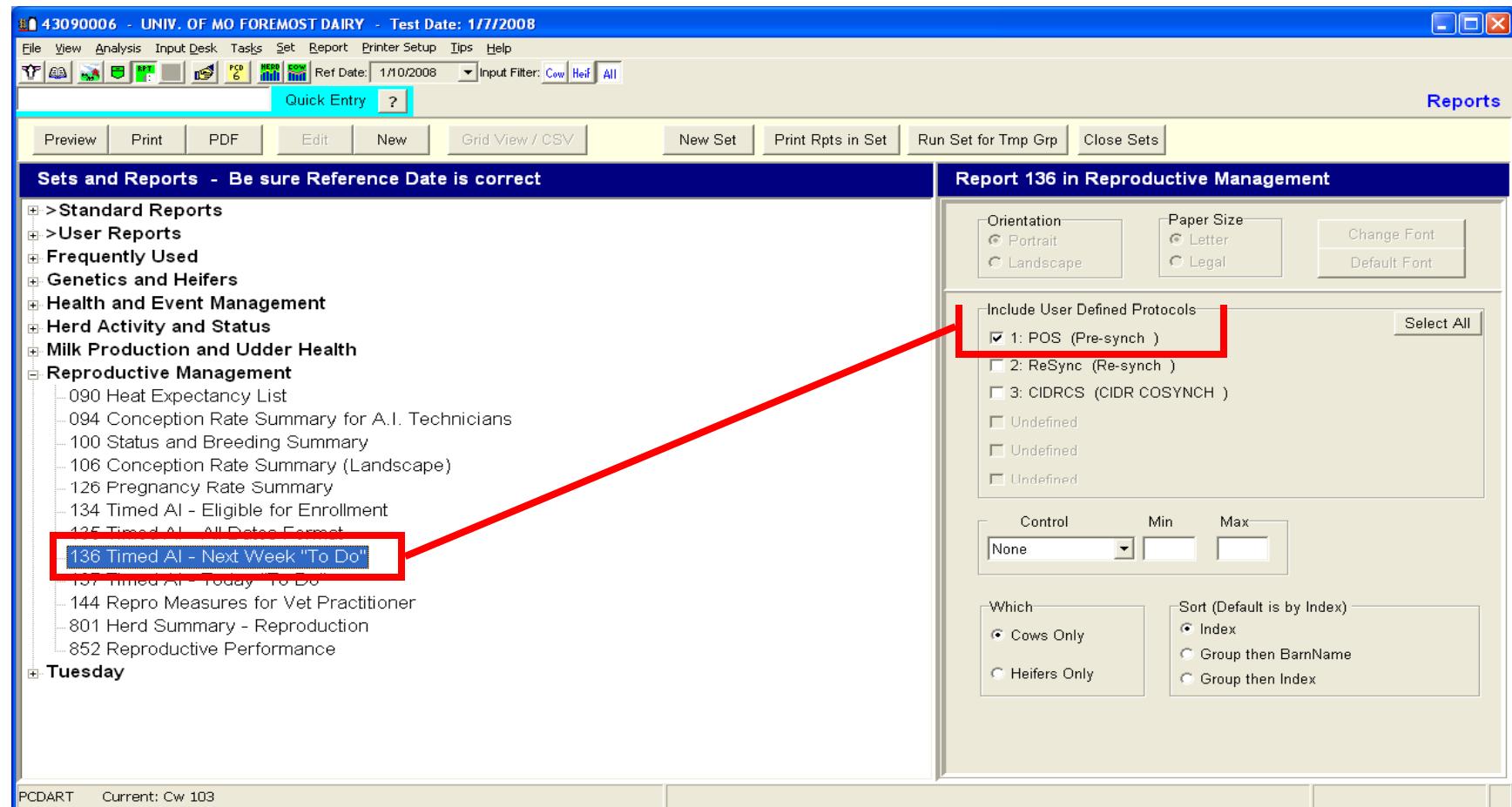
G	r	p	Cows				Tue	Wed	Thu	Fri	Sat	Sun	Mon
			Index	TAI	- Repro -	program	Date	cd					
4	209	POS							PGH-2				
1	818	POS							PGH-1				
4	901	POS							PGH-2				
4	922	POS							GnRH-1				
3	946	POS							GnRH-1				
4	977	POS							PGH-1				
4	2008	POS							PGH-2				
4	2015	POS							PGH-2				
4	2063	POS							PGH-1				
2	2076	POS							PGH-2				
3	2084	POS							GnRH-1				
1	2159	POS							PGH-2				
4	2160	POS							PGH-1				
13 Cows													

This is the list you will take out to the pens

Page 1 of 1



To see which cows will be on the synchronization list next week
Choose Report 136



Output of Report 136

Report Preview :

G r p	Cows									
	Index Name	TAI program	- Repro - Date	Thu 01/10	Fri 01/11	Sat 01/12	Sun 01/13	Mon 01/14	Tue 01/15	Wed 01/16
4	799	POS							PGH-2	
4	844	POS							PGH-2	
4	877	POS							PGH-2	
4	888	POS							GnRH-1	
4	922	POS							PGH	
3	946	POS							PGH	
3	2084	POS							PGH	
4	2152	POS							GnRH-1	
4	2161	POS							GnRH-1	
3	3659	POS							PGH-2	
10 Cows										

Chapter 7

Estrus Synchronization Programs

Ovsynch 56	Monday	(7 days)	Monday	(2 days)	Wednesday		Thursday
	GnRH		PGF2		GnRH		Breed
	AM		AM		4:00 PM		AM

Cosynch 72	Monday	(7 days)	Monday	(3 days)	Thursday	
	GnRH		PGF2		Breed	
	AM		AM		GnRH	

SelectSynch	Monday	(7 days)	Monday		Heat detect and Breed				
	GnRH		PGF2						
	AM		AM						

Presynch + Ovsynch	Monday	(14 days)	Monday	(14 days)	Monday	(7 days)	Monday	(2 days)	Wednesday	Thursday
	PGF2		PGF2		GnRH		PGF2		GnRH	Breed
	AM		AM		AM		AM		4 PM	AM

Presynch + Cosynch	Monday	(14 days)	Monday	(14 days)	Monday	(7 days)	Monday	(3 days)	Thursday	
	PGF2		PGF2		GnRH		PGF2		Breed	
	AM		AM		AM		AM		AM	

G6G Ovsynch	Monday	(2 days)	Wed	(6 days)	Monday	(7 days)	Monday	(3 days)	Thursday	
	PGF2		GnRH		GnRH		PGF2		Breed	
	AM		AM		AM		AM		AM	

CIDRsynch	Monday	(7 days)	Monday	(2 days)	Wednesday		Thursday <td></td>	
	CIDR		CIDR		GnRH		Breed	
	IN		Out		4:00 PM		AM	
	GnRH		PGF2					
	AM		AM					

CIDR Cosynch	Monday	(7 days)	Monday	(66 hours)	Thursday		
	CIDR		CIDR		Breed		
	IN		Out 2PM		8:00 AM		
	GnRH		PGF2		Give GnRH at		
	AM		2 PM		Breeding		

Definitions

Calving interval ---The time between when the cow delivers a calf until the next calf is born

Conception rate ---The percentage of the number of cows that conceive divided by the number bred at the time of pregnancy check

Days open---The time from when a cow calves until when she conceives

Days to first service--- The time from when a cow calves until the first time she is bred

Estrus synchronization--- A program to group the heats in animals

First service conception rate--- The percentage of cows that conceive at the time of their first breeding

Heat Detection Rate--- Number of cows bred divided by the number of cows eligible to get bred over a 21 day period

Pregnancy Rate--- Number of cows that became pregnant divided by the number of cows eligible to get pregnant over a 21 day period

Voluntary waiting period--- A specified time after a cow calves that no breeding takes place or the time when you will start breeding your cows