



Livestock Intelligence™

MSD Animal Health Intelligence

Heatime® Pro+ User Manual

Version 1 | 2022



Navigation Station

01 Introduction	05	07 Edit or Delete an Event	25	15 Create Veterinary Treatment Protocols	53	18 Customise Reports	66
02 Training Checklist	06	Reversing a Cull Event	26	16 In the Settings	57	Existing Report	66
03 In-built Support Functions	08	08 Create a Cow in Heatime®	28	Edit a Shift	57	Building a Report from Scratch	74
The Allflex Academy	08	09 Change a Collar or EID Number	30	Add a Herd/Group	57	19 Troubleshooting & FAQs	79
Help Function	09	10 Change Cow Information	32	Rest Periods	57	20 Teamviewer	81
04 Lactation Status vs Groups	10	11 Set a Draft	34	17 Report Glossary	58		
05 Search	14	12 Mating	40	Fertility	58		
Searching for a Cow	14	Pre-Mating Checklist	40	Health	59		
Searching for a Collar	15	Cows Ready for AI Report	41	Herd	59		
06 Enter Information	16	13 Health	43	Maintenance	60		
Single	16	Health Report	43	Warnings	62		
Batch	19	Distress Notifications	45	Sorting	62		
Batch with Edits	22	14 Import Lists	47	Graphs	64		

01

Introduction

Heatime® Pro+

Welcome to your NZ specific user guide, created by Kiwis who have been working with the system, for Kiwi farmers, to help you navigate the basics of Heatime®.

This user guide is designed to simplify and explain what you need to know for the system to function correctly at an entry level, with the aim that anyone should be able to walk into your shed and complete the basic tasks.

There are **four things** you must tell the system about each animal throughout the year, and we call these the **lifecycle rules**. These lifecycle rules are what keep your reports and alerts up to date and tell the system what it should be expecting from that cow. This way, it can alert you when she is not behaving the way she should. The system uses these rules to protect the integrity of the data and assign a **lactation status**, which help us to understand how that animal is performing.

1. Calvings

These should be entered daily over calving. If calvings are not entered, your health, distress and 'repro' or reproduction will not be up to date. These absolutely must be entered prior to mating beginning, or the animal will not draft for AI.

2. Breedings

These should also be entered daily, so that your 'Cows Ready for AI' report drafts the correct animals the following day, and your vet can complete accurate retrospective analyses if they would like to.

3. Pregnancy Diagnosis

Positive and negative results should be entered once the animals have a pregnancy diagnosed, so the system can alert you to any slips who start cycling again. This can be done in bulk using the list function.

4. Dry Off

This should be entered once the animals are dried off, so the system knows to start watching for pre-calving issues. This can be done in bulk using the list function.

There are three other events that are important to do as required:

Culling — removing the animals from your database the day they are no longer there helps keep everything tidy, your records accurate, and makes your life much easier down the track.

Correct collars assigned to correct cows — this is critical for all systems, particularly if using any gate which is not the Allflex Intelligate™. If the incorrect collar is assigned to the incorrect cow number, your gate (if not an Intelligate™) will draft the wrong cow.

Keeping the management number lined up with any external party database — if you have a gate other than the Allflex Intelligate™, it is critical that the animal numbers line up across both databases i.e., cow assigned number 1 in Heatime®, needs to be cow assigned number 1 in Minda, Jantec, Milkhub etc.

The final task which is very important to do **regularly is check your 'Tags Maintenance' report**. This report tells you when there is something wrong with a collar, so it is important to check this a couple of times a week throughout the year, and daily over mating.

By keeping this information up to date, using the step-by-step instructions which follow, your system will remove stress from the team over critical points of the year, and help you maximise your efficiency.

And of course, if you get stuck, we are here to help!

The Allflex NZ Training Team



Training Checklist

By the end of your training program, you should be comfortable with the following tasks:

Training 1

- ✓ Understand the importance of the server and MSI, how to restart them, and what to do if you can't
- ✓ Understand what the collar is doing and the limitations of the information getting into the system
- ✓ Understand the portal, refreshing, navigate between General and Maintenance 'Tag Maintenance' reports
- ✓ Understand when to replace tags, procedure for sending in getting new one
- ✓ Understand unassigned tags
- ✓ Understand inventory and the difference between a cow loaded and a cow assigned a collar
- ✓ Use the Real Time folder, understand when to call the 0800 number
- ✓ Use the separation scheduler if needed
- ✓ Find the cow card, search for tags, find culled animals
- ✓ See the Data Entry section
- ✓ Understand where the reports live
- ✓ What is the tag with an exclamation mark and where are the settings
- ✓ Set up and understand limitations of HC24 app
- ✓ Introduction to distress notifications
- ✓ Get on FB page

Training 2

- ✓ Review training 1 topics
- ✓ Data entry
- ✓ Entering the four lifecycle events
- ✓ Editing an event
- ✓ Changing a collar number
- ✓ Distress notification review
- ✓ Understanding and interpreting 'Daily Reports' (interchangeable with training 3):
- ✓ Ready for AI (and what time would you like to inseminate---and for what "hours." Explain will see cows in heat before they are on the Ready to AI reports as they have not reached their peak. Cows in heat
- ✓ Irregular heats
- ✓ Anestrus animals
- ✓ Cows not bred
- ✓ Pregnancy reports

Training 3 (interchangeable with training 2)

- ✓ Fresh cow monitoring
- ✓ Pre fresh monitoring
- ✓ Health Report
- ✓ Group and whole herd rumination minutes per day

Training 4

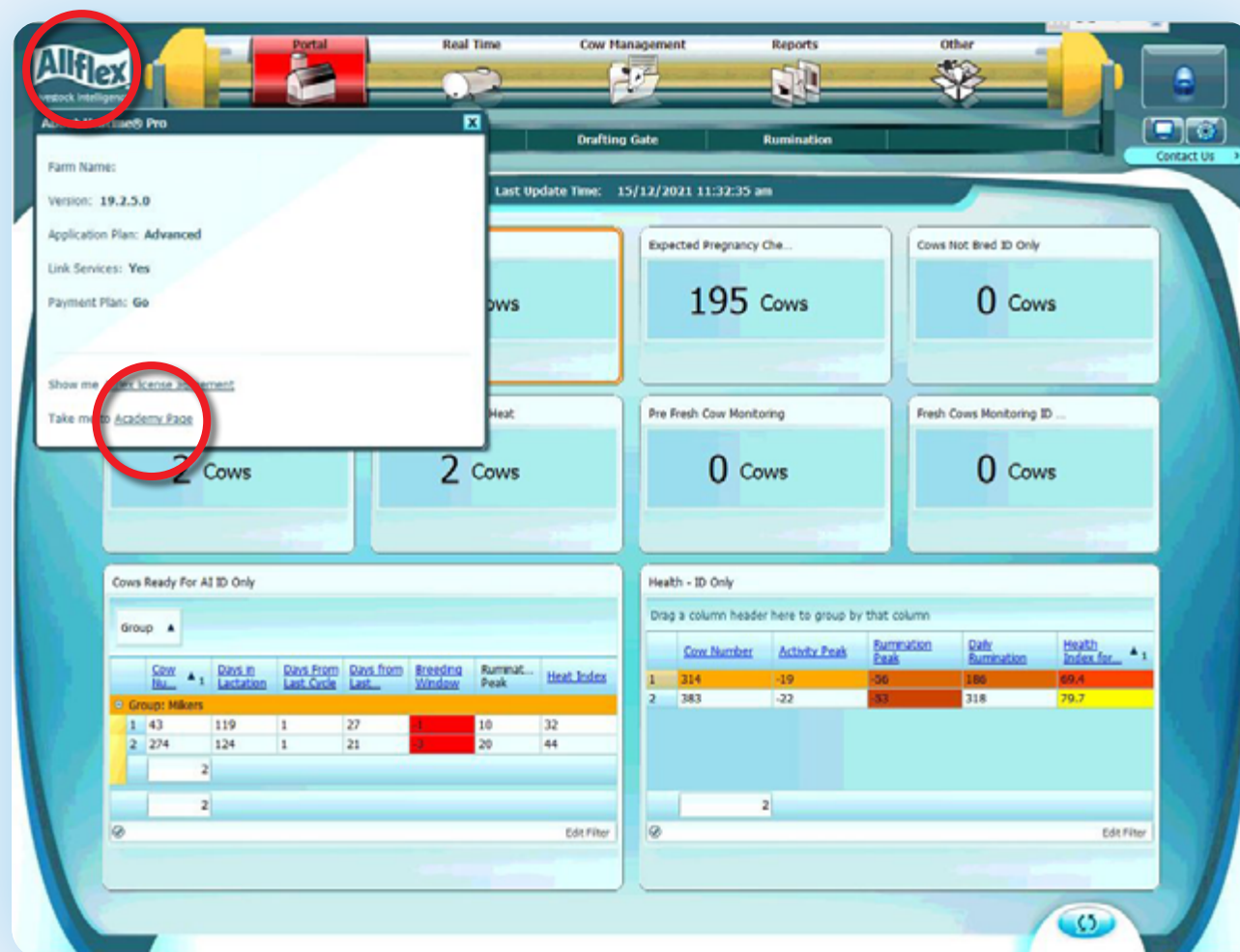
- ✓ Review tag management
- ✓ Introduction of 'Group Reports'
 - 'Group Consistency'
 - 'Group Heat Stress'
 - 'Group Routines'
- ✓ Custom reporting
- ✓ Creating portals
- ✓ Review when to call Helpline

Inbuilt Support Functions

The Allflex Academy

There are a series of online training resources, including the full user guide, available to you directly from the program.

Simply click on the Allflex logo in the top left corner, then click on the link saying: 'Take me to Academy Page'.



These resources are useful for you to train any incoming staff, or for annual refreshers.

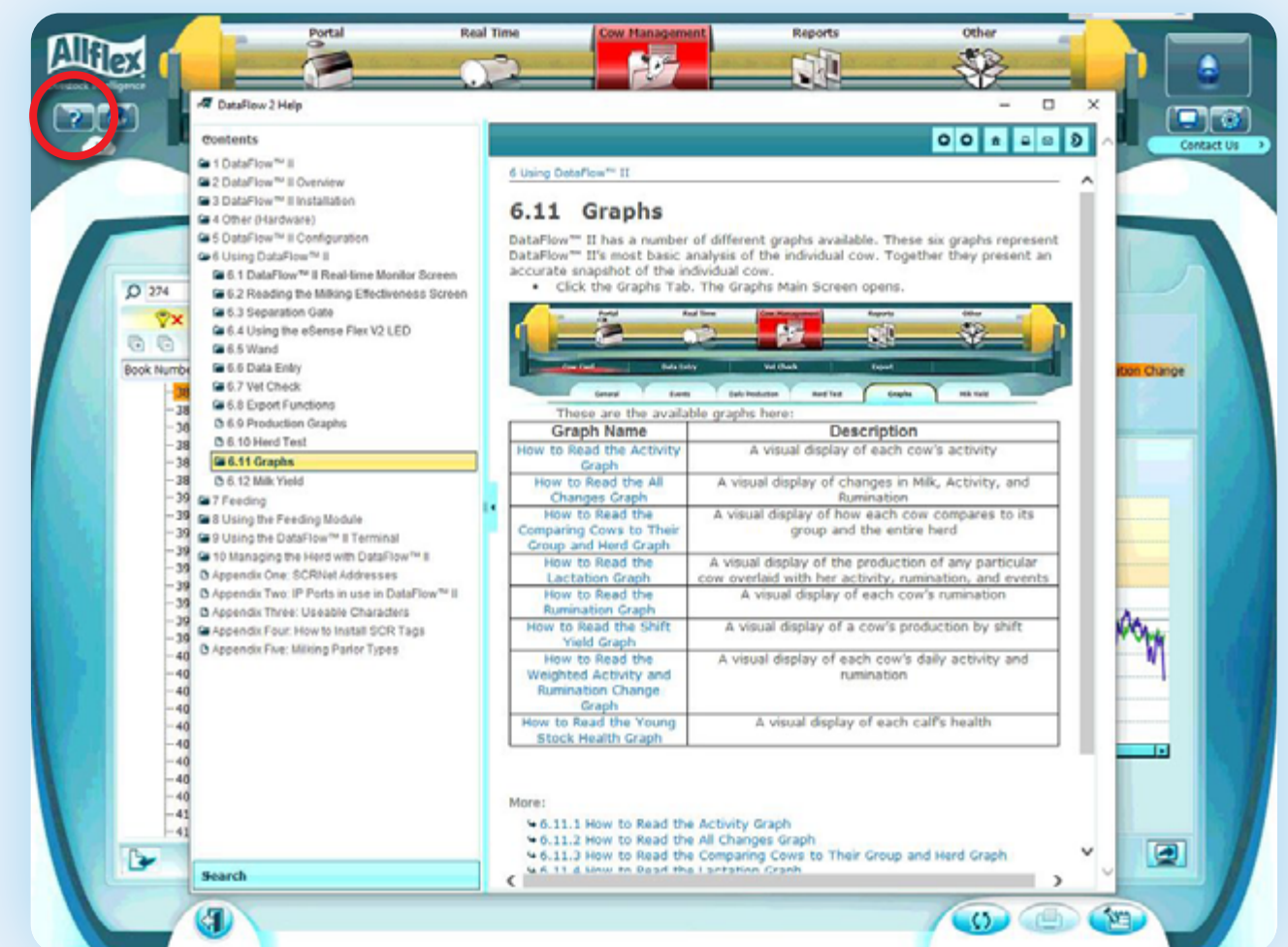
Help function

Further to this, there is a very useful help tool which can be utilised two ways.

To access it, use the **? button** in the top left corner of the screen. If you have something open on the screen, for example a graph of a cow's activity as below,

it will take you directly to an explanation of what you are looking at.

Alternatively, you can search through the topics until you find what it is you need help with.



For training resources like videos, quick reference guides and monitoring user manuals like this one please visit www.learn.allflex.co.nz

Complete the registration form to create a username and password to gain access to NZ centric training resources.

04 Lactation Status vs Groups

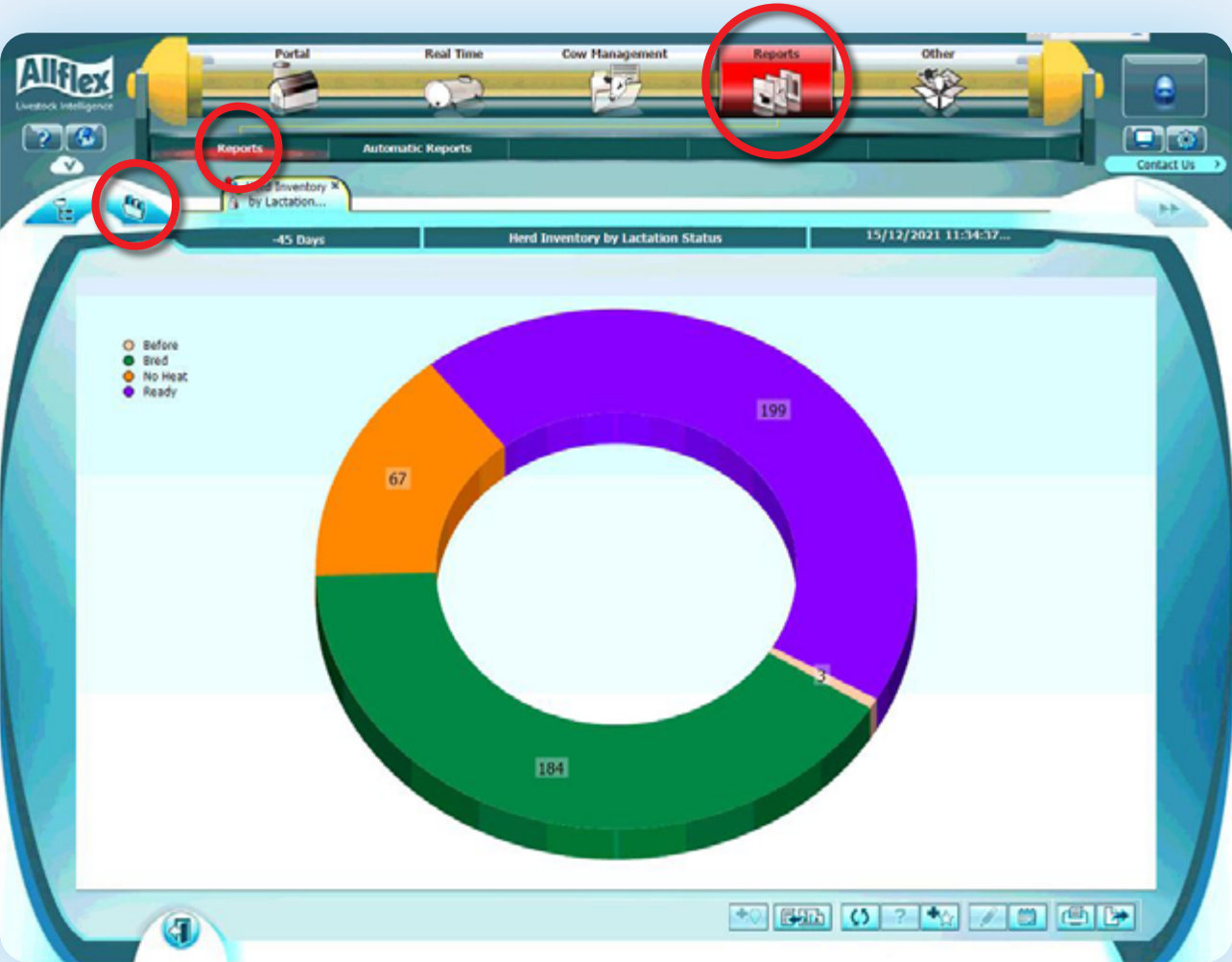
Lactation Status

The current stage the animal is at in the lactation period is known as the ‘Lactation Status’.

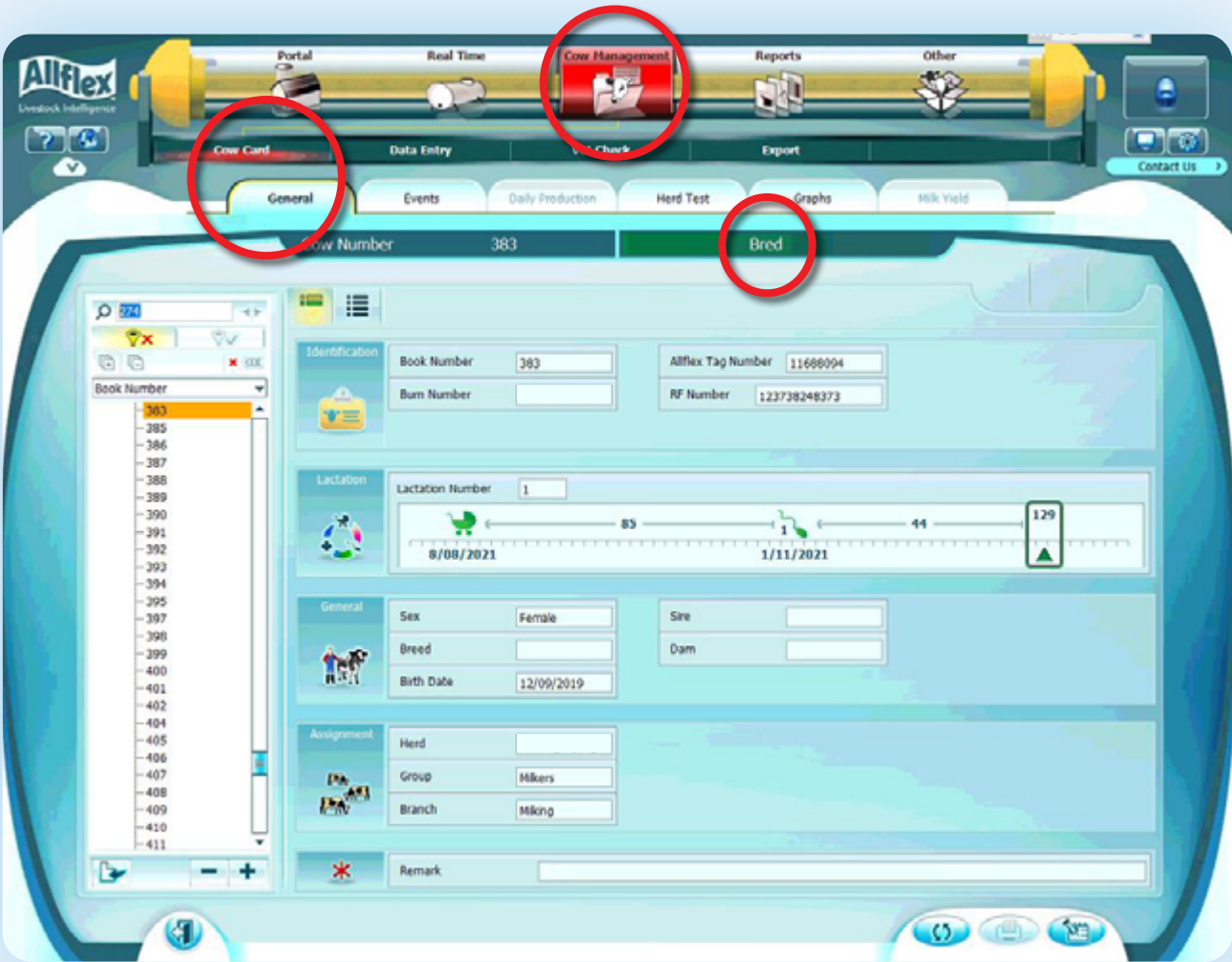
The status will change automatically in the system as long as the four main **Lifecycle Events** have been added manually. These are **Calving**, **Breeding**, a positive or negative **Pregnancy Test** and **Dry Off**.

Each status is colour-coded therefore it is easy to see what point the animal is at, e.g., Colostrum = Yellow, Bred = Green, and Ready = Purple.

Note: Heifer Lactation Status colours will differ slightly to cow Lactation Status colours.



The Lactation Status will also be written at the top of each cow card right beside her number in the appropriate colour.



Groups

On Heatime® Pro+ each animal is assigned to a ‘group’.

You can have as many or as little groups as you like. E.g., Milkers 1, Milkers 2, Light cows, or Dries. If you would like to change cows from one group to another, an event can be created to do a ‘group transfer’ to one or multiple cows.

Group monitoring assists with making the right decisions about the overall farm issues, whether it be feeding efficiency, body condition scores or operational routines.

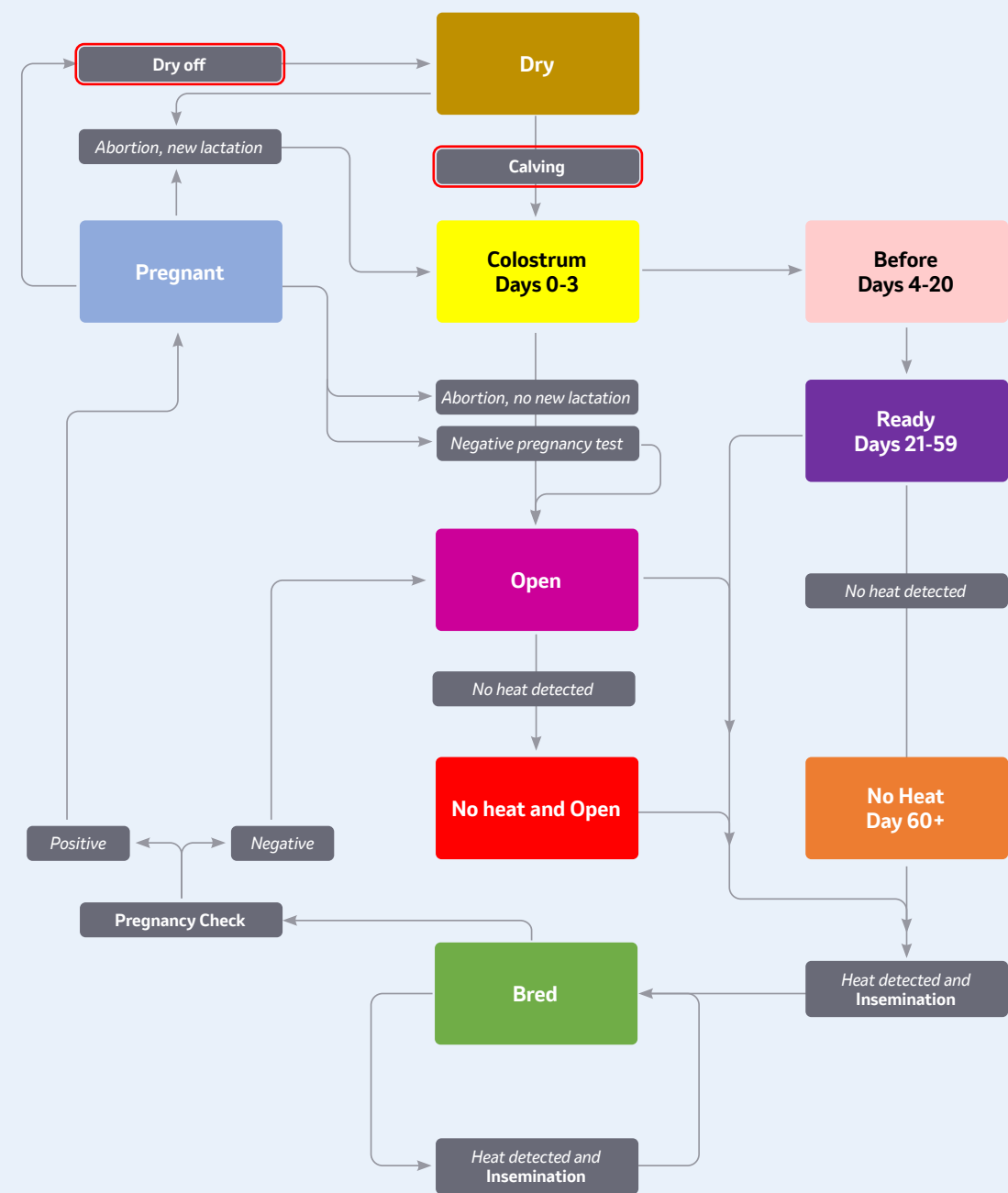
Lactation Status Flow Chart

The lactation status is critical to check prior to starting key lifecycle events (indicated in the red outlines), as if an animal has not in the correct stage, you are risking not getting accurate alerts, or having her draft for AI.

The only factor impacting on lactation status are events – groups are not the same as lactation status i.e. you can have an animal with any lactation status in

any group you like, but an animal cannot be in the “dry lactation status” until she has had a dry off event.

Note: Open and no heat indicates an animal has had a negative pregnancy test, and no heat detected, therefore is empty and either anestrus or not assigned a collar.



05

Search

Searching for a cow

1. Navigate to Cow Management folder
2. Select the Cow card tab
3. Ensure the drop-down box is set to 'Book Number'
4. Type the cow number into the search box



Searching for a collar

1. Navigate to Cow Management folder
2. Select the Cow card tab
3. Change the drop-down box to 'Allflex tag number'
4. Type the collar number you are looking for into the search box without the letters, and hit enter to view the cow that collar is assigned to



Note: You can also search by Birth ID in this section, by changing the dropdown box to Burn Number.

Enter Information

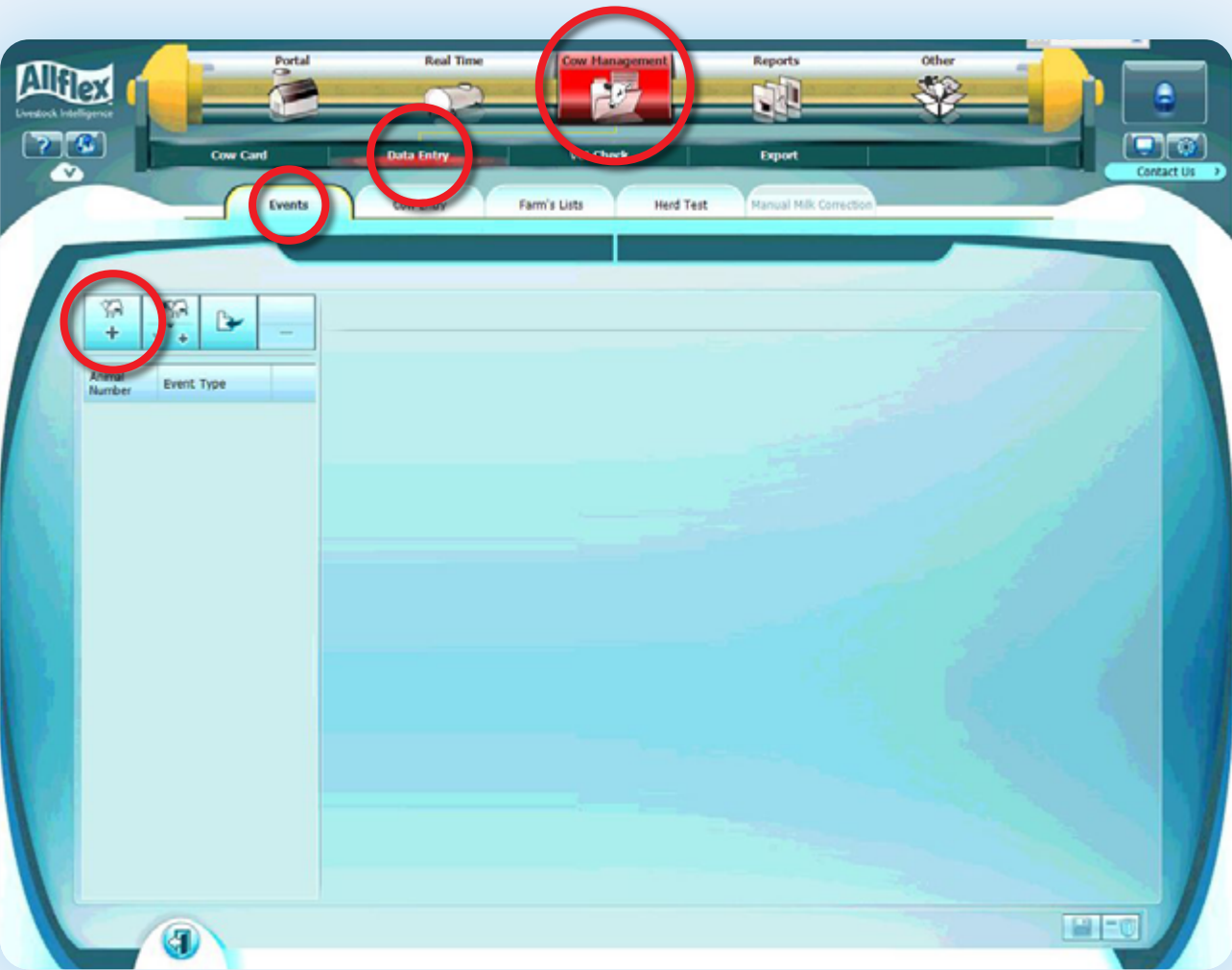
Every piece of information you log about a cow is done via Event Entry.

We can either do one event type against one cow, the same event type to lots of cows (i.e. positive pregnancy test or dry off), or the same event with edits against lots of cows (i.e. calvings).

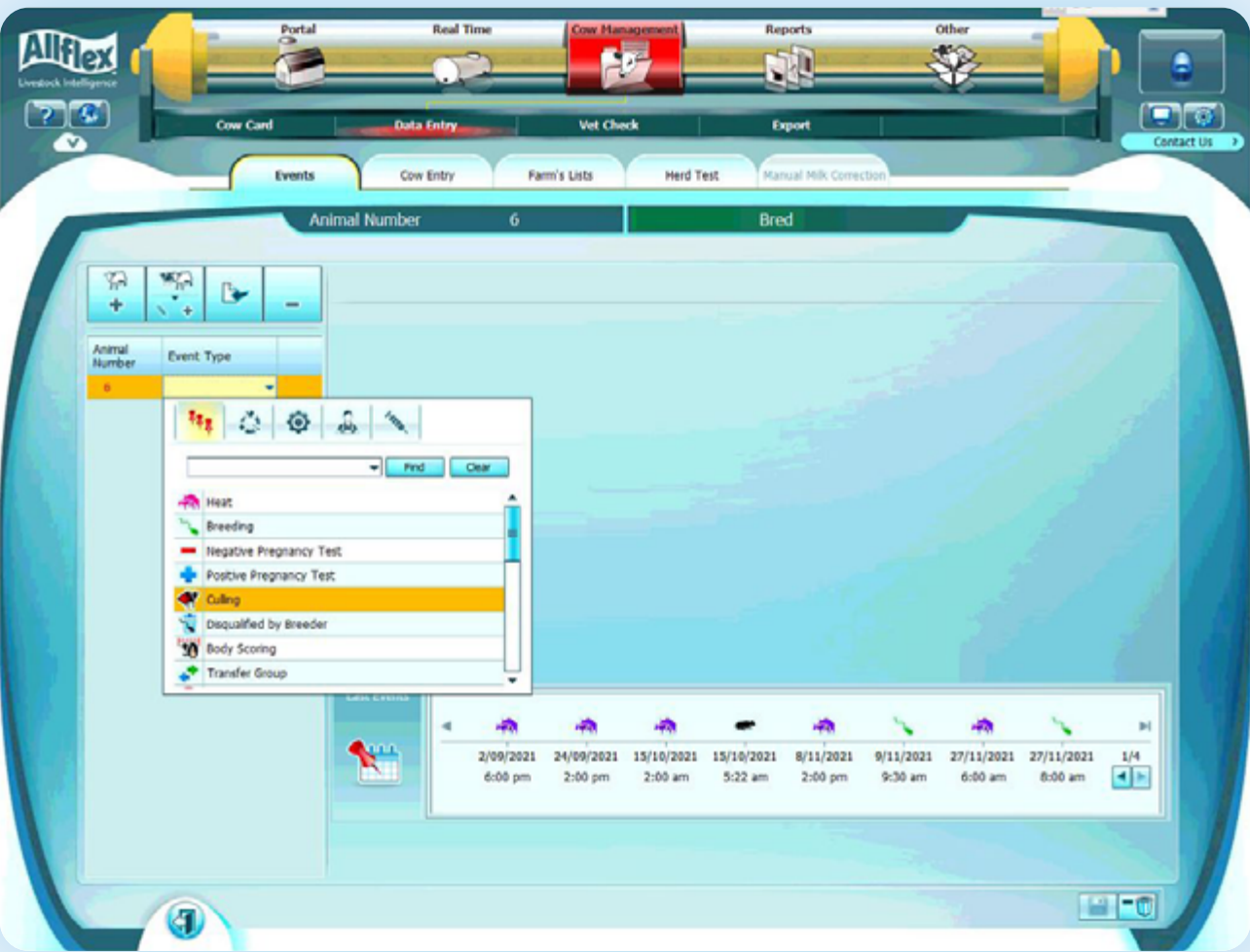
Single Event

This is when we are wanting to do one thing, to one cow.

- 1. Navigate to the Cow Management folder
- 2. Data Entry tab
- 3. Events tab



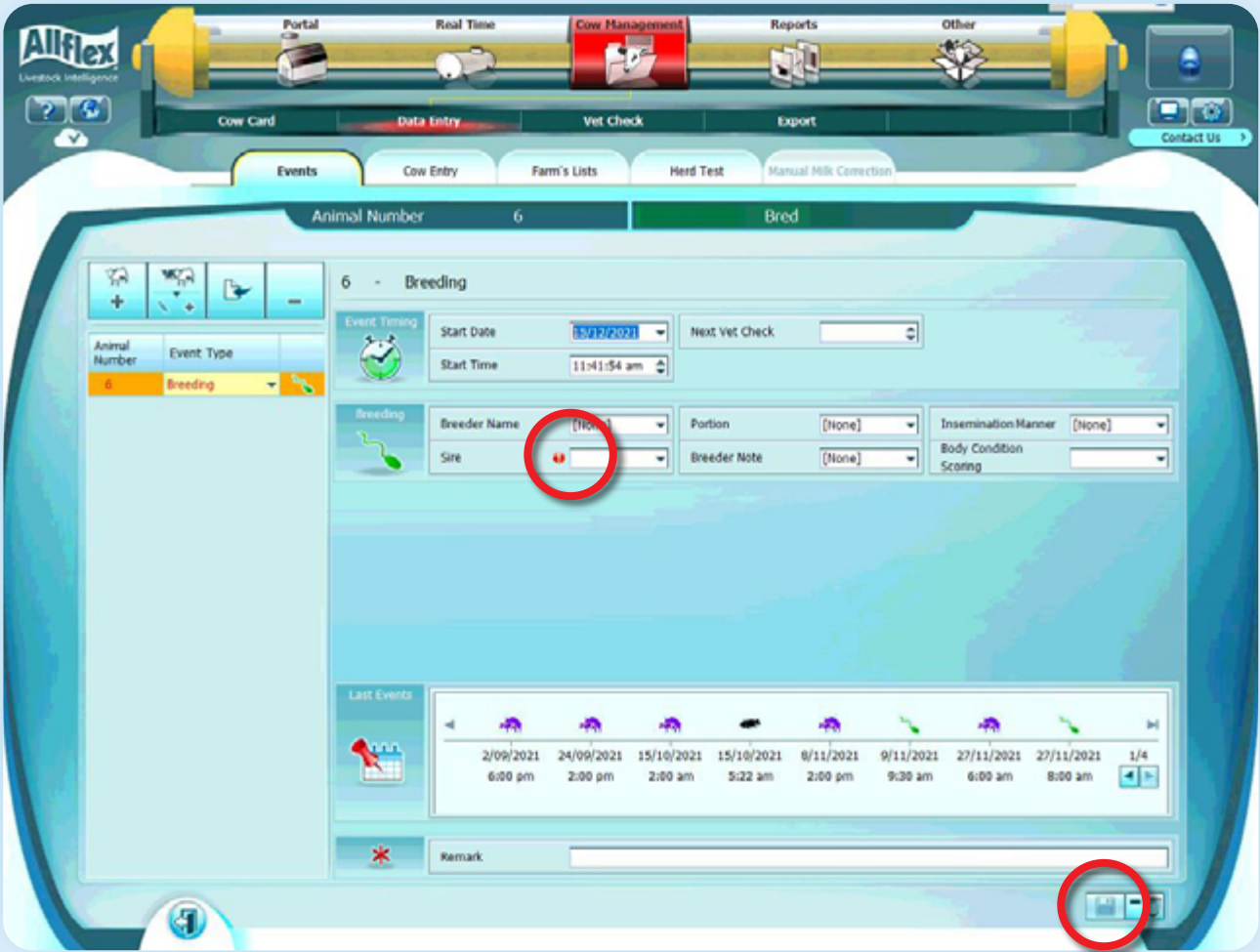
- 4. Select the single cow on her own
- 5. Find the cow you are looking to assign an event against
- 6. The events that the animal is eligible to have logged against her will appear. If you are looking for an event type and it is not available, refer to the 'lifecycle rules' section and correct



Continued →

7. Follow the red exclamation marks to fill in the required fields

8. Once it is finished, the cow number on the left-hand side will go from red to black, and the 'SAVE' button can be pressed



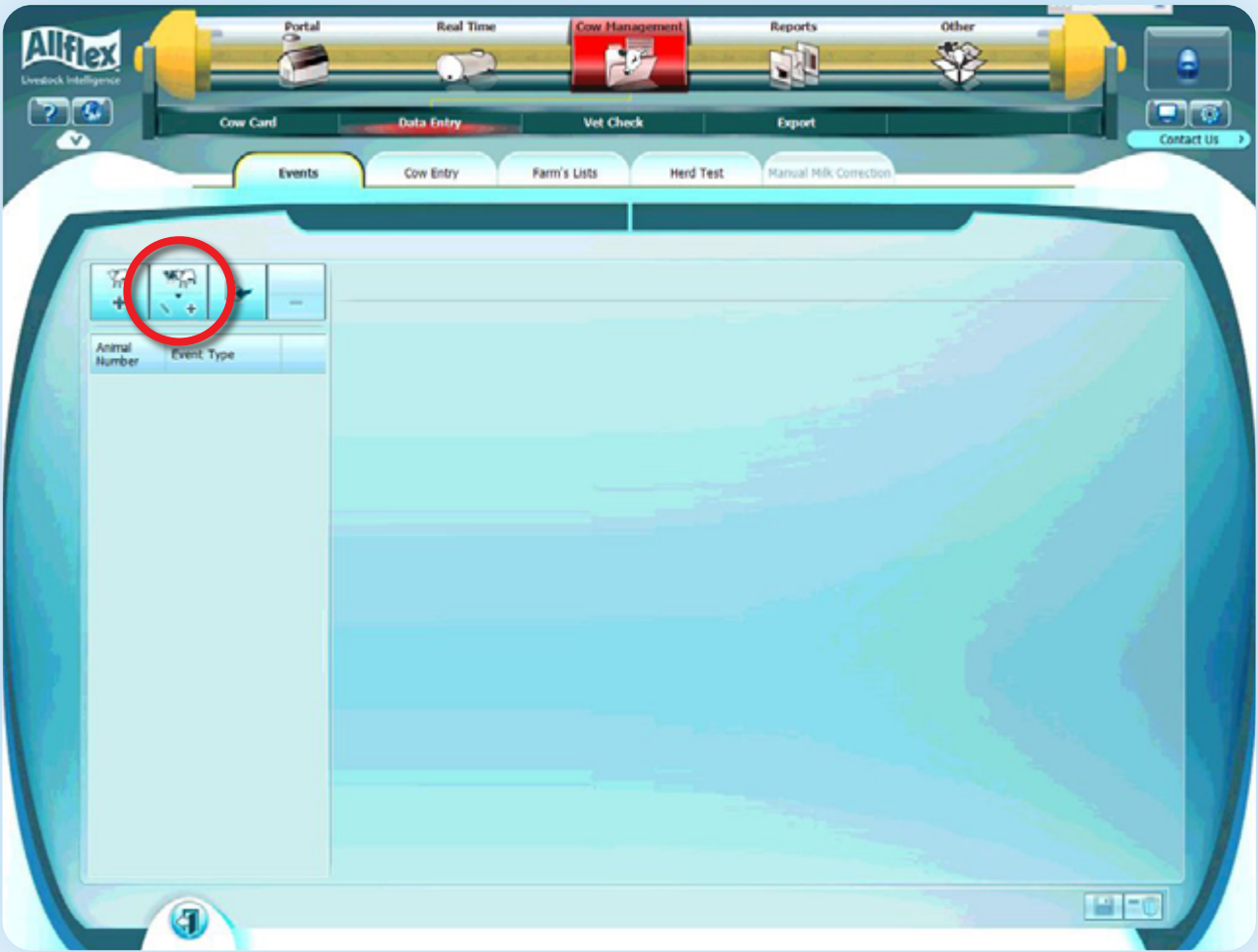
Batch Events

This is when we are wanting to log the same event type against more than one cow. Your four **lifecycle rules** will generally use the batch event option.

Batch Event (No Edits)

This is most often used for group transfers (switching between once a day and twice a day herds), breedings, pregnancy diagnosis and dry off events.

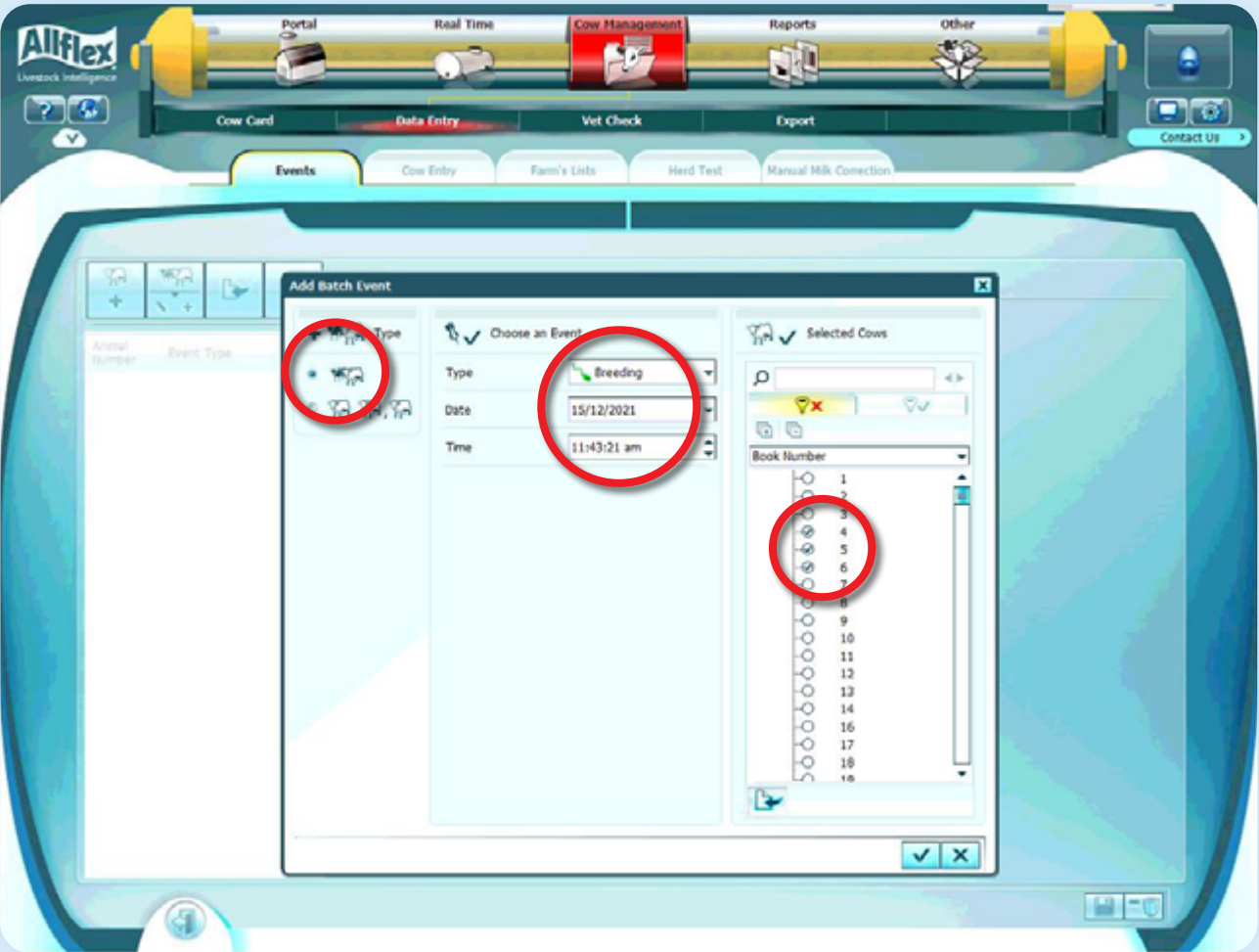
1. Find your Event Entry wizard as above, but select the 'Batch event' option



Continued →

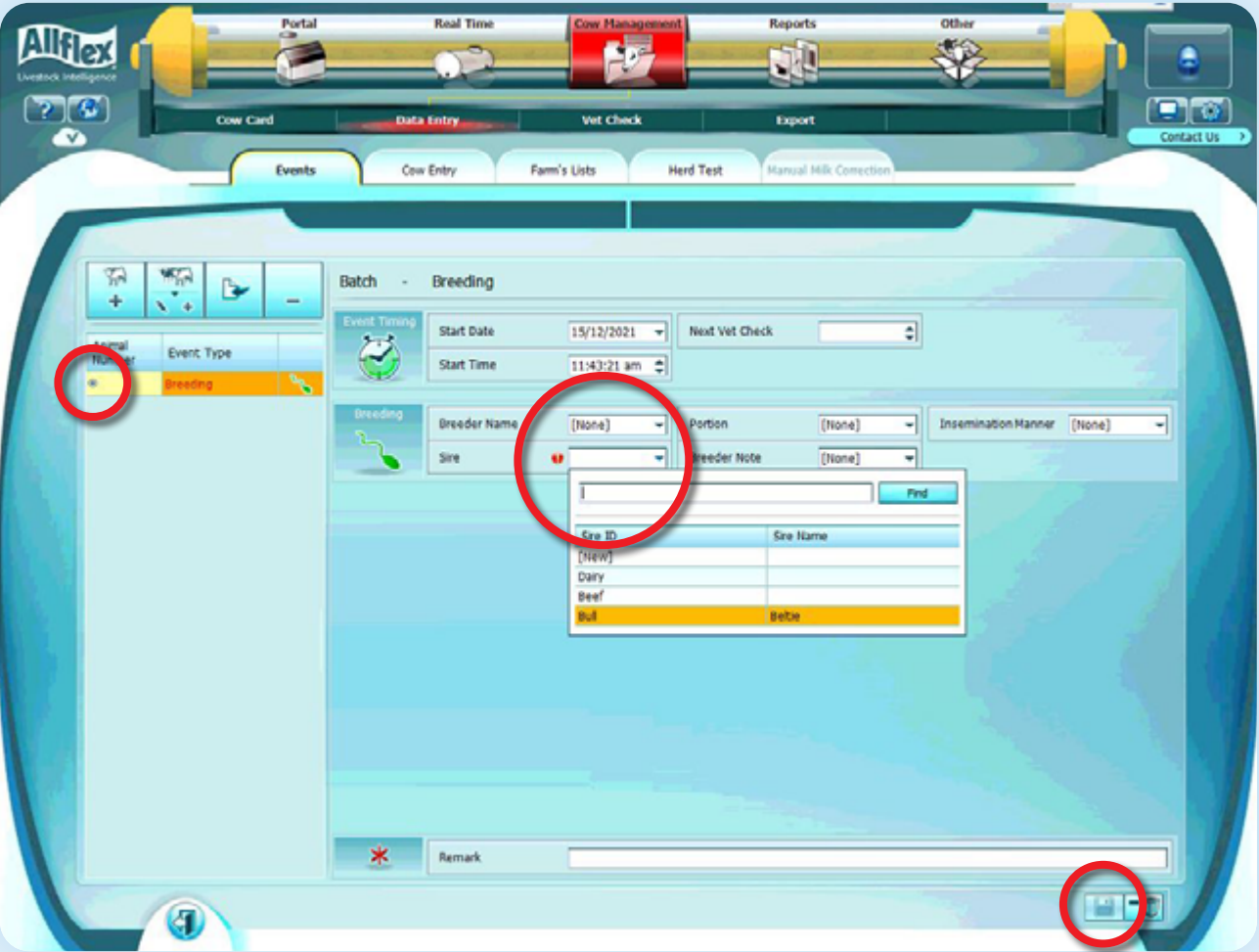
06 Enter Information

2. Ensure the top option on the left is selected
3. Select event type
4. Change time and date event occurred on
5. Select animals
 - a. The hot key for batch entry requires you to start in the search bar
- b. Type in the first cow number
- c. Hit the '+' button on the right-hand side of the keyboard to tick the cow
- d. Double check the correct cow has been ticked
- e. Hit enter
6. Once you have entered your animals, hit the 'tick' button



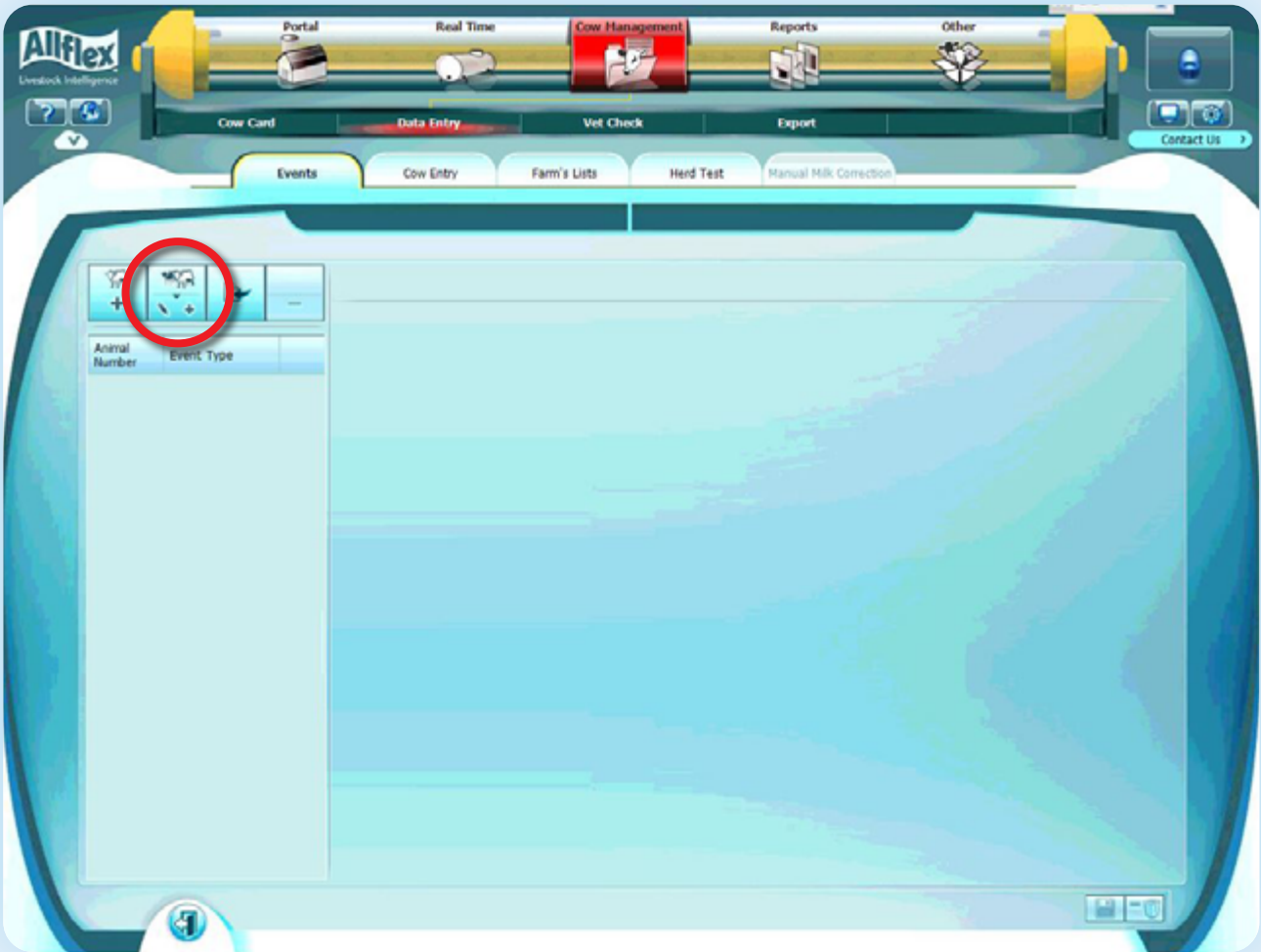
06 Enter Information

7. Use the small '+' button next to the event type to double check the cows in the event
8. Fill in the information needed to complete the entry
9. Hit the 'SAVE' button once the event is ready



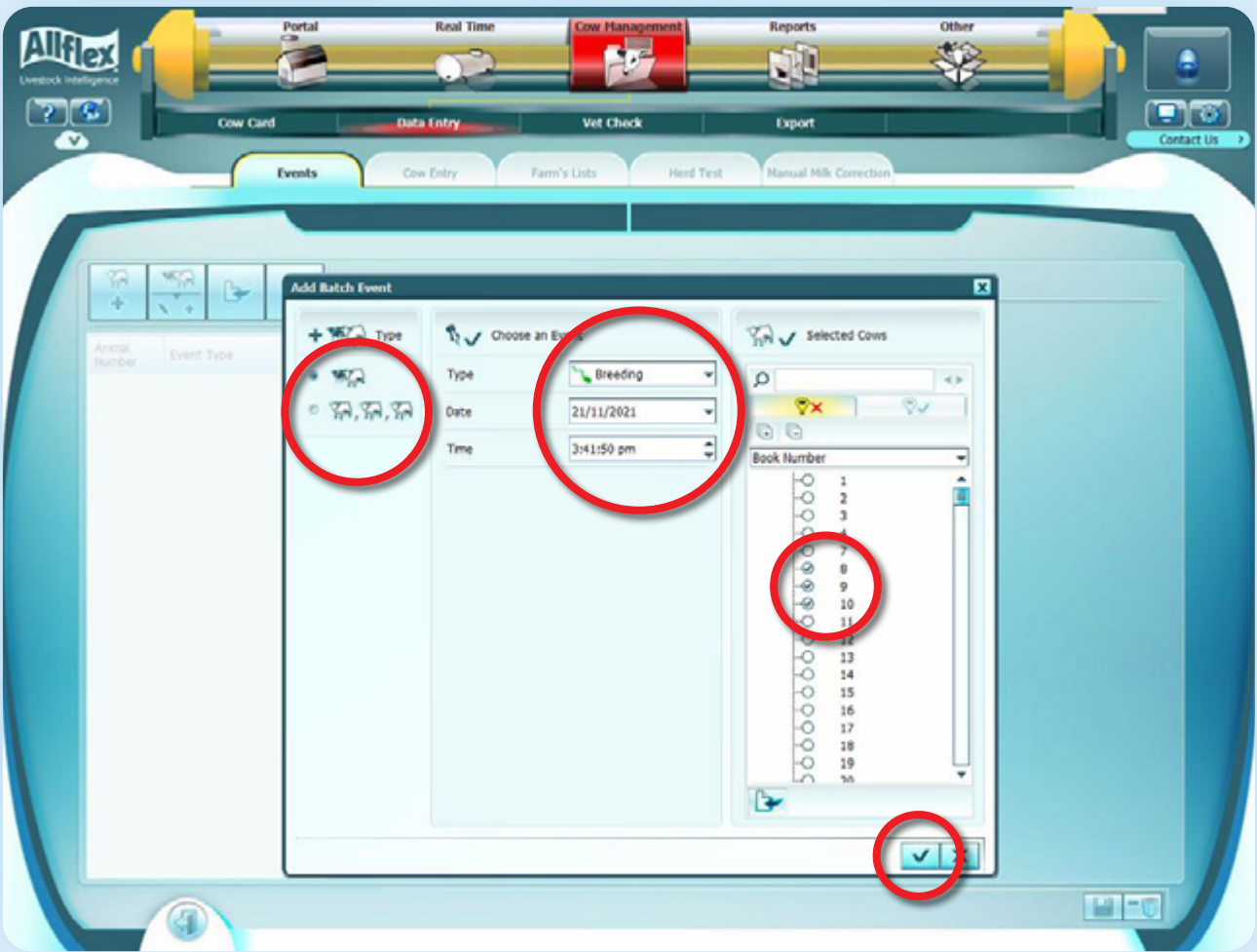
Batch Entry With Edits (i.e. Calving)

1. Find your Event Entry wizard as above, but select the 'Batch event' option



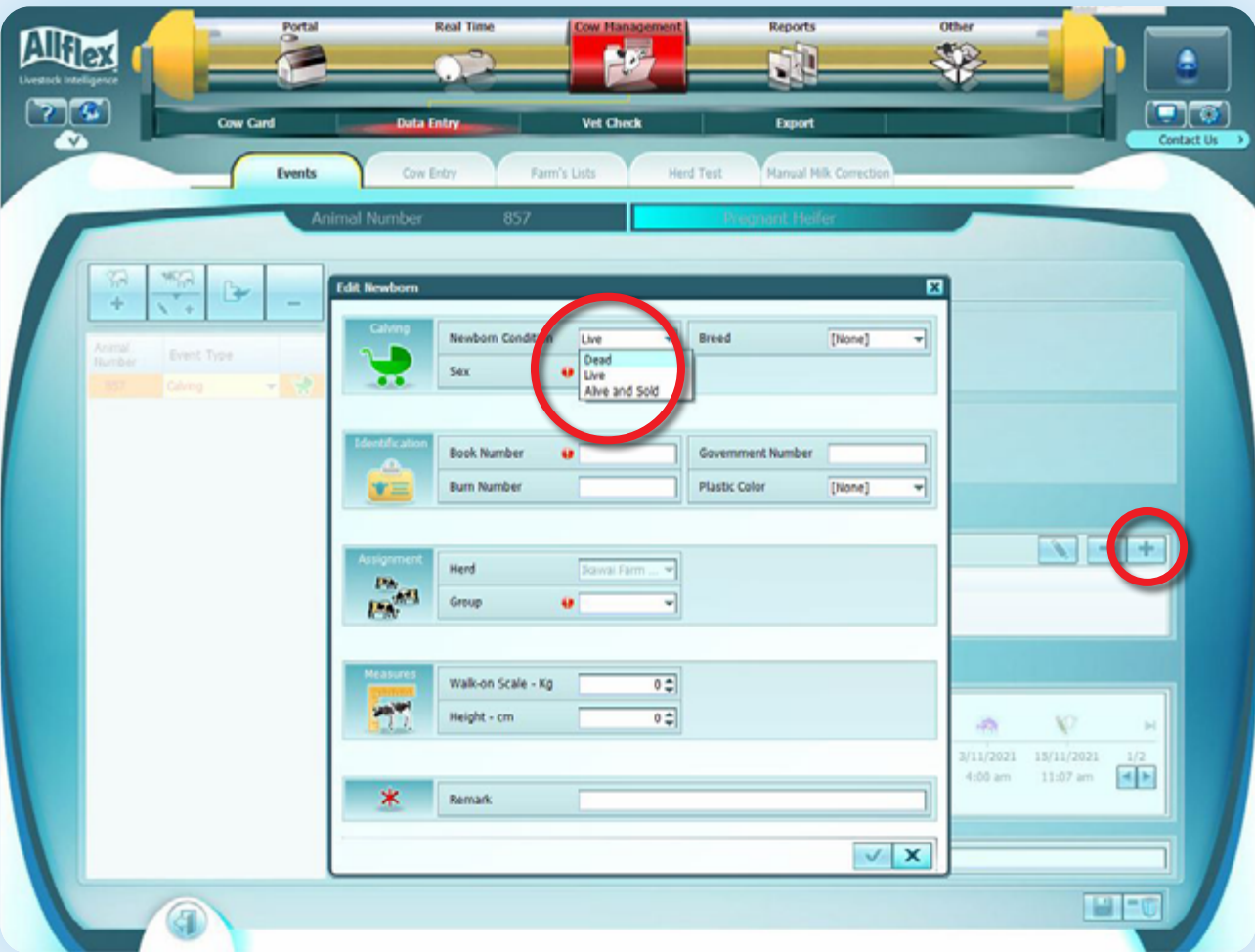
- 2. Select the three cows on the left-hand side separated by commas
- 3. Choose event type

- 4. Edit date if required
- 5. Select the cows for event as above
- 6. Select the 'tick' button down the bottom



- 7. Fill in the required fields (shown for calving)
 - a. Group = milkers or once a day
 - b. Add in calf

Continued —>



8. Unless you are using Heattime® as your herd storage system, there is no need to add in accurate calf details. Simply change condition from 'Live' to 'Dead', and hit the tick

9. Now move on to the next animal in the wizard by clicking on the pram icon, until they are all black, then hit the 'SAVE' button

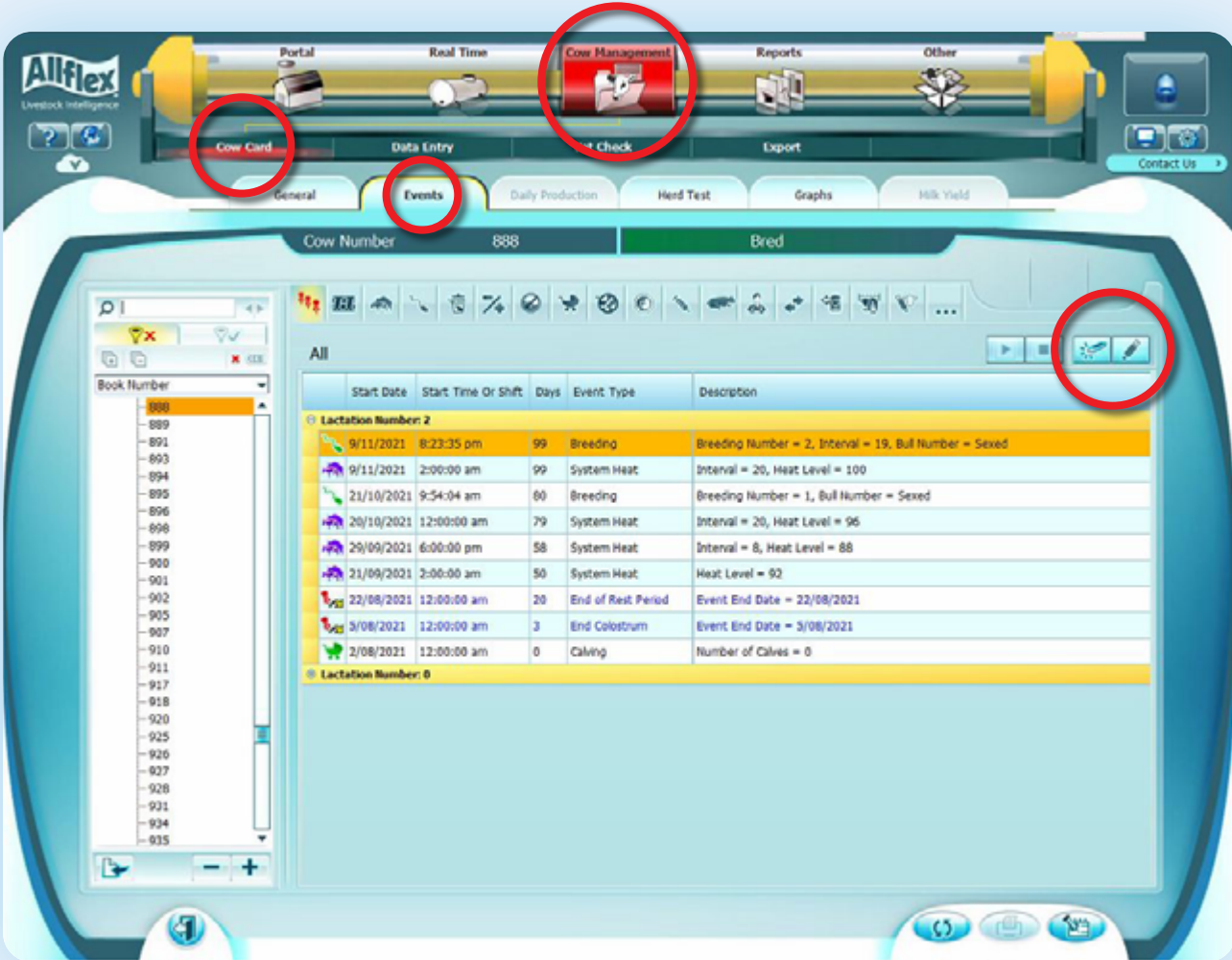
10. Note, if you hit save halfway through you will get an error

- a. Anything that disappears has been saved by the system
- b. Anything remaining on the left-hand side of the wizard in red, needs fixed before the system will accept it

07 Edit or Delete an Event

It is very simple to edit or remove an event accidentally, or incorrectly, assigned to an animal.

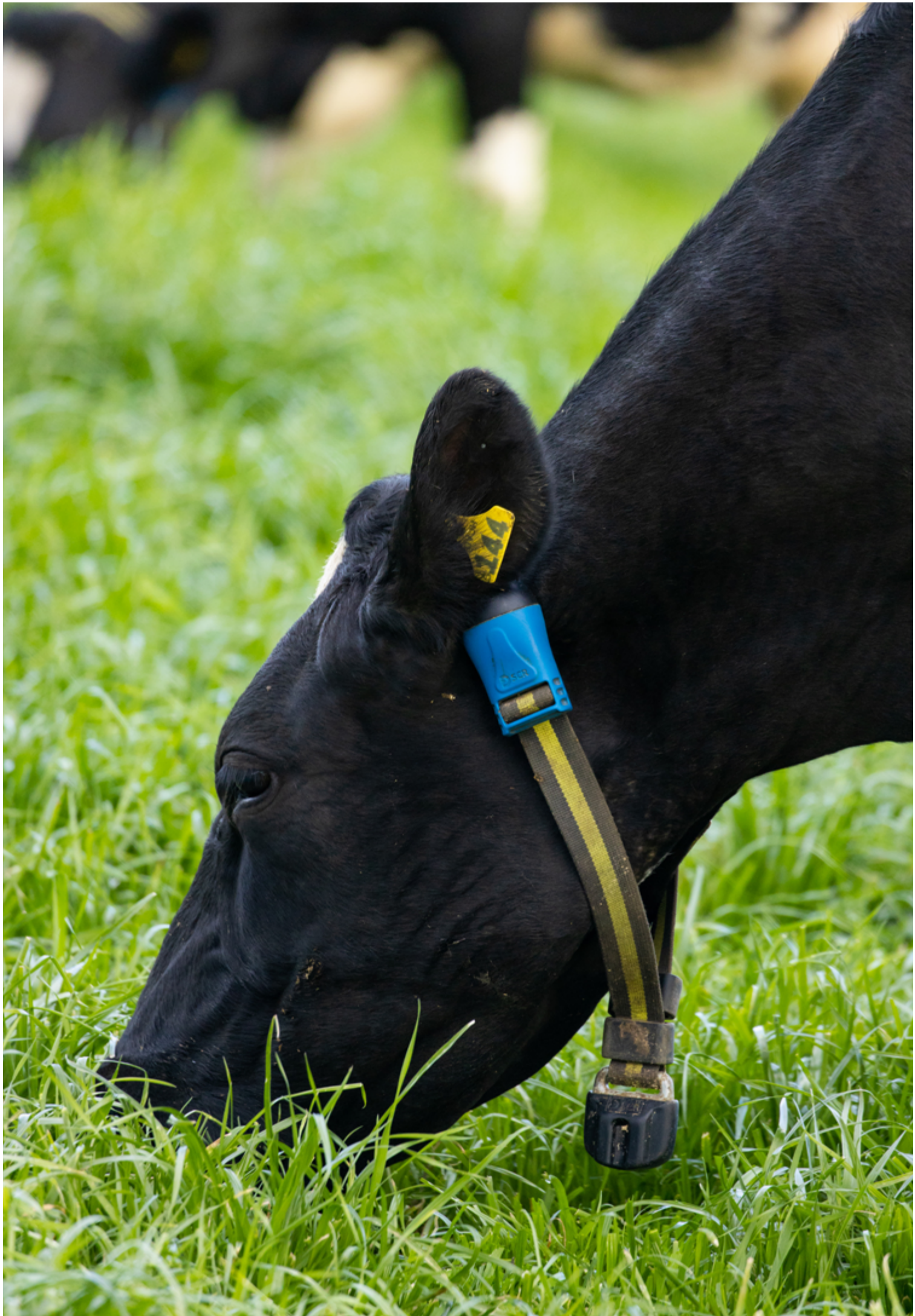
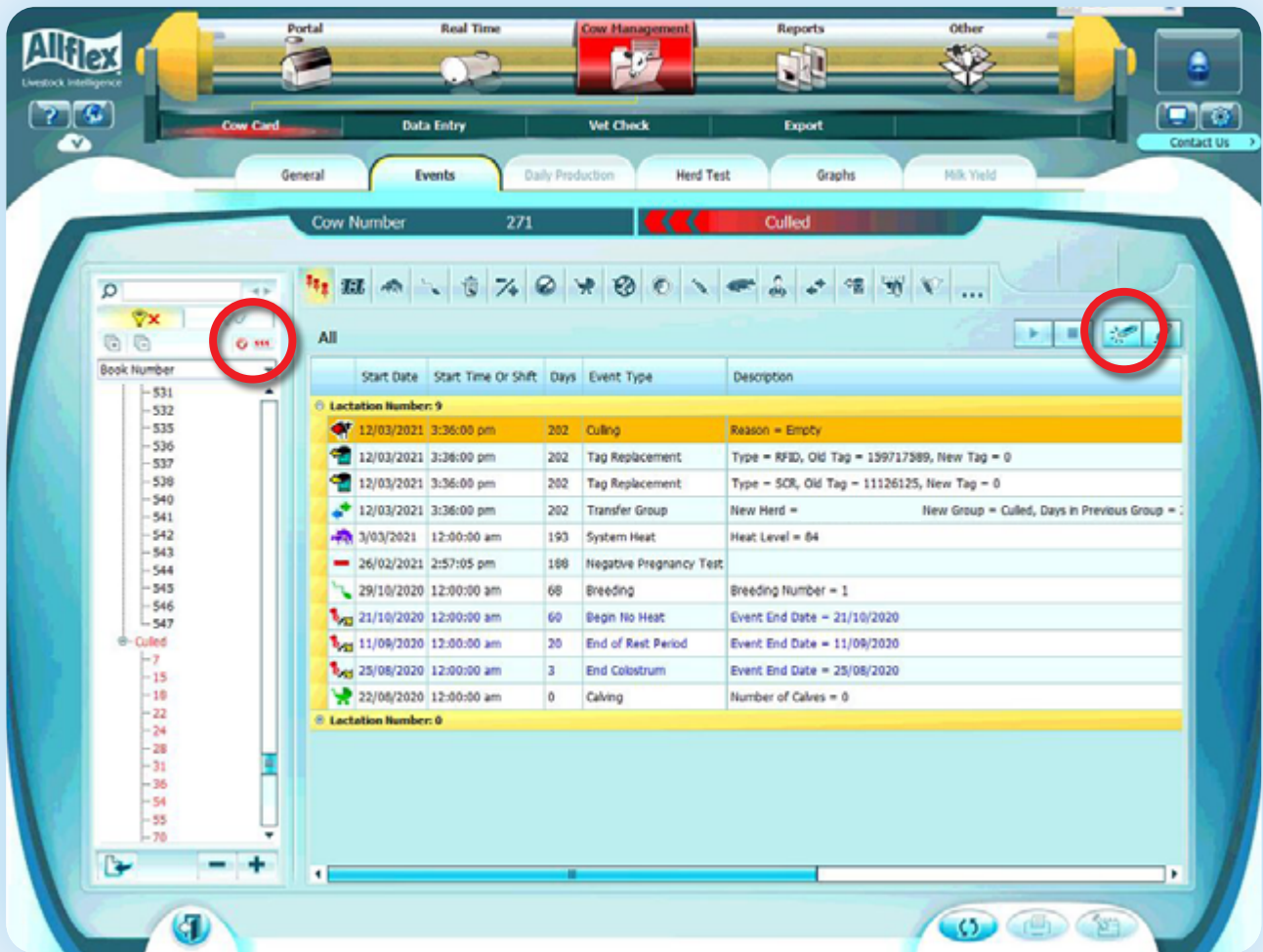
1. Locate the animals cow card
 - a. Cow management folder
 - b. Cow card tab
 - c. Search for the cow
2. Navigate to the animal event tab
 - a. Note, you cannot delete an event, if there is a lifecycle event that has been logged since
 - i. To delete, select the eraser button and follow the prompts
 - ii. To edit, select the pencil button and make required changes, then hit 'SAVE'



07 Edit or Delete an Event

Reversing an accidental cull.

1. Locate the animal
 - a. Cow management
 - b. Cow card
 - c. Tick the **'Display culled cows'** option in search bar as indicated by the red circle on left
 - d. Scroll to the bottom of the list
2. Locate incorrectly culled animal (will be red)
3. Highlight the cull event by clicking on it once
4. Hit the delete button to bring her back to life
5. Reassign her collar
 - a. The collar number will be stored as a 'tag replacement' event so you don't need to redraft unless concerned she has received a new collar since cull event



Create a Cow in Heatime®

If you need to add a cow into the system at any point, and there are less than 20, follow these steps. For loading more than 20 animals, please contact your trainer.

1. Navigate to Cow Management folder
2. Data Entry tab
3. Cow Entry tab
4. Input the information using your herd storage database, with the exclamation marks being required field
 - a. Book number = management number (required, must be exact if using external party gate - **do not put in a space after the number**)
 - b. Burn number = birth ID
 - c. Tag number = Allflex collar number located on the blue section of the collar, **do not include letters**
 - d. RFID = EID number (remove space in between prefix and the rest of the number)
 - e. Select the group she is in
 - f. Entry date = put this as 24 hours beforehand if she is wearing a collar to capture any existing data, or default to the beginning of current season
 - g. Birth date from records
 - h. Lactation status
 - i. If her most recent lifecycle event is calving = NOT BRED, put in most recent calving and lactation number
 1. Maiden heifer with no mating = NOT BRED HEIFER
 - ii. If a MA cow her most recent lifecycle event is mating = BRED, fill in calving information and most recent breeding
 1. Heifers = BRED HEIFER
 - iii. If MA cow and has had a positive pregnancy test as the last event = PREGNANT, fill in calving, last breeding, and pregnancy diagnosis date
 - iv. Heifers = PREGNANT HEIFER
 - v. If she has been dried off = Dry, fill in all four lifecycle dates for that season

The screenshot shows the Allflex Heatime software interface. The top navigation bar includes 'Portal', 'Real Time', 'Cow Management' (selected), 'Reports', and 'Other'. Below this, the 'Data Entry' tab is selected, and the 'Cow Entry' sub-tab is also selected. The main form area contains several sections: 'Identification' with fields for Book Number, Burn Number, Government Number, Tag Number, RFID Tag Number, Plastic Color, and Plastic Number; 'Assignment' with fields for Herd, Group, Entry Date, and Entry Reason; 'General' with fields for Birth Date and Sex; and 'Lactation' with a Lactation Status dropdown. A 'Remark' field is located at the bottom of the form.

Change a Collar or EID Number

As with everything else we load against an animal, the collar is assigned via an event.

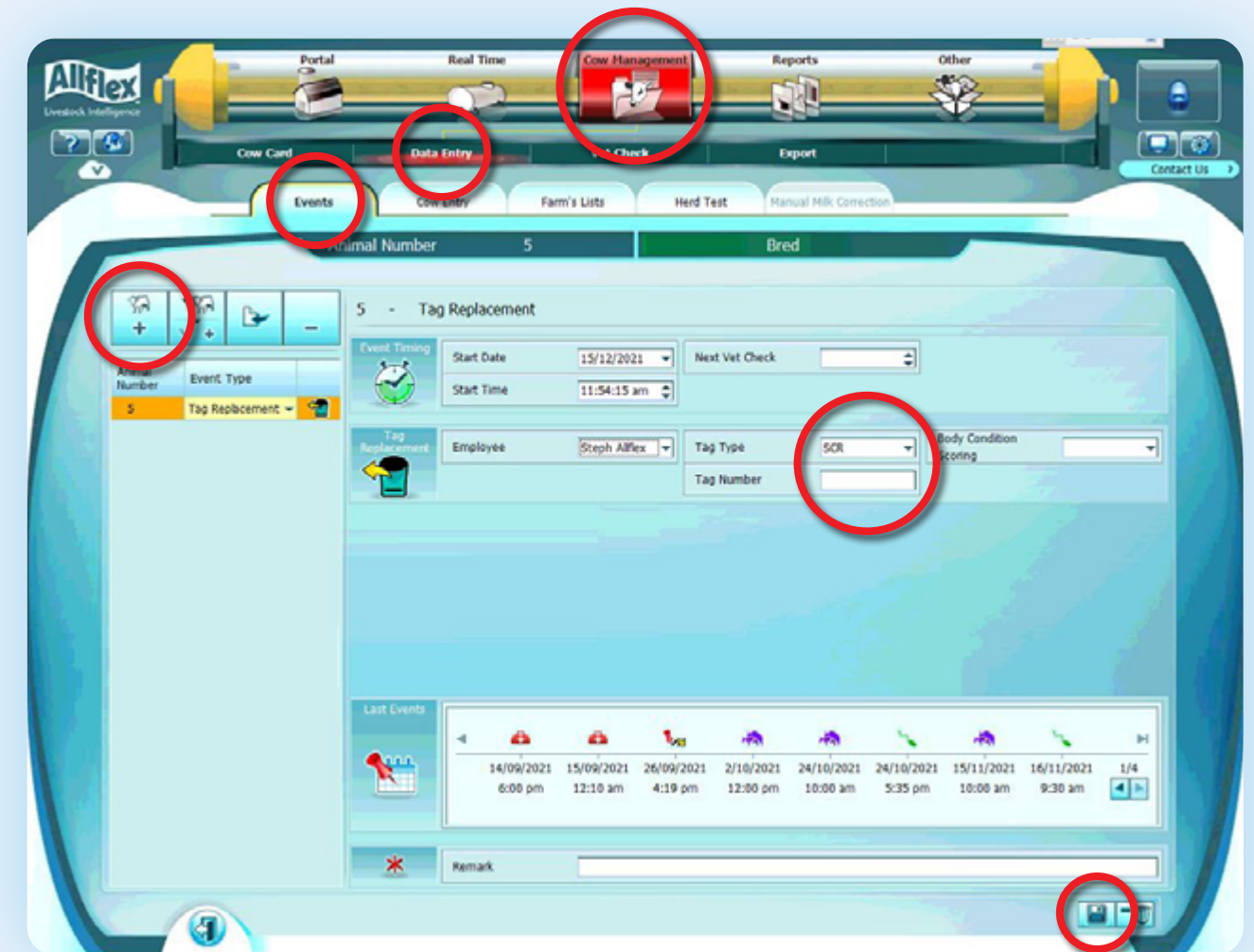
1. Choose the 'Cow Management' folder
2. Either a single event or a batch with edit depending on how many you would like to change
3. Enter your cow
4. Choose the Event Type 'Tag Replacement'
5. Ensure the Tag Type is 'SCR'
6. Enter the new collar number in the tag number box, without the letters

DO NOT INCLUDE A SPACE AFTER THE NUMBERS

7. Double check the tag number is correct and you are assigning it to the correct cow number
8. If happy, hit 'SAVE'

If, when you type in the collar number a red exclamation mark appears, this means that collar is already assigned to another animal. See 'Search for a Cow' to locate the animal it is already assigned to.

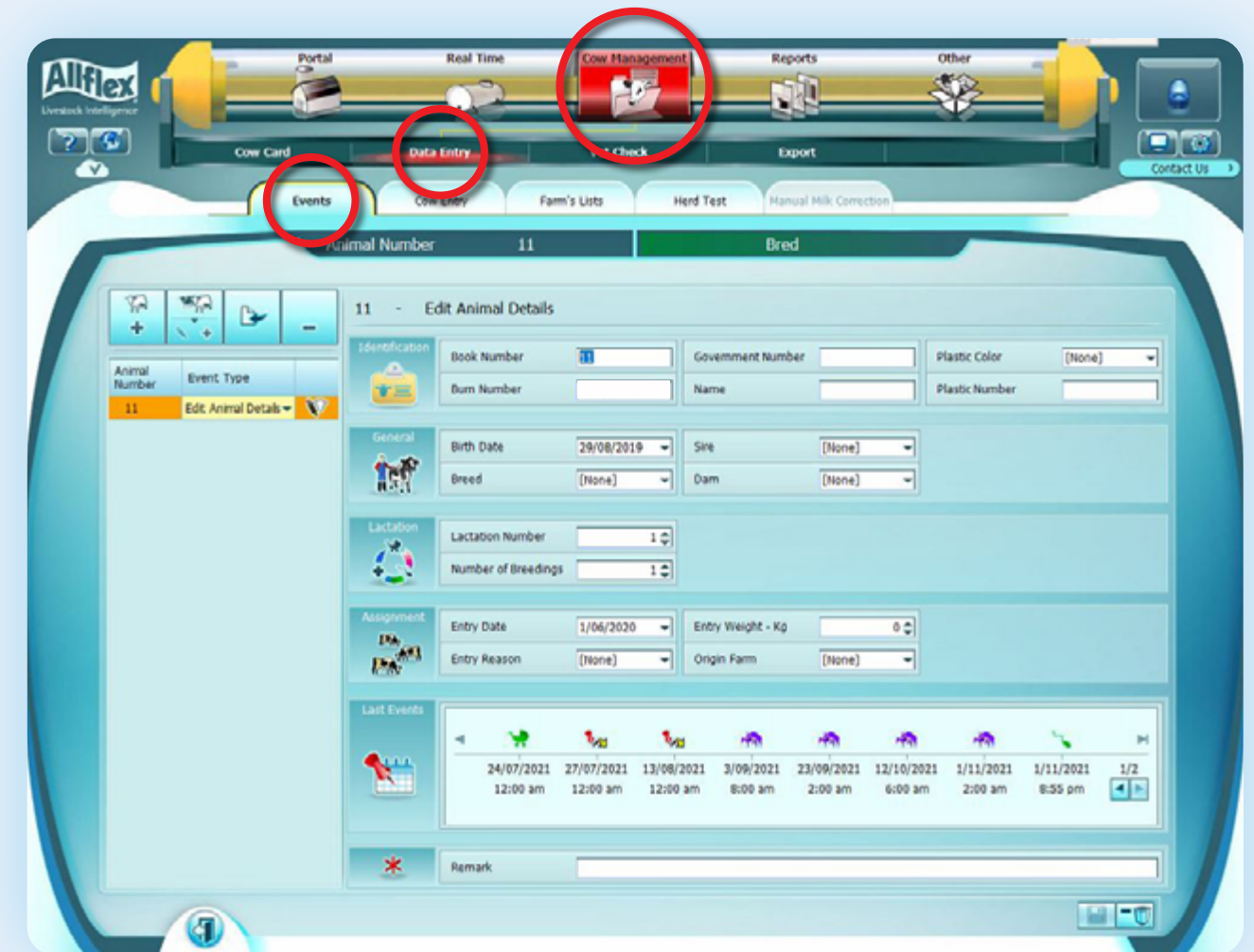
This is also where you update EIDs if you are using this as your herd storage system. Simply change the tag type to 'RFID' using the drop down box, and add in the EID number, removing the space between the prefix and the rest of the number.



Change Cow Information

As with everything else we load against an animal, this is done via an event. It is critical that the management number aligns between our system and the database you are drafting from if you do not have an Allflex Intelligate™.

1. Choose the Cow Management folder
2. Data entry
3. Events
4. Either a single event or a batch with edit depending on how many you would like to change
5. Enter your cow numbers you would like to edit details for
6. Choose the Event Type **'Edit animal details'**
7. Change what you would like to change
 - a. Note that if you are changing book number, it is very important not to accidentally enter a space afterwards
8. Once you have finished, hit the **'SAVE'** button



Set a Draft

You have two options, you can either set a once off draft, i.e. a cow you notice is lame and needs drafted, or a recurring draft which will happen for the shifts you dictate until further notice.

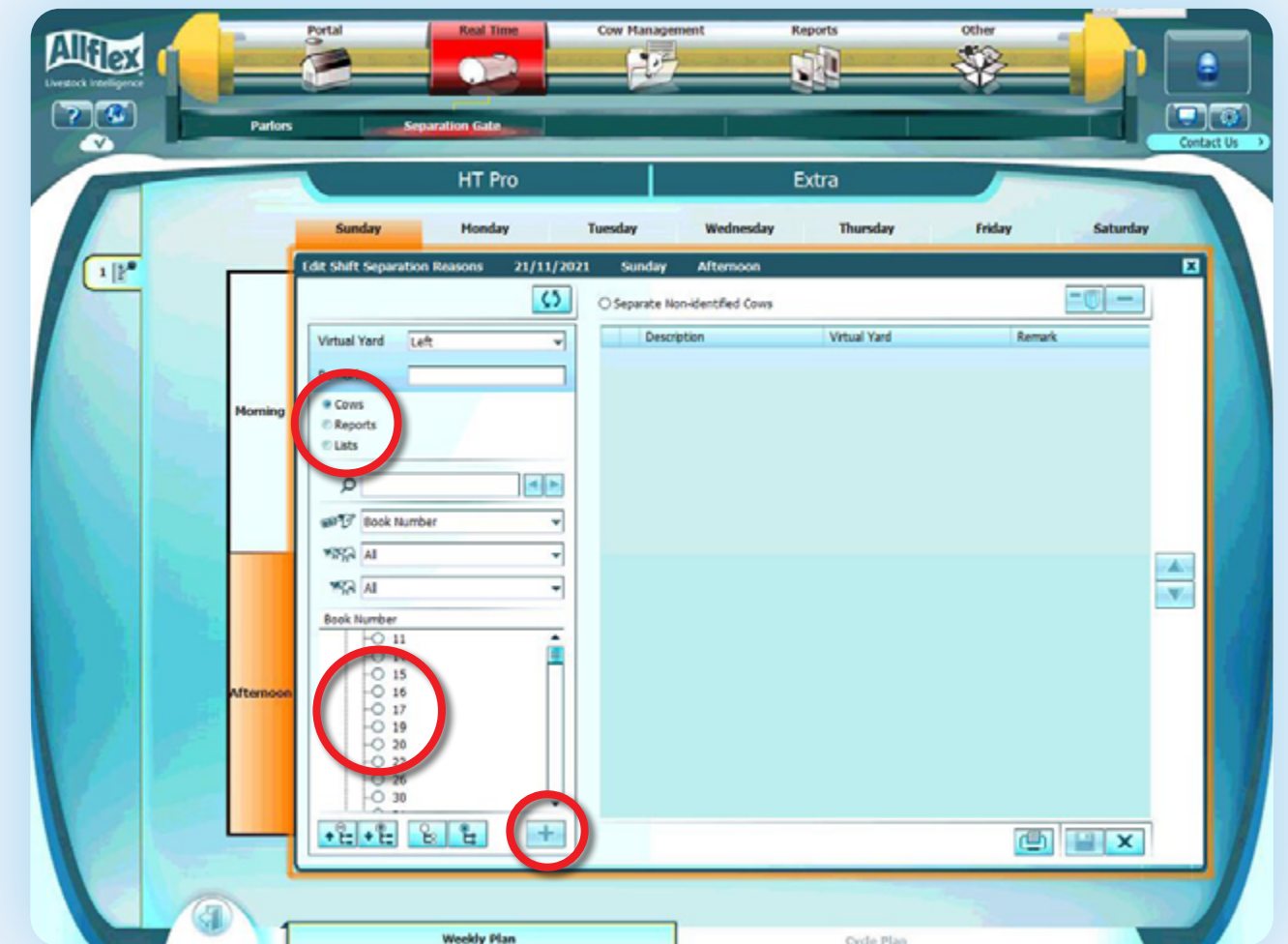
Setting a once off draft of a cow, report or list:

Select the Real Time portal, then the Separation Gate tab.



Note: That the scheduler will always run from Sunday on the left through until Saturday on the right, with the dates cycling the week in advance.

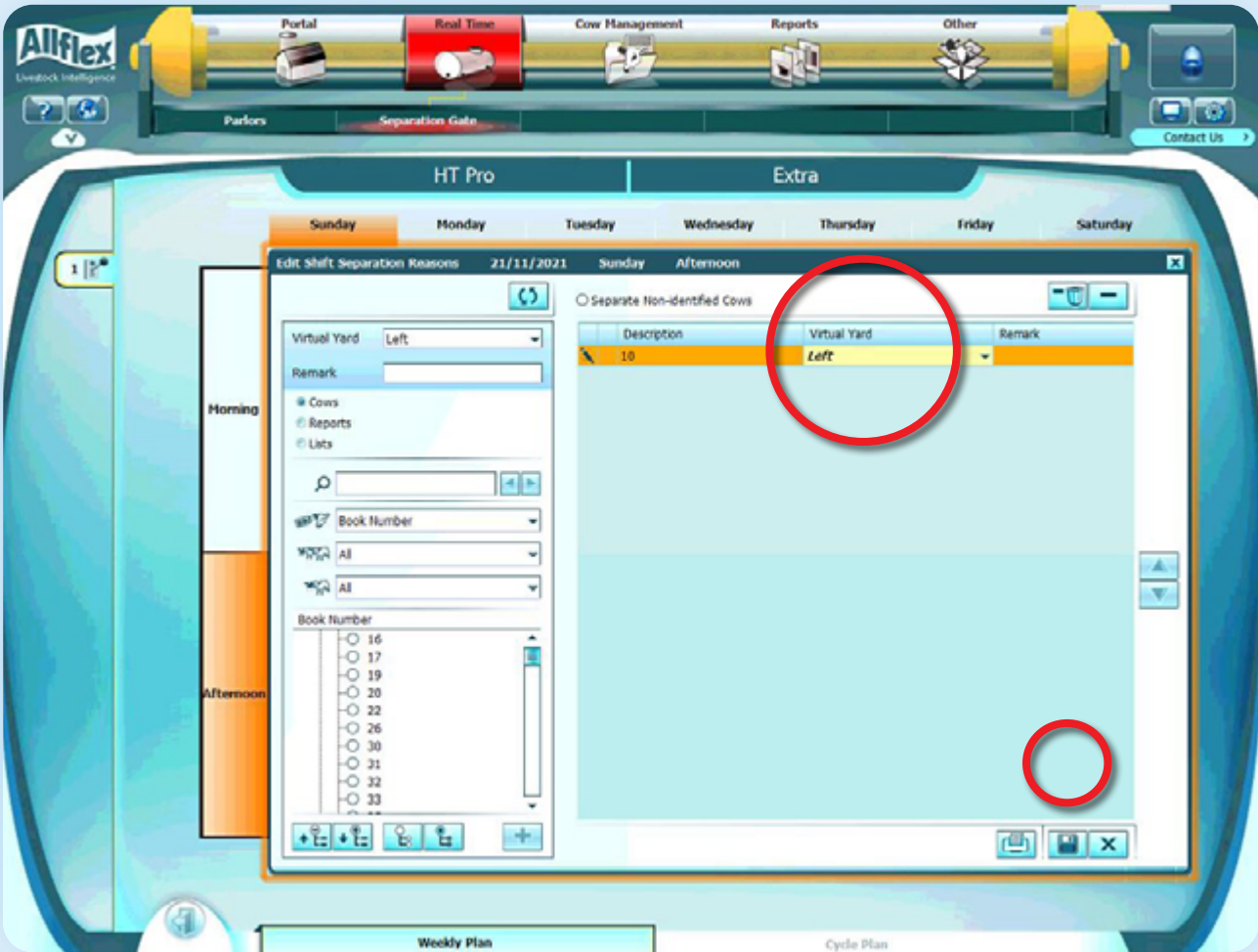
Double click on the shift you would like to draft in to bring up the Separation wizard. Select the cow(s), report or list you would like to draft in that shift, and click the '+' button.



Continued →

11 Set a Draft

Now choose which way you would like the draft to go, enter a reason if you would like, and hit the **'SAVE'** button. Note: If you do not hit save in this screen, the draft will not be set.



11 Set a Draft

To set a recurring draft, navigate back to the Separation Gate, but click on the **'Cycle Plan'** tab down the bottom.

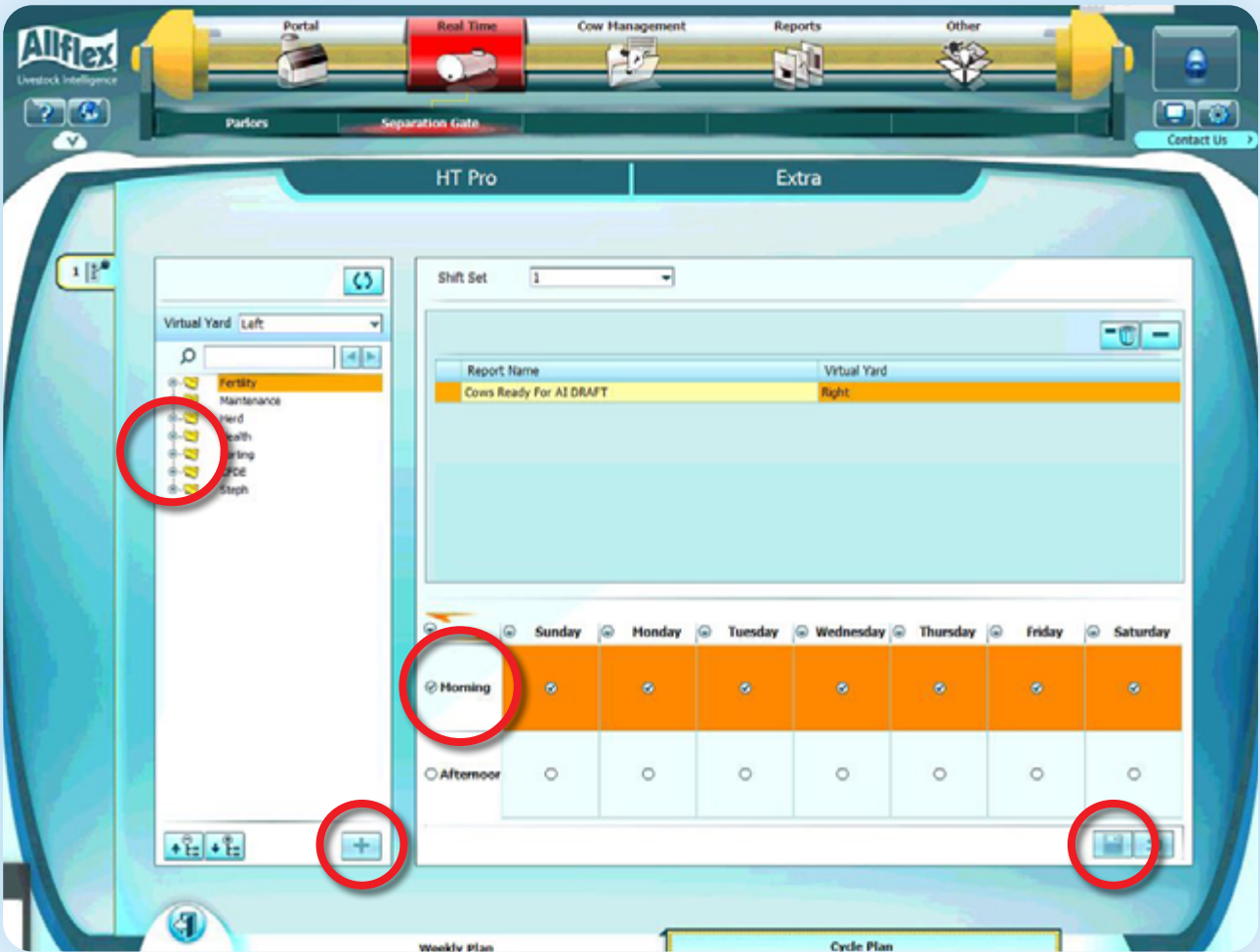


Now select the report you would like to draft out of the folders on the left, and hit the **'+'** button.

Continued →

11 Set a Draft

Select the shifts you would like the report to draft in, and hit 'SAVE' once the option becomes available.



Mating

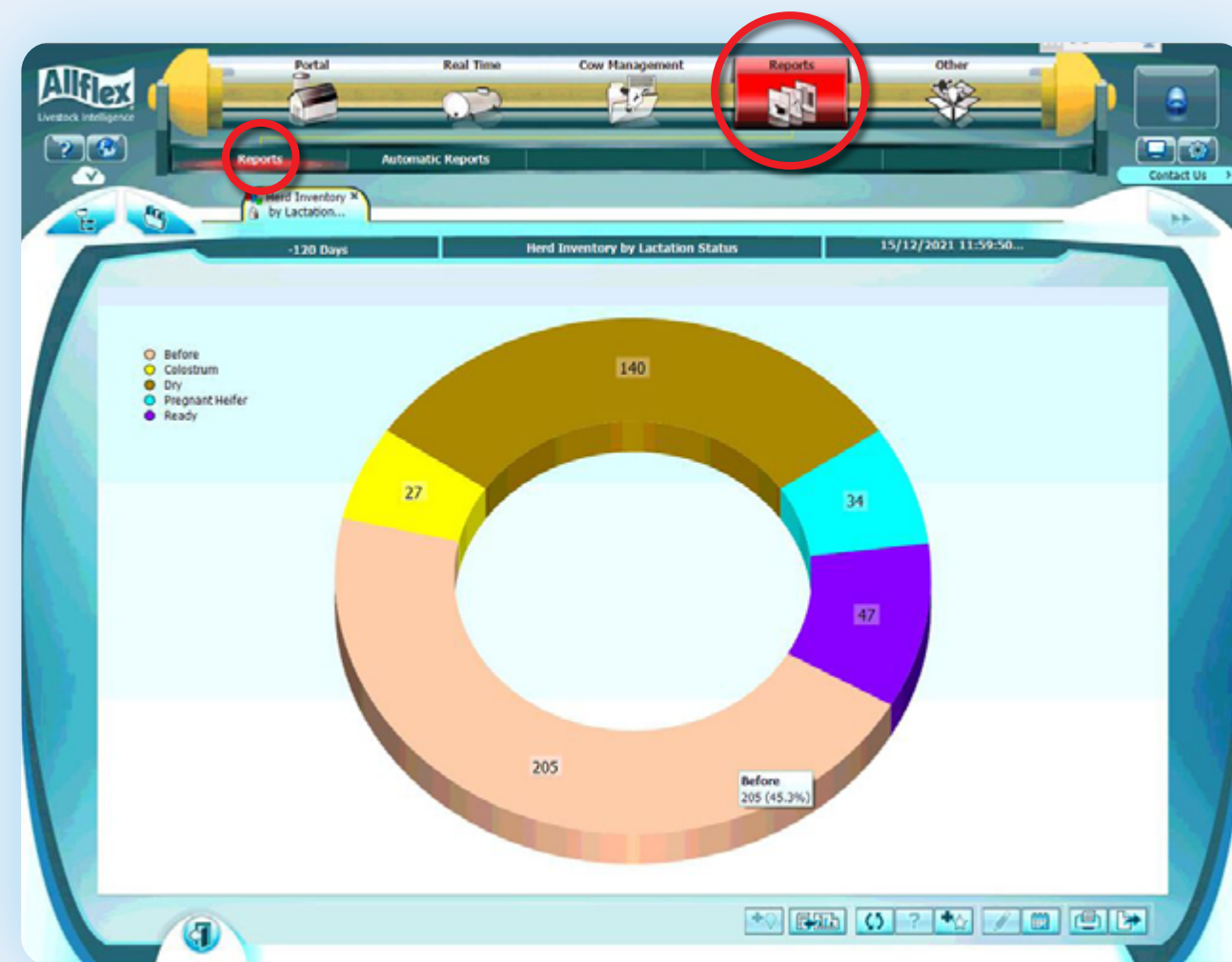
Pre-mating Checklist

There are several things that should be done between calving and mating to make sure things go smoothly.

1. Check tags

All tags must be on cows, assigned and working, a minimum of 10 days prior to the start of mating to make sure baselines are built. To do this, check your 'Tags Maintenance' report to make sure it is clear. If you are uncertain that the correct collars have been kept on the correct cows, please arrange to complete a herd audit a minimum of four weeks out with your trainer.

2. Check all animals have been calved by checking the herd inventory by lactation status graph.



3. Start drafting three weeks out

You should set your 'Cows Ready for AI ID only' report to draft three weeks out from the beginning of mating. One reason is to make sure your gate is working correctly, and the other is for all staff to get into the habit of checking everything prior to cups on.

If a mistake is going to be made, it is best to make it prior to the start of AI and finding out the gate is not performing the first day of mating is stressful for both parties!

Understanding the Cows Ready for AI report

The Breeding Window

The Breeding Window shows us the best time to mate cows by counting down the hours from peak activity (hour 26) of expected onset. (Ovulation being hour 0).

On Heatime® Pro+ the 'Cows Ready for AI ID only' report will include all cows that are on heat and eligible to be bred on that day.

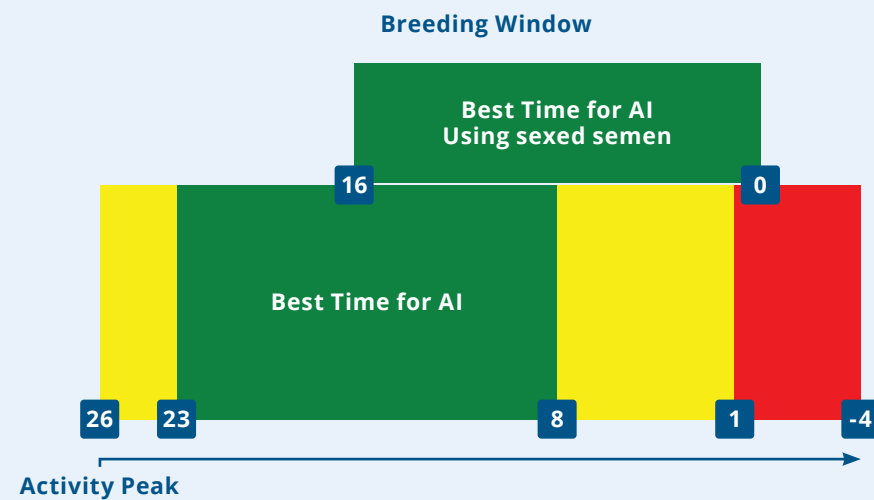
In the 'Breeding Window' column it will show what hour the cow is currently at in her countdown to onset of ovulation and will be coloured according to what timeframe she is in.

Cow Number	Lactation Number	Lactation Status	Days in Lactation	Number of Breeding	Days From Last Cycle	Days from Last Breeding	Breeding Window	Lactation Peak	Heat Index
1 77	3	Ready	70	0	24		10	-51	96
2 510	7	Ready	62	0	20		17	-45	96
3 16	4	Ready	73	0	20		17	-68	96
4 214	2	Ready	73	0	18		17	-83	96
5 194	4	Ready	77	0	23		5	-59	96
6 6	6	Ready	72	0	20		17	-63	96
7 3	6	Ready	83	0	18		3	-48	96
8 532	7	Ready	79	0	1		3	-38	96
9 303	2	Ready	75	0	20		17	-39	96
10 72	1	Ready	82	0			13	-84	92
11 329	1	Ready	71	0			21	-48	92
12 164	1	Ready	66	0			17	-41	92
13 127	1	Ready	74	0			25	-30	92
14 300	1	Ready	64	0			10	-34	92
15 458	7	Ready	82	0			19	-38	92
16 409	7	Ready	84	0			17	-41	92
17 248	5	Ready	72	0			19	-55	92
18 163	3	Ready	24	0			18	-28	92
19 37	7	Ready	58	0			18	-29	92
20 195	4	Ready	56	0	1			-27	92
21 79	1	Ready	64	0	1			-15	92

The Breeding Window can be useful to help make decisions on which animals to use the more valuable straws in rather than potentially wasting them in a cow that is before or after that optimum breeding

time. Pairing the Breeding Window with a higher heat index score, will increase chances for a higher conception rate.

Continued →



Various international research shows that insemination during time marked in green is better than yellow in about 20% conception rate

● **26-23 Hours – Early breeding**

Breeding in this timeframe may result in lower conception rates.

● **23-8 Hours – Optimal Breeding time**

This is the optimum Breeding window. Breeding during this timeframe may result in the **highest** conception rates.

● **8-1 Hours – Late Breeding**

Breeding in this timeframe may result in lower conception rates.

● **1-(-4) Hours**

Breeding in this timeframe may result in the **lowest** conception rates.

● **16-0 Hours – For Sexed Semen**

International research indicates this is the optimum time for using sexed semen, we recommend you check with your semen supplier and discuss their recommendations with your trainer well in advance of mating.

The Heat Index

The Heat Index is a score out of 100 that indicates to us how “good” that heat is – think of it as a percentage of how certain we are that is a genuine heat which the animal could conceive too. These indexes typically mirror conception rates, and consider a range of information including if the animal is cycling regularly, how significant her heat behaviour is, and her overall change in activity.

What does it all mean?

The heat index and breeding window can be used together to determine which animals have the best chance of conception, to use limited high value straws in. Otherwise, if the animals are on the report, and the information makes sense, they should be bred.

And what do I need to do?

You must check your system prior to milking your animals, then enter your breedings after each session of AI. See ‘**Entering Batch Events**’ and the Pre-mating checklist.

What if I have way too many animals on my ‘Cows Ready for AI’ report?

You may have had a false heat event. Run the report called ‘**Group Activity Masked Heat**’ from the fertility folder to see if this changes your numbers. Call the 0800 number for back up if required.

Health

The Health Report vs. Distress Notifications

The Health Report and the distress notifications are telling us different things, and they rely on the lifecycle rules being entered appropriately to function correctly as it expects different things from our animals at different stages of their lactation. It is easy to get hung up on the annoying flashing light indicating a distress alert, and by all means the distress alerts will help you save cows, but the biggest difference you can make to your animals and your bottom line comes from the Health Report.

The Health Report

The ‘**Health ID**’ only Report is your early warning system. This is telling us the animals are having a decline in their activity and/or rumination, which indicates they are becoming unwell. Think of this period as that feeling you get in the back of your throat the day before you wake up with a cold.

The key piece of information in this report is the Health Index Score down the right-hand side. This is a score out of 100 telling us how healthy that animal is, based on her activity and rumination over the last 10 days, and what the system expects from her (according to her lactation stage, which is why entering calvings is important). Every time the animal is identified by the reader, that score will update, and if she is 86.0 or below, she will be put on that report. The unhealthiest animal will automatically be moved to the top of the list, and the reason each cow is on the list will be highlighted.

For example, the animals on the following page with the “activity” box highlighted green, are showing they are on the report because their activity has dropped. Then the three different rumination measures are also telling us different things about her rumination, which are highlighted when the system is unhappy with the values. The daily rumination tells us how many minutes that animal ruminated for in the 24 hours from when it was last seen by the readers, and the three day total rumination change tells us how many minutes the animals rumination has dropped across the last three days.

There are three main numbers we keep in mind when we are thinking about health and rumination.



The amount an animal ruminates and the variation of the rumination over 24-72 hours can tell us a lot about the sub-clinical health of a herd and individual, and also contribute to an understanding of their nutritional status.

In NZ, we know on a mostly pastoral based diet with a little bit of grain or PKE fed through the shed, our animals during lactation typically sit around **450-550 minutes per day** – however, the amount an animal can ruminate directly relates to how much long chain fibre or “roughage” she has eaten. If you put your animals into a low-quality paddock, with higher fibre proportion, the rumination can go up. A significant drop in rumination can be seen when you put your animals into a new grass paddock, or begin your second round, when the fibre content drops.

Continued →



Swings in the rumination of over **50 minutes per day** across the herd indicates the rumen is playing “catch up” and can mean feed efficiency is reduced – it takes a minimum of three days for the rumen to adjust its microbes in response to feed changes. And regardless of our animals feed type, it is not normal or healthy for an animal to have ruminated for less than **200 minutes** across a 24-hour period. While management factors, such as trucking animals from a run-off back to farm so reduced feed on offer and stress can be the cause of this, it tells us our animals health has suffered that day and their recovery should be monitored.

Limitations around this report include not keeping your database up to date, and not being proactive.

As some of the parameters are relative to the animals “normal”, if an animal's rumination or activity decreases and stabilises at a lower level, this becomes her new normal, and she will eventually come off the report.

So what is the diagnosis for the cow? That is for you to work out, and we recommend you sit down with your vet to come up with a plan of attack for using this report including taking temperatures, checking feet, looking for signs of acidosis or other infection. Animals with an index of 86-80 can be hard to diagnose (don't forget to paddle for sub-clinical mastitis!), but typically in NZ, anything with a HIS of <80 will result in a diagnosis if you go looking.

Distress Notifications

The **Distress Notifications** relate to the annoying flashing light in the top right-hand corner of your screen, and the 3am notifications over calving.

This is telling you that your animal has had an extended period of time with little to no rumination or eating. The amount of time the system allows the cow to go before logging a distress depends on the animals’ proximity to expected calving. Once an animal is 260 days or more into her gestation, the system starts looking at her very closely, as it knows the most time sensitive health issues occur in Springers.

In the first three days of lactation, the system knows the animal is recovering so extends the time out (which is why if you don't want false alerts at 3am, log your calvings daily) before sending an alert. And once she is later into her lactation, it adjusts again. Note, your push notifications will not come unless your animals are either Springers or Fresh cows – they will still be on your system but will not wake you at 3am.

If you find you are missing down cows at calving, please discuss changing the sensitivity with your trainer – however, do not expect the system to catch every single animal before you see clinical signs. Anything that causes death or clinical signs before an extended period of low rumination or eating will not be alerted to (i.e., bloat, clinical nitrates, some cases of milk fever).

It is important to remember, this system is a **tool to assist** you in finding animals who are still subclinical – the earlier we can intervene and stop the rumination crashing, the faster that animal will recover, and with reduced intervention. It should aid and complement good animal husbandry practices, not replace them entirely.



14 Import Lists

Heatime[®] Pro+ gives us the ability to extract useful information from MindaLive i.e., Pregnancy Scanning results.

We recommend downloading and formatting the Minda results on your home or Protrack PC as you need to have access to Excel. Save as a **‘CSV file’** then email it to yourself which will enable you to open it on the shed screen.

Alternatively, you can access the file on the shed screen via TeamViewer.

1. Start by logging into your MindaLive account.
2. On the home page click on **‘Reporting’** under the Services heading.
3. Click on **‘Create a custom report’**.
4. Scroll through the Group drop down box and select **‘Numbered Animals’**. Ensure the correct season is selected for the date range.

MINDA ReportsMy ReportsArchive

Custom Report

Save AsPrint / ExportShare

Create your own report by adding columns below. When you are done, press Save/Save As to save your custom report to My Reports.

Group:

Select date range:

From date:

To date:

Numbered Animals

2021/2022 Season

01 Jun 2021

31 May 2022

Scroll down and the list of **‘Numbered animals’** will appear.

5. Using the sidebar on the left-hand side, scroll right down to **‘Mating’** then select both **‘Pregnancy Diagnosis’** and **‘Pregnancy Diagnosis Date’**. The information will pop up beside Animal ID.

Continued →

Highlighting

Available Attributes

Search...

☐ Historically aware only

MATING

At Risk Cow

Charge Type

Days Pregnant

Expected Mating Date

Foetal Count

Heat Date

Mating Date ↑

Mating Type

Non-Cycling

Pregnancy Diagnosis ↑

Pregnancy Diagnosis Date ↑

Sire ID ↑

OTHER

Blank Column

	ANIMAL	MATING	
Select (423)	Animal ID	Pregna... x Diagnosis	Pregna... x Diagno... Date
☒	1	Pregnant	18 Nov 2020
☒	2	Pregnant	23 Feb 2021
☒	3		
☒	4	Pregnant	23 Feb 2021
☒	5	Pregnant	23 Feb 2021
☒	6	Pregnant	23 Feb 2021
☒	7	Pregnant	23 Feb 2021
☒	8	Pregnant	23 Feb 2021
☒	9	Pregnant	18 Nov 2020
☒	10	Pregnant	23 Feb 2021
☒	12	Pregnant	23 Feb 2021
☒	13	Pregnant	23 Feb 2021
☒	14	Pregnant	23 Feb 2021
☒	15	Pregnant	23 Feb 2021
☒	16	Pregnant	23 Feb 2021
☒	18	Pregnant	23 Feb 2021
☒	19	Pregnant	23 Feb 2021
☒	23		
☒	24	Pregnant	23 Feb 2021
☒	25	Pregnant	23 Feb 2021
☒	28	Pregnant	23 Feb 2021
☒	29	Pregnant	23 Feb 2021

6. Back up the top of the page click on Print/Export then select **Export as CSV**. The file will then appear at the bottom of the screen where you can click **Open File** and it will take you straight to Excel.

7. Here you will need to create separate spreadsheets for all positive and negative tests on each testing date. i.e., Spreadsheet 1: Pregnant cows 2nd Feb.

Spreadsheet 2: Pregnant cows 3rd March.

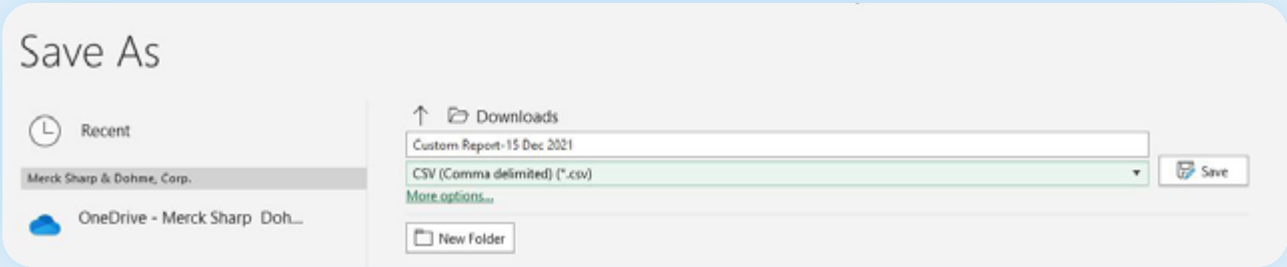
Spreadsheet 3: Empty cows 3rd March.

Make sure you delete any **Doubtful** cows as they will be scanned at a later date and given a pregnancy diagnosis then.

8. Once you are sure you've got each cow on the correct spreadsheet you can completely remove the Pregnancy Diagnosis column and the Diagnosis Date column (as all we need is the animal number). Replace the header of the **Animals ID** to **Book Number**.

9. You then want to save the work you have done by clicking **File > Save As**. Select **OneDrive**. Rename it what you like then it **MUST** be saved as a CSV file!

See picture below.



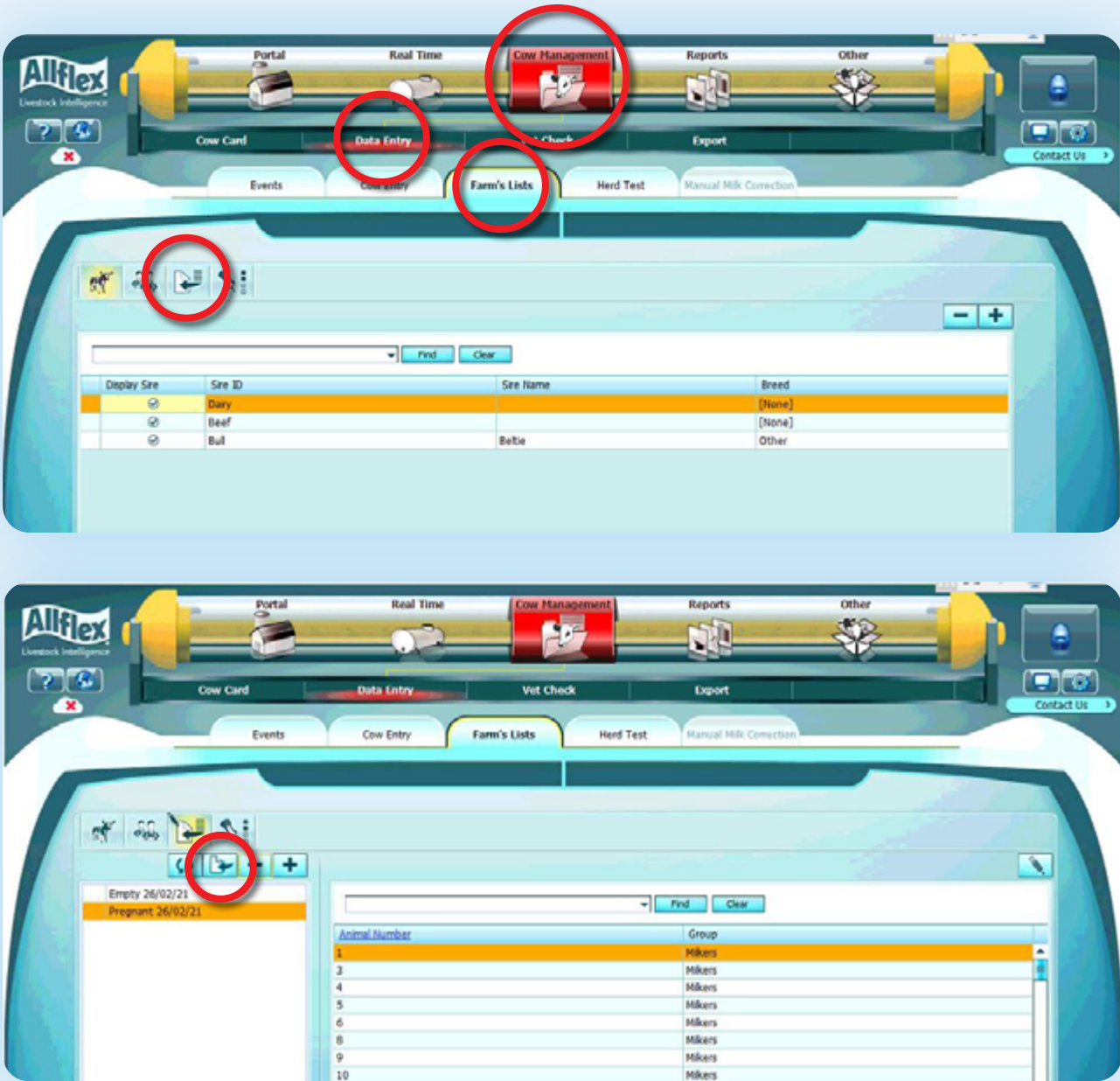
10. You have the option to send an email to yourself with the saved files attached, then save them to the computer at the shed.

OR if you have TeamViewer, you can copy and paste them onto the shed screen.

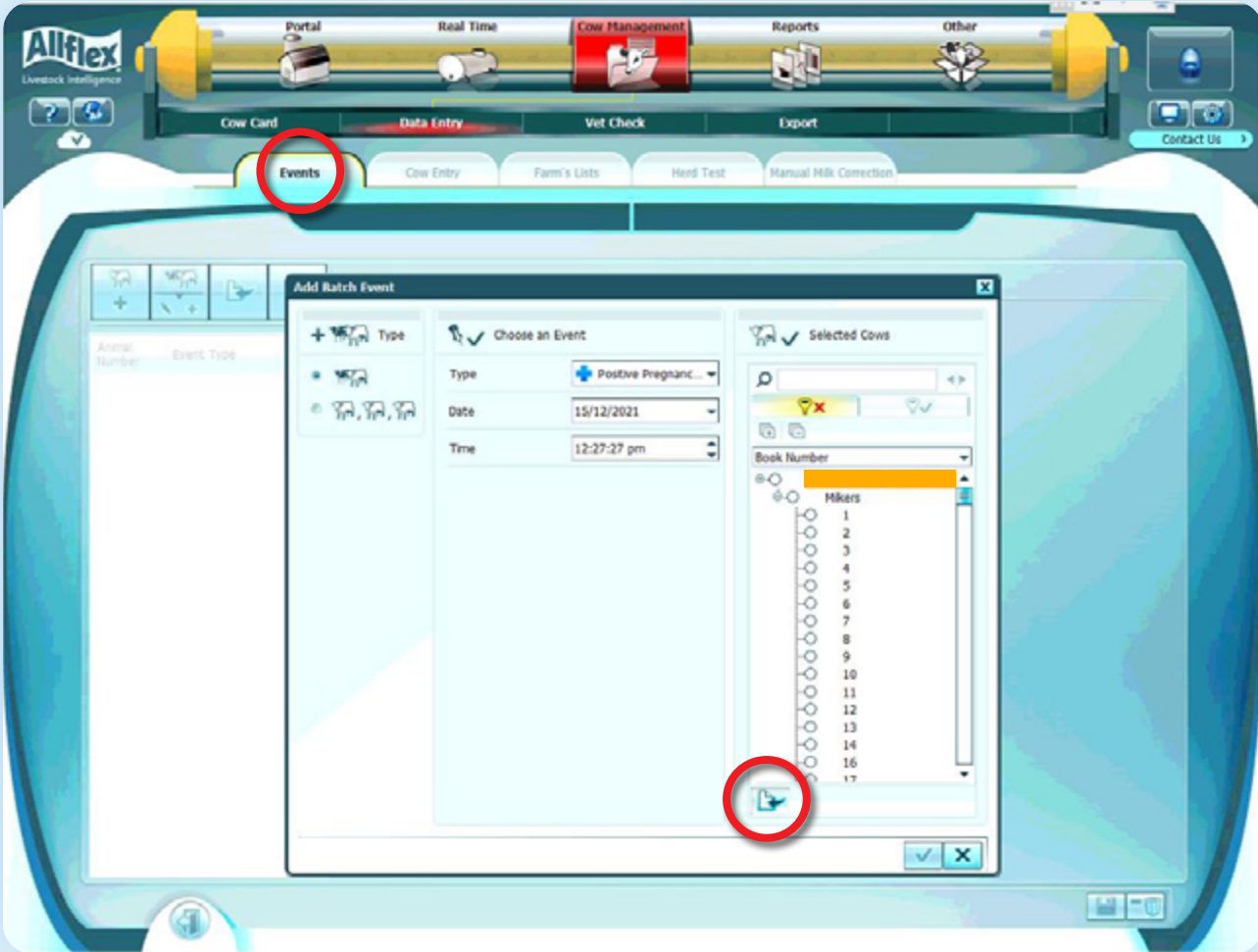
OR if the files are saved to OneDrive, you should be able to access them on OneDrive at the shed if it is set up.

Importing list into Heatime® Pro+

1. First you want to import the lists of animals into 'Farm's Lists'. From there you can create a batch event and select which list of cows you need for whatever event you may be entering.
2. Select cow management, then Data Entry, then 'Farm's Lists'. Use the 'Farm's Lists' icon as indicated, then the import button.



3. Now select one of the CSV. files. Click 'Open' and it should appear in your Farm Lists. Hit 'SAVE'. Repeat for all files you have saved.
4. Now go into the Events tab. Select the 'Batch Event' icon as you are entering more than one cow. Select what type of event it is i.e., Positive Pregnancy Test, then put in the date the diagnosis was given.



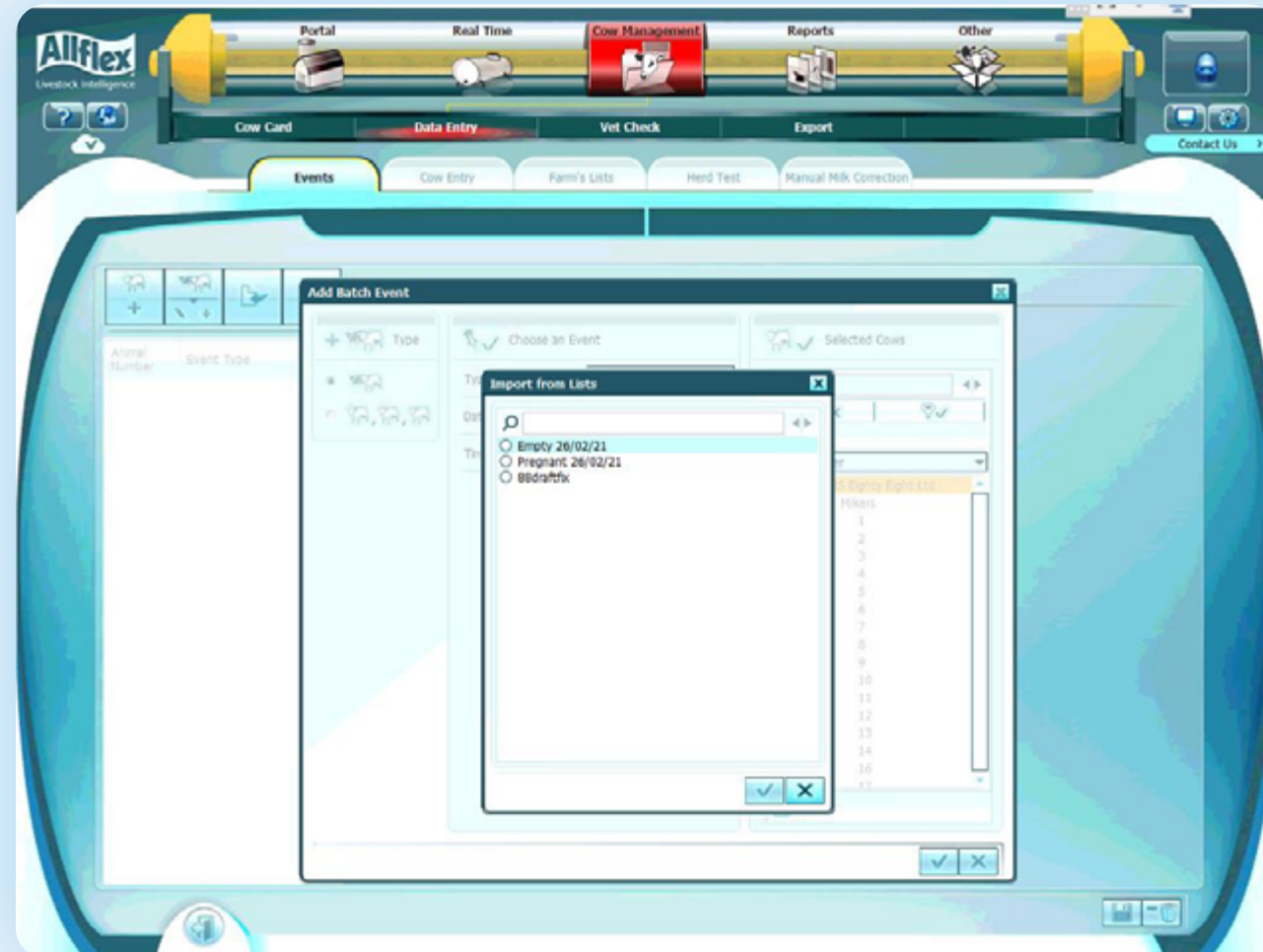
Continued →

14 Import Lists & Events

5. Again, click the 'Import List' icon and select the correct list. Click the little circle to the left of cattle to ensure all the cows are ticked.

Hit 'OK' at the bottom. Hit 'SAVE' on the next page.

Repeat steps 3 & 4 for the rest of the lists (changing the Event Type to Negative for the Empties).



15

Create Veterinary Treatment Protocols

In Heatime® Pro+, you have the ability to pre-load treatment protocols for specific illnesses you may want to record against an animal.

1. Save anything you need to – including adding events, and reports you are making.

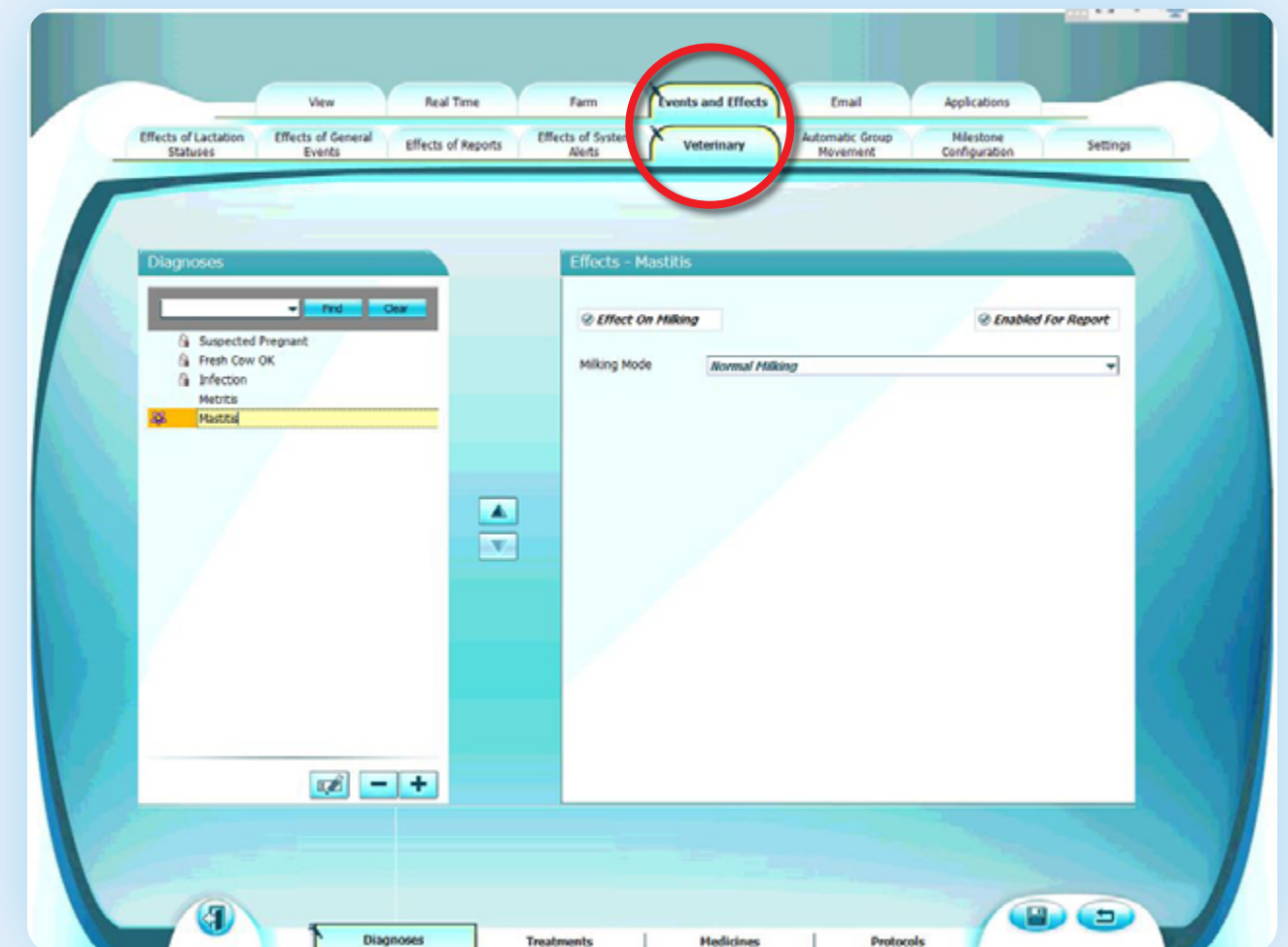
2. Click on the settings button, accept the prompt then go to the Events and Effects tab and select Veterinary.

You will see the options down the bottom called Diagnosis, Treatments, Medicines and Protocols.

Leave protocols until you have filled in everything else.

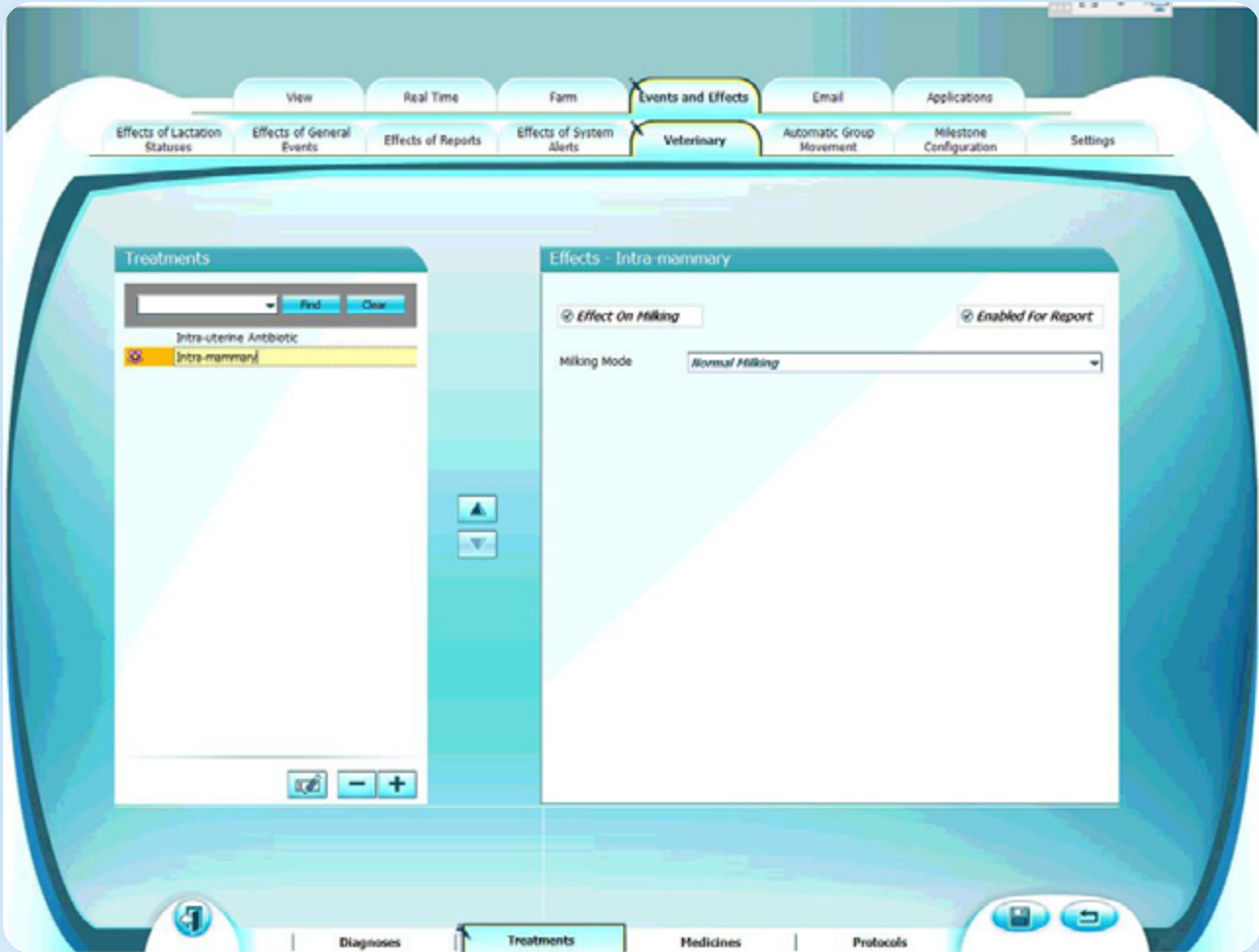
3. Hit the '+' button in the Diagnoses box and name your diagnosis. You can be as specific as you like in here i.e. Metabolic Issue, Down Cow or specify ketosis etc. Dataflow clients with milking intelligence can now add in milking effects to prevent milking at the bale etc.

4. Hit 'SAVE'



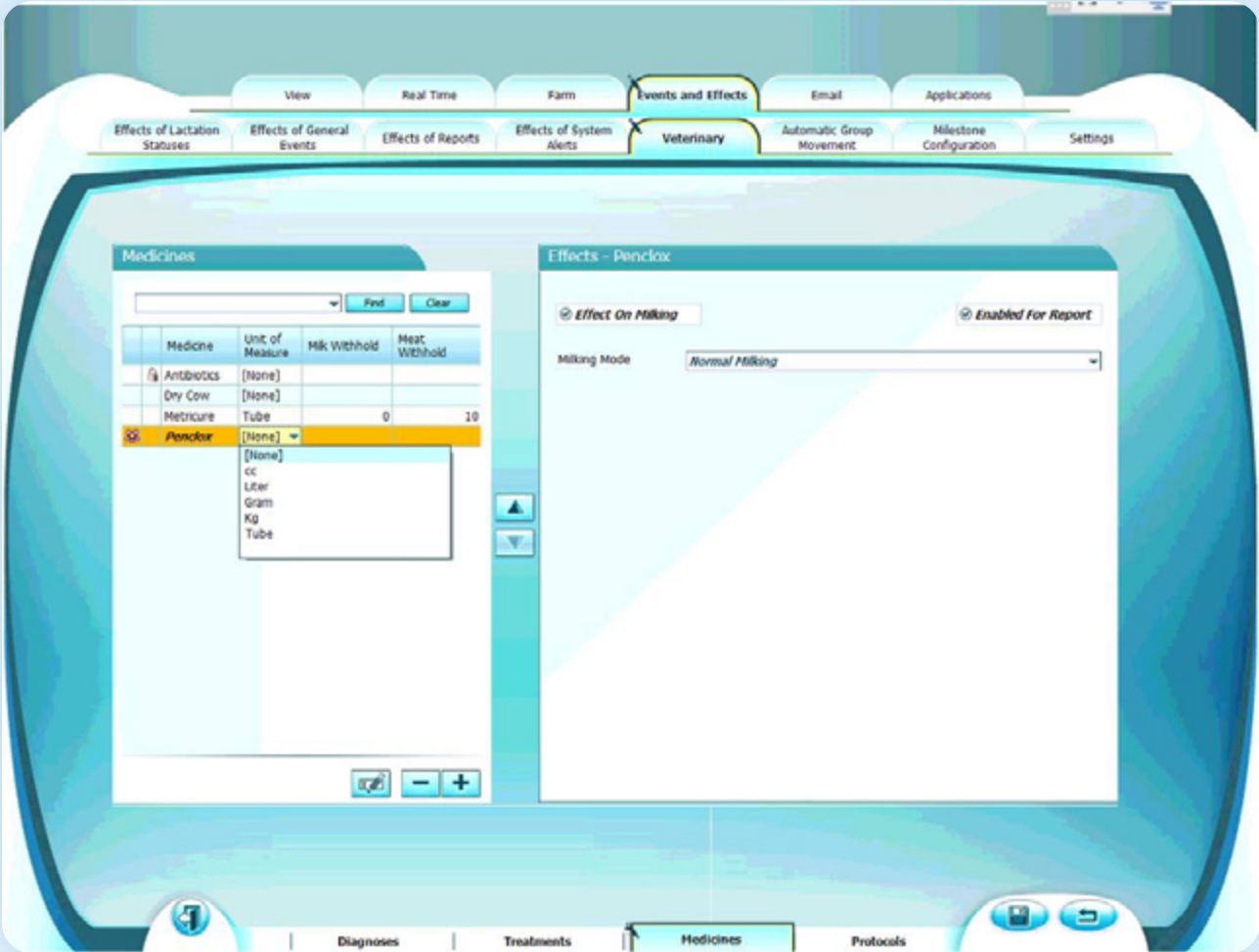
15 Create Veterinary Treatment Protocols

5. Move to the treatments tab, add in a treatment using the '+' button as above – keep this general. For example, IM injection, intramammary, oral drench, subcutaneous fluid, IV fluid.



15 Create Veterinary Treatment Protocols

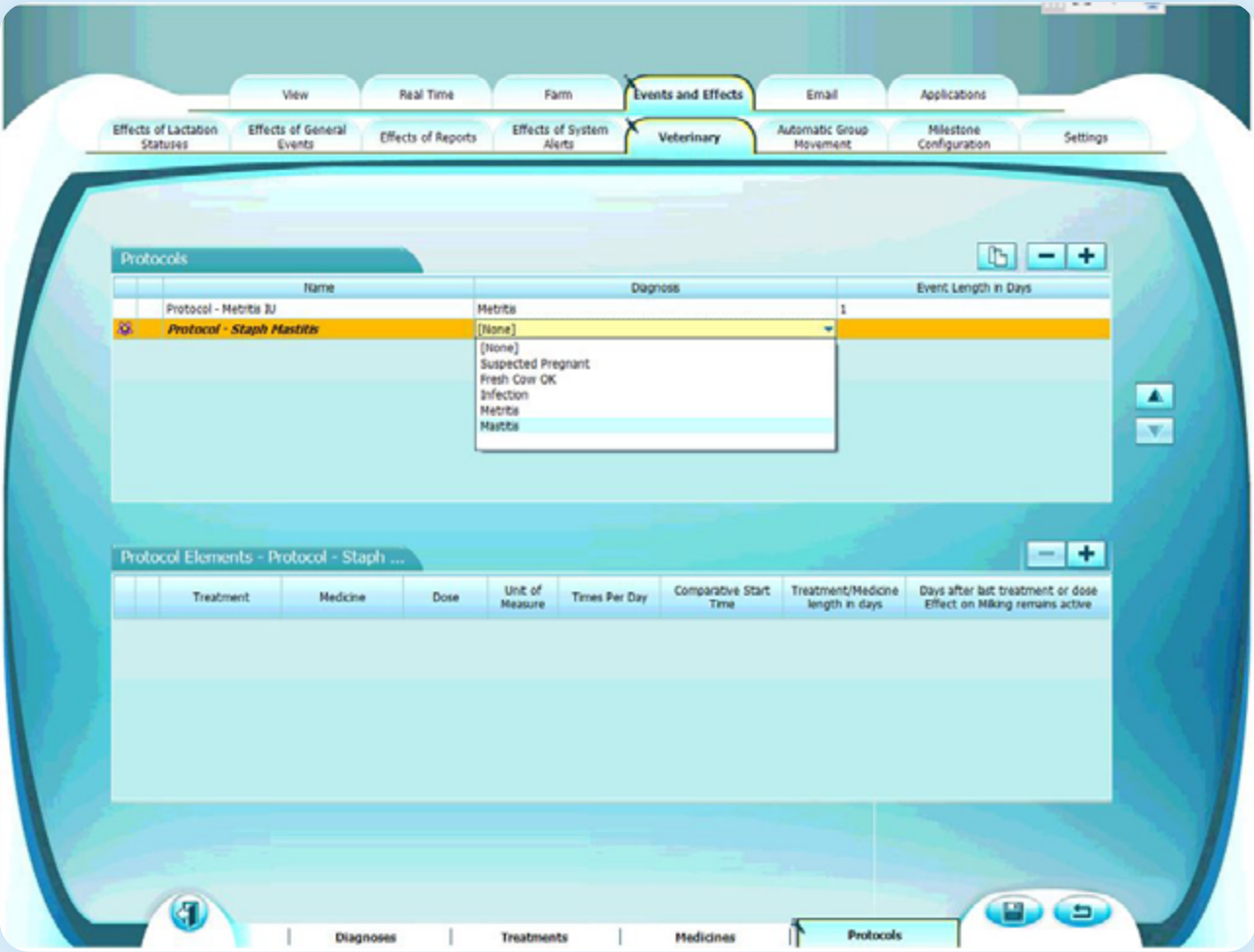
6. Hit save, move to the medicines tab. This is where you specify products such as Leptospirosis vaccines, injectable penicillin, lactating intramammary and endometritis antibiotics. Add in as much information here as you like, hitting save after you are finished. Make sure you add in all medicines you may wish to use before creating your protocol.



Continued →

15 Create Veterinary Treatment Protocols

8. Click the '+' in the bottom half of the page. Some error signs will appear, but add in your treatment, medicine, and relevant information and they will disappear when they balance. You can add in multiple treatments under one protocol. Hit 'SAVE'. Exit.



9. To assign to an animal, go to Event > Veterinary. Enter the correct date for the event, then select the Diagnosis and then the relevant protocol. The Treatment section will automatically populate, and you can hit 'SAVE'.

Keep in mind, once you have used a protocol or medicine against an animal, it will not allow you to delete it in the settings, so it is essential you set them up correctly at the start.

16 In the Settings

Edit a shift

In the Real Time Tab: This is where you will find the times that your Shifts (Milking) are set to. Your AM Milking should start before you are due to start milking, in case you start early.

Your PM milking time should be set before you are due to start, but also far enough away from the end of your AM milking that if you are running late with your AM milking it will not be impacted.

If you reach your PM Shift start time during your AM milking shift and you have a draft set, the drafting gate will stop drafting as it has changed shifts.

If you change to 16 hour milkings during the season, please contact your Training Specialist to get the Shift times reset.

Add a Herd/Group

- 1. In the Farm Tab: And then into Herds
- 2. This is where you can create extra herd names e.g. 'Carryovers'
- 3. Hit the '+'.
- 4. Add your herd name: e.g. 'Carryovers'
- 5. Select which Branch the herd is to belong to: e.g. Milking; Dry

- 6. Assign a Group Number: e.g. 4, 5
- 7. Hit 'SAVE' at the bottom right hand corner of the screen.
- 8. To exit the Settings, click on the Door at the bottom left hand side of the screen.

Rest Periods

Heatime® has an automatic stand down period built into the system, to prevent a cow from being eligible for AI after she calves. This is set to 20 days as a default number of days. It cannot be changed to less than 20 days. To increase the number of days,

go to the Settings and select Events and Effects Tab. Then select the Milestone Configuration tab. Increase the days beside the End of Rest Period to update. Hit 'SAVE' at the bottom right-hand corner of the screen.

Reports Glossary

This is a glossary of the main reports you will use in each reports folder.

Fertility:

Anestrus Cows: Cows that have no System Heat recorded within the last 30 days. Must be 50 days post calving.

Conception Rate per breeder: If you have recorded which AI tech or employee bred which cow, this will give you total inseminations and the % of conception rate per breeder once pregnancy diagnosis is confirmed.

Conception Rate per Sire: If you have recorded which cows were bred to which Sire, this will give you total inseminations for each sire and the % in calf to that Sire once pregnancy diagnosis is confirmed.

Cow in Heat ID Only: All cows with a current system heat. This includes cows that are still within the Fresh Cow status, Cows that are marked as do not breed and Cows that are marked as pregnant.

Cows not Bred ID only: Cows that are 90 days post calving and have not been bred.

Cows Ready for AI and Cows Ready for AI ID Only: Cows within the correct breeding window and eligible for breeding. Drafting for mating is off the “Cows Ready for AI ID Only” report.

Cows with Irregular Heat: Cows with 3 or more System Heats within the last 30 days.

Expected Dry Offs and Calving List: Once cows are marked pregnant, the system determines her Expected Dry off and Calving date. Note the expected calving date will always be more accurate in Minda.

Expected Pregnancy Checks: Tracks cows that are 36 days post last insemination to show when they are eligible for pregnancy scanning (This number of days can be customised in Heatime®).

Fertility Summary: Insemination and pregnancy percentages and numbers broken into First lactation cows and 2plus lactation cows. Not useful in a seasonal calving system without modification.

Group Activity Masked Heat and Group Activity Masked Heat Report ID Only: Use this report to help select cows for AI when you have had a false heat event e.g.. Cows short of feed or water, dog chasing cows in paddock, extreme weather event resulting in large numbers of animals on your ready to AI report with low heat indexes. This report will pull out the top subsection of cows showing higher activity than the group average. Do not draft off this on a daily basis as you risk losing your silent heats.

Heifers Ready for AI: Young stock with collars that are ready for AI i.e., maiden animals that have never calved.

Pregnancy Probability: A ranking of NP, Low, Medium or High of how confident the system is that a cow is in calf. This takes into account her history, therefore two cows on the same number of days post breeding may not be at the same status.

Repeat Breeders: Cows breed 4 or more times since her last calving. This number can be customised in Heatime. Indicates issues with fertility at an individual level.

Suspect for Abortion: Once cows are marked as Pregnant, if she shows heat like behaviour in the last 30 days she will be put on this list. Please do not cull directly off this report.

Health:

Distress Monitoring: Cows that stop or have very low ruminating and eating minutes for extended periods of time. The period of time is dictated by the stage of lifecycle she is in, so it is important to enter calvings if you do not want to be woken at 3am unnecessarily. The sensitivity can be altered if you are getting too few/too many alerts, please contact your trainer to discuss.

Fresh Cow Monitoring ID Only: All cows within the first 30 days of lactation.

Health – ID Only: Cows with a health score 86 or below. Cows with a score of 80 – 86 Monitor. Cows with a score under 80 need to be drafted out and looked at. Consult your veterinarian for further guidance.

Pre-Fresh Cow Monitoring: MA Cows close to calving who have been dried off.

Herd:

Events: List of all events logged by the System or the farmer within the last 30 days. If you get interrupted during data input you can use this to find which cows you had entered.

Expected Dry-off and Calvings: The system will generate the number of Cows and heifers it expects you to dry off and calve for each month of the year.

Inventory: Herd statistics. The cow number listed is the number of cows you have registered in the system, not the number of tags you have.

Inventory Change: Farm statistics.

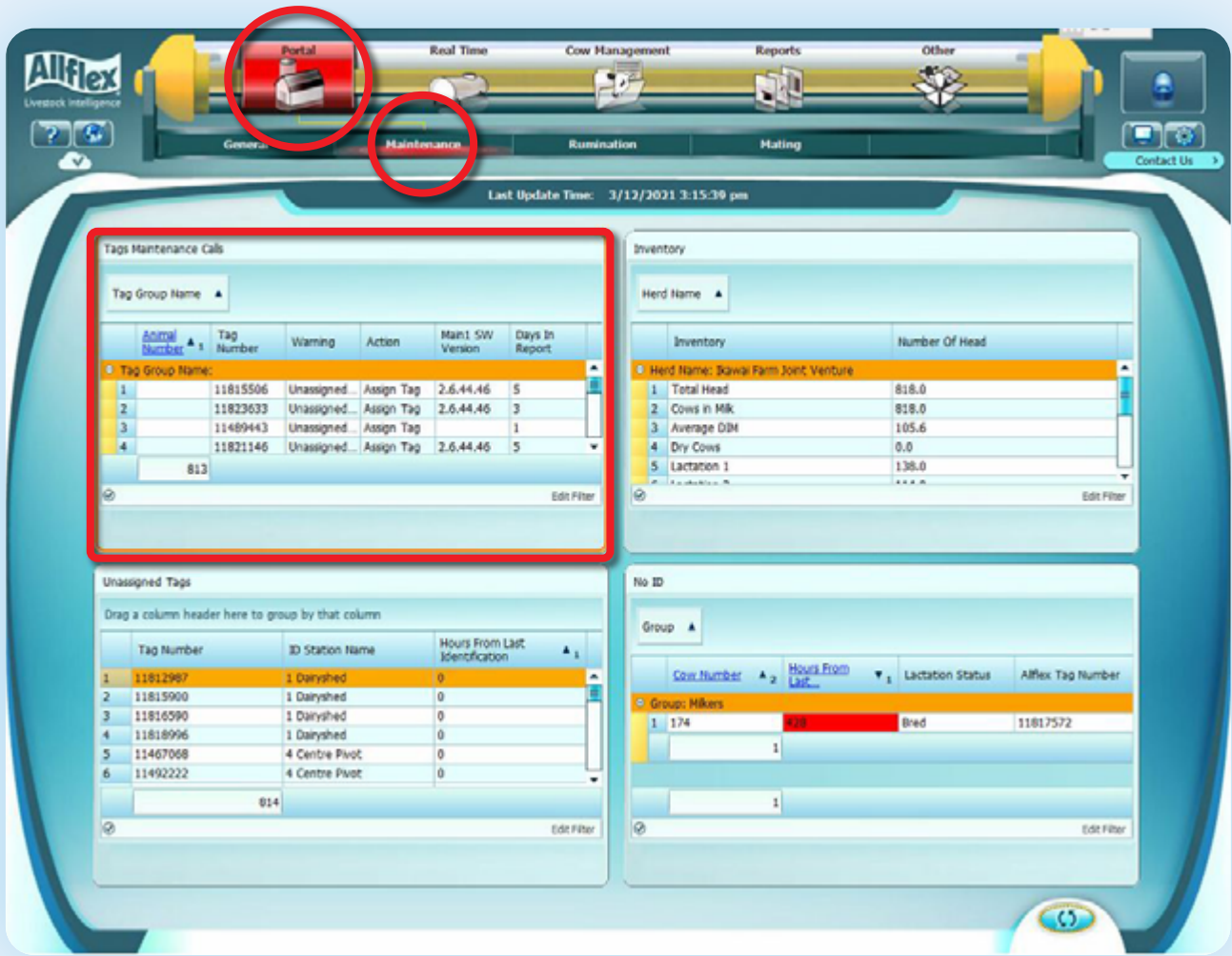
No ID: Cows that the system has not identified and the time she was last seen.

Tag Numbers: Details Cow management tag, her Allflex Tag Number and RFID.

Maintenance:

Tags Maintenance Report: All collars that the system is concerned about. This is found in the Maintenance tab of the Portal. Check Tag Maintenance Calls every

day during mating. Check weekly for the rest of the year. It is important this is clear, or anything on the report is explainable.



Inventory: This is the total number of cows in your system, not the total number of collars on cows. To find a list with details of Cow Management Tag Numbers, Allflex Collar Numbers and RFID numbers,

use the Tag Numbers report in your HERD report folder. Your trainer can build you a report to detail a list of cows in your system that do not have an Allflex Collar number.

What the Warnings mean:

Unassigned (on cow): The system can see cow-like activity but does not know who to assign the data to. To fix this, the Allflex collar number must be assigned to a cow. If your neighbours have collars on, your trainer will help you to interpret this.

Tag not on cow: Collar has been removed or fallen off cow. To fix, find the collar and put it back on the cow or reassign her another Allflex collar number. If the collar has been removed off a cull cow, cull her in Heatime®.

Sorting (Intelligate™ Only):

Current Separation List: A list or report of cow numbers set to draft at current shift.

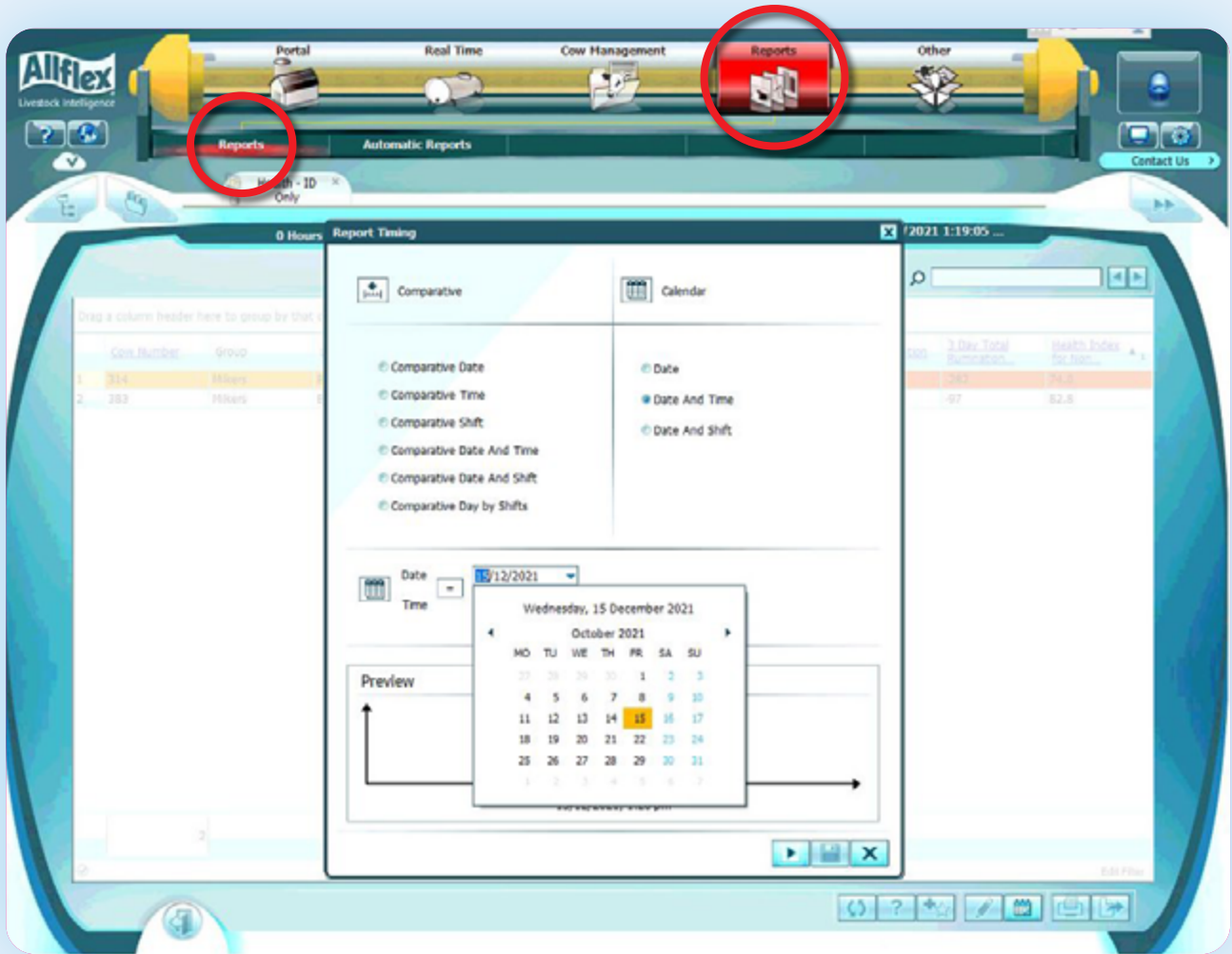
Separation Gate Worthiness: Details percentage of cows that were identified in the previous shift by group. Aim to be over 95, if not please clean the sensors and check the alignment of beams. If still not reaching targets, contact tech help.

Outdated Data (Check RF Coverage or replace): Collar has not been seen by the readers within the last 24 hours. If a cow is out of range of the readers, then there is no problem. If you know this cow has been in range of the readers, then the collar has failed and needs to be claimed under warranty. Remove the collar and replace it if you have spare and contact your sales specialist to arrange a replacement.

Tag Position: Raise or lower tag. The collar is not in the position it needs to be to gather accurate data. Draft the cow out and tighten or loosen the collar.

Sorting Summary: Details of cows that were set to draft, an indication of who did draft, and to what direction. To view a shift (milking) previous to the current one, use the calendar to go back to the appropriate number of shifts.

To view any report (except the current separation list) from a different day or time, use the calendar at the bottom of the screen to tweak timing or date range.



Graphs:

Culling Summary: A bar graph detailing by month, the number of cows culled. Hover of the bar to see the total number.

Expected Dry Offs & Calving: A bar graph to show the expected Dry off and Milking numbers.

Expected Monthly Calving: A breakdown of numbers of cows expected to calve in each month.

Herd Inventory by Group: A breakdown of the number of cows if broken into separate groups.

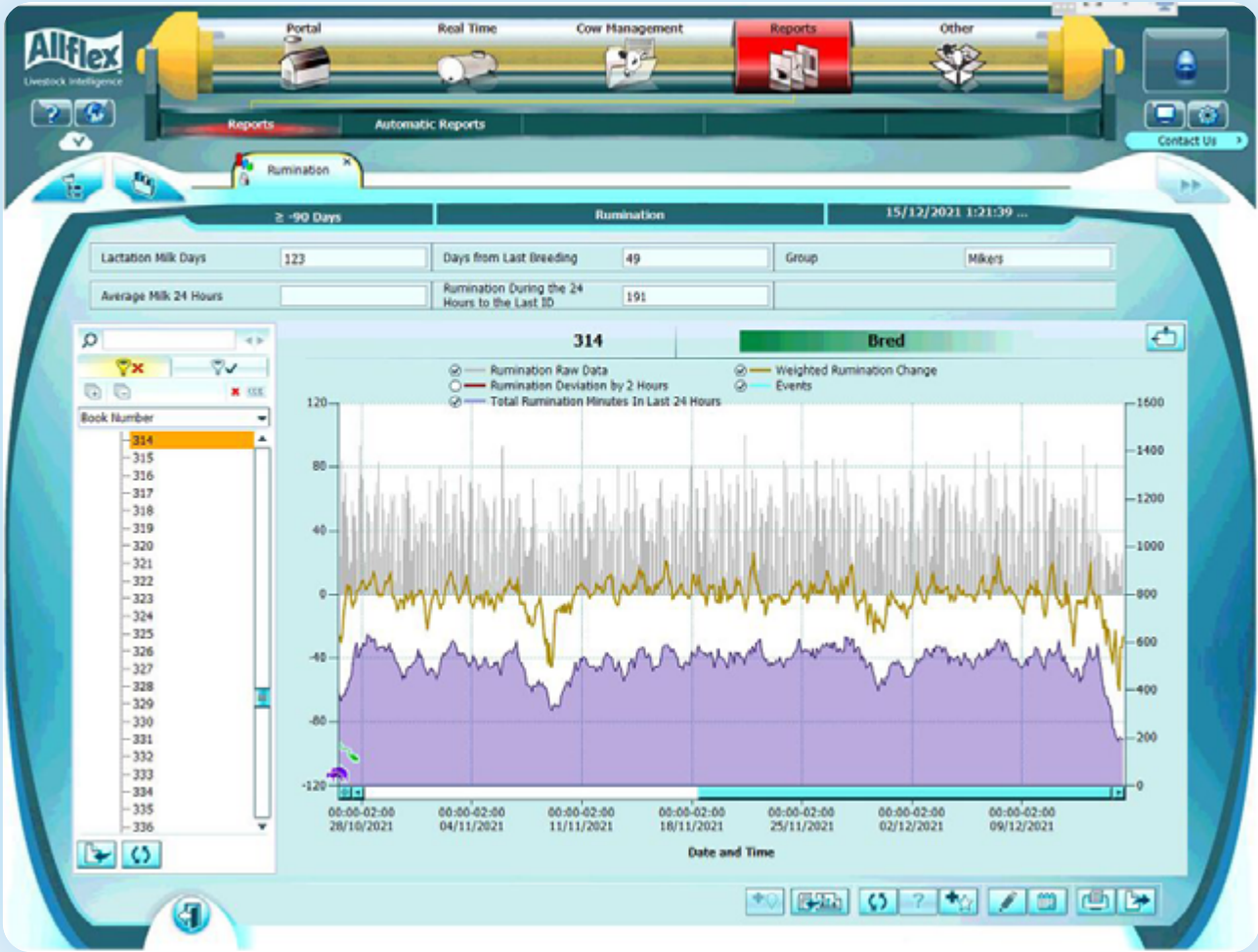
Herd Inventory by Lactation Status: Shows the number of cows at each Lactation Status. Use this graph before mating to check all cows have been calved and therefore eligible for AI.

You can click on each section of the graph to open up a list of cows in the group and view each cow card.

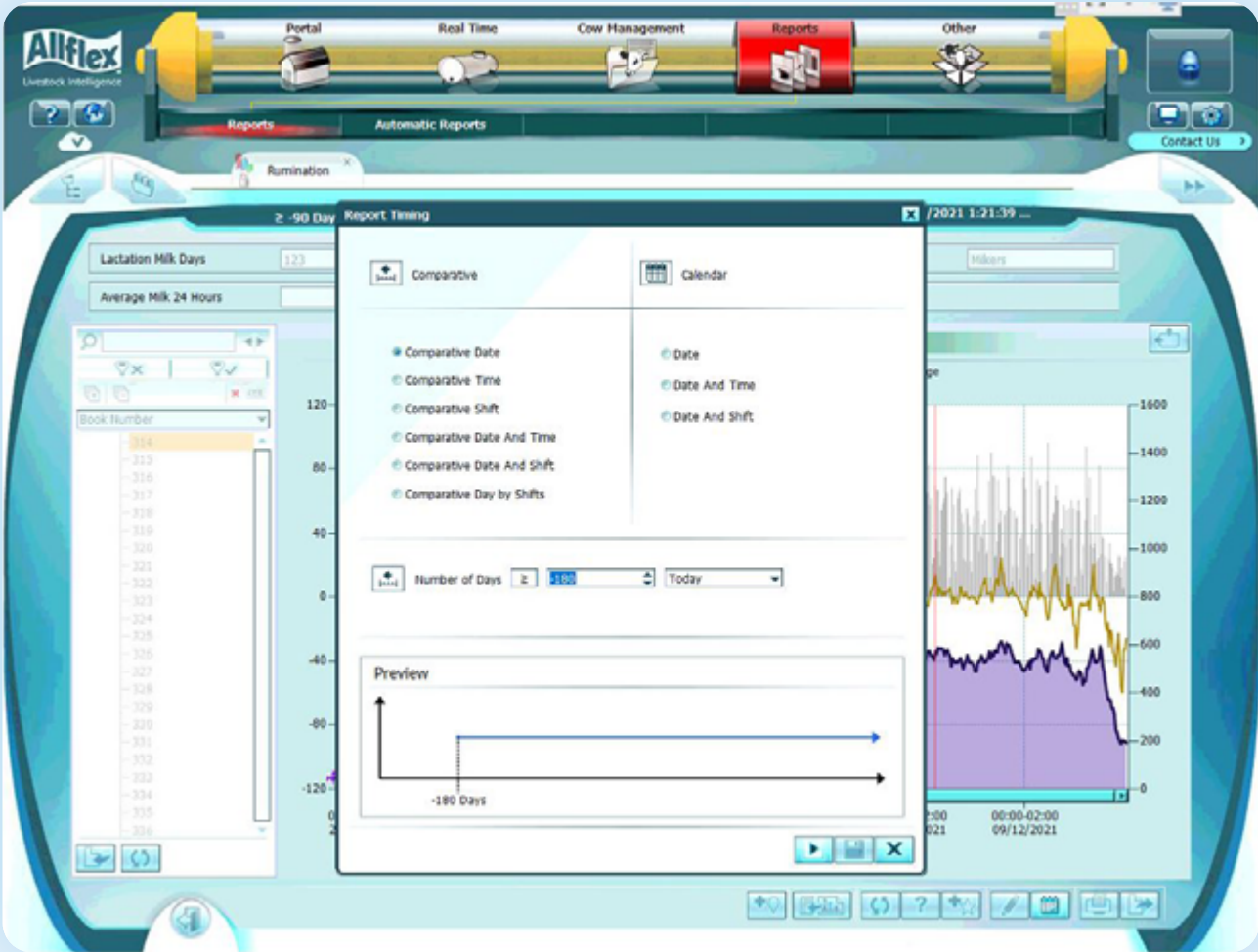
Identifications at Base Unit Over Past 7 days: A breakdown of the number of Identifications that each base unit has made over a 2-hour time period, for the last 7 days.

Weighted Activity and Rumination Change: This is where you go to view a cow's graphs further back than the 3 month period shown on her cow card.

Enter the cow number on the left of screen as usual



Then use the calendar at the bottom of the screen to adjust the days. It will say -90. Change to for example -200.



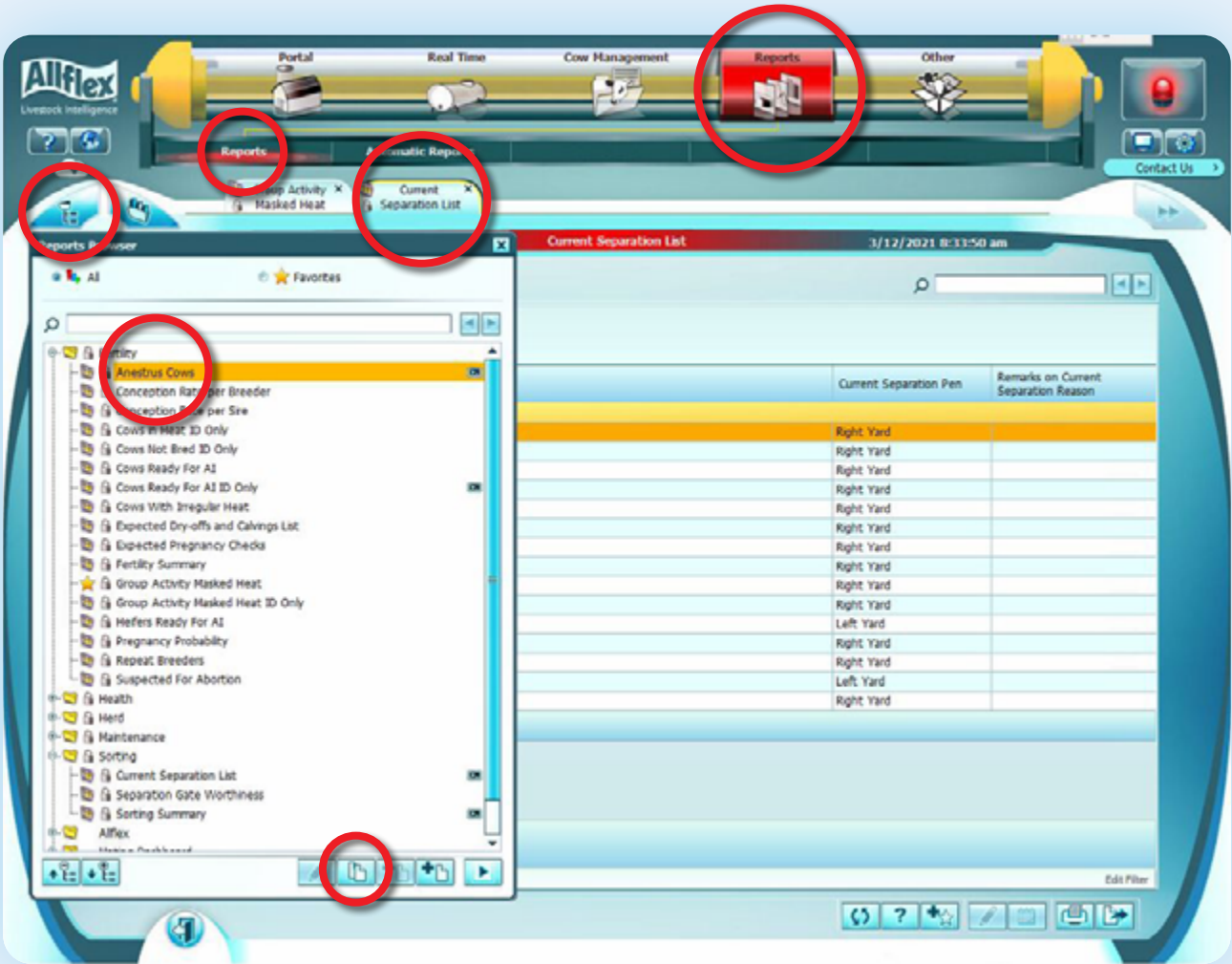
18 Customise Reports

There are two ways to produce a custom report.

Tweak the parameters of an existing report

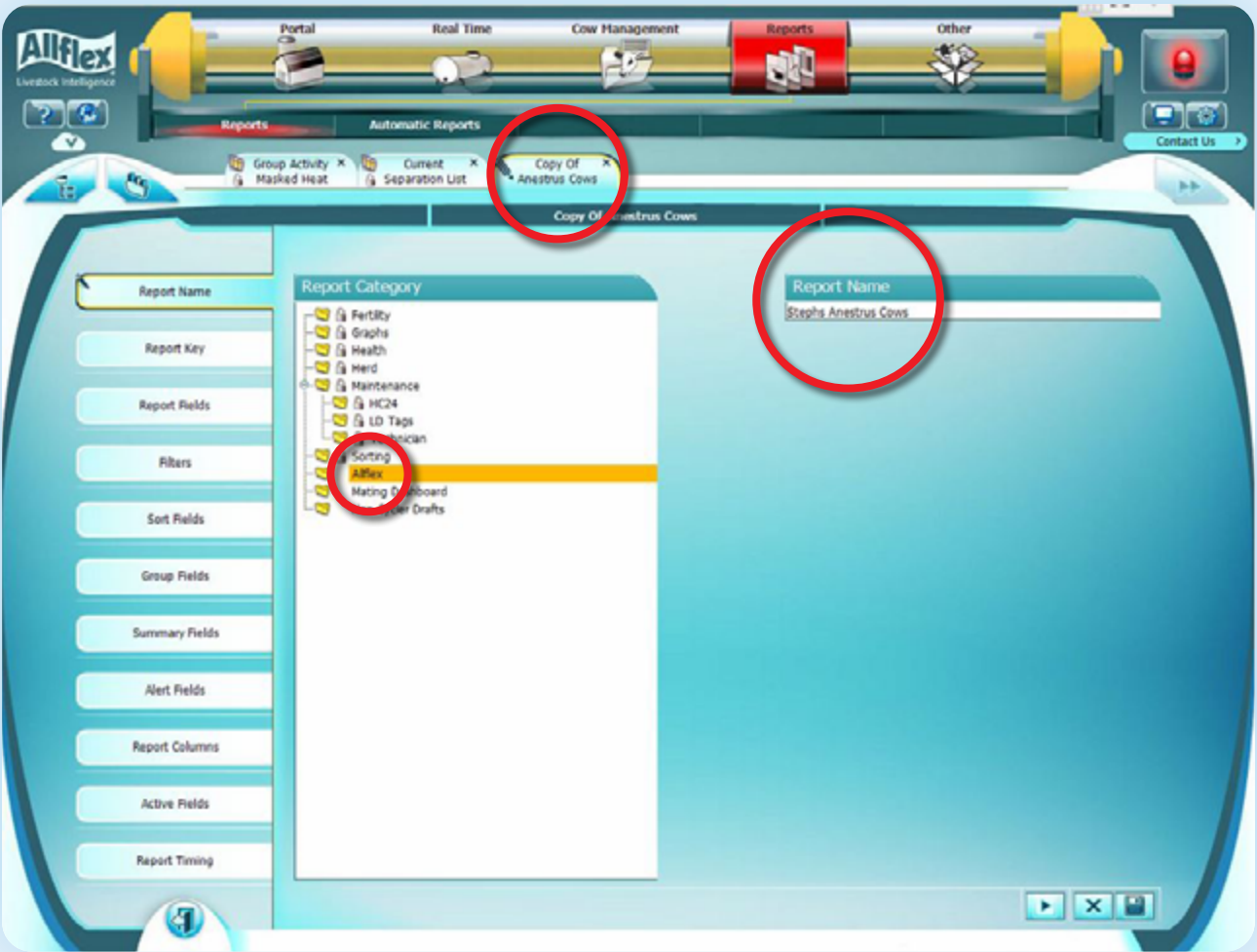
Here we are going to use the example of changing the anestrus cows report from looking at all animals who are 50+ days in lactation, to 40+ days, and only between lactation numbers 2 and 5.

1. Find the report that is similar to what you want, but you want to add in more information or change some of the parameters. Highlight the report you want, in this case the Anestrus Cows report, and click the 'Copy' icon down the bottom.



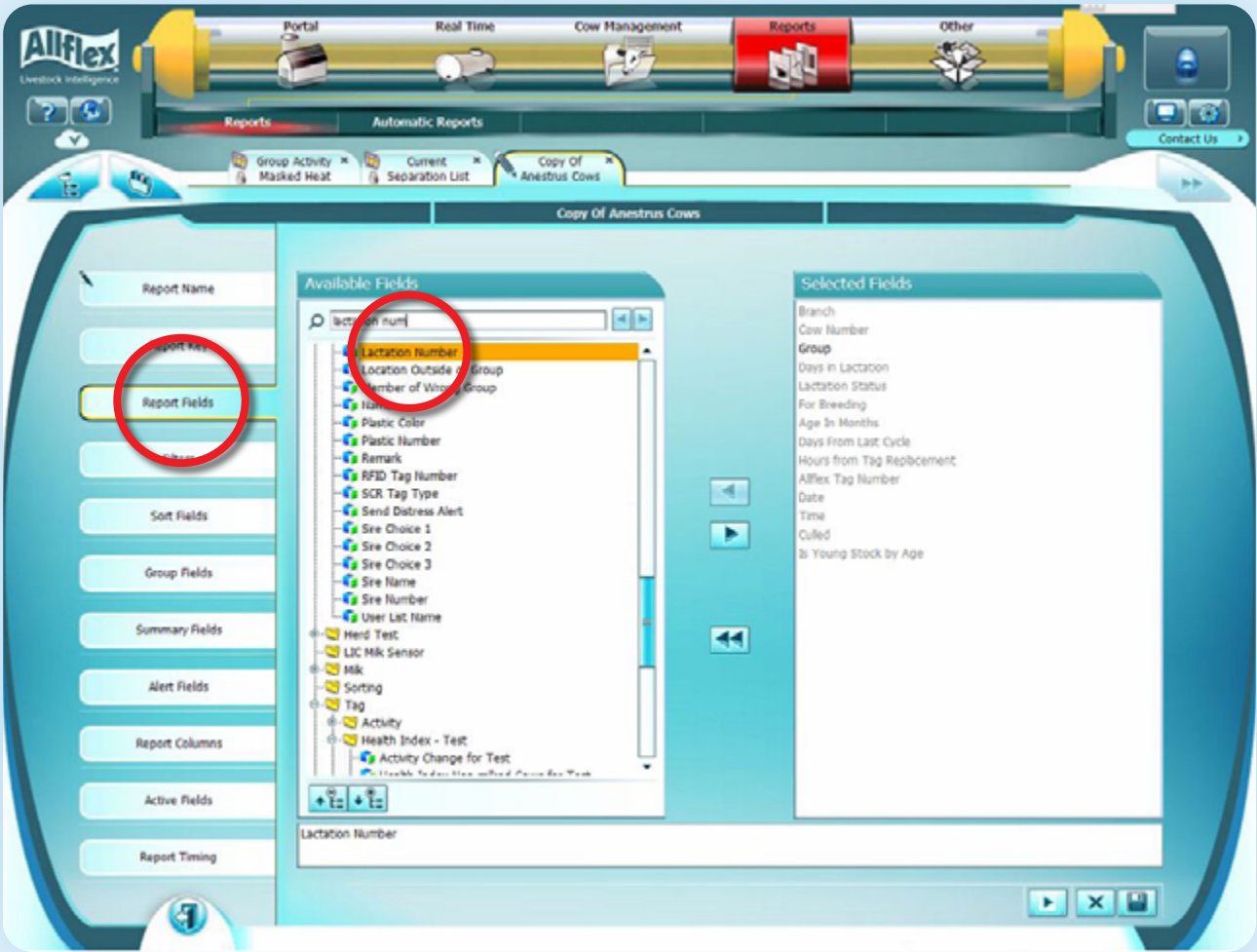
2. Next you need to rename the report, and then select where you want it to live. You can do this by clicking once on the existing folder you want

it to live in, or create your own by right clicking. Whichever folder is highlighted is where it will live.

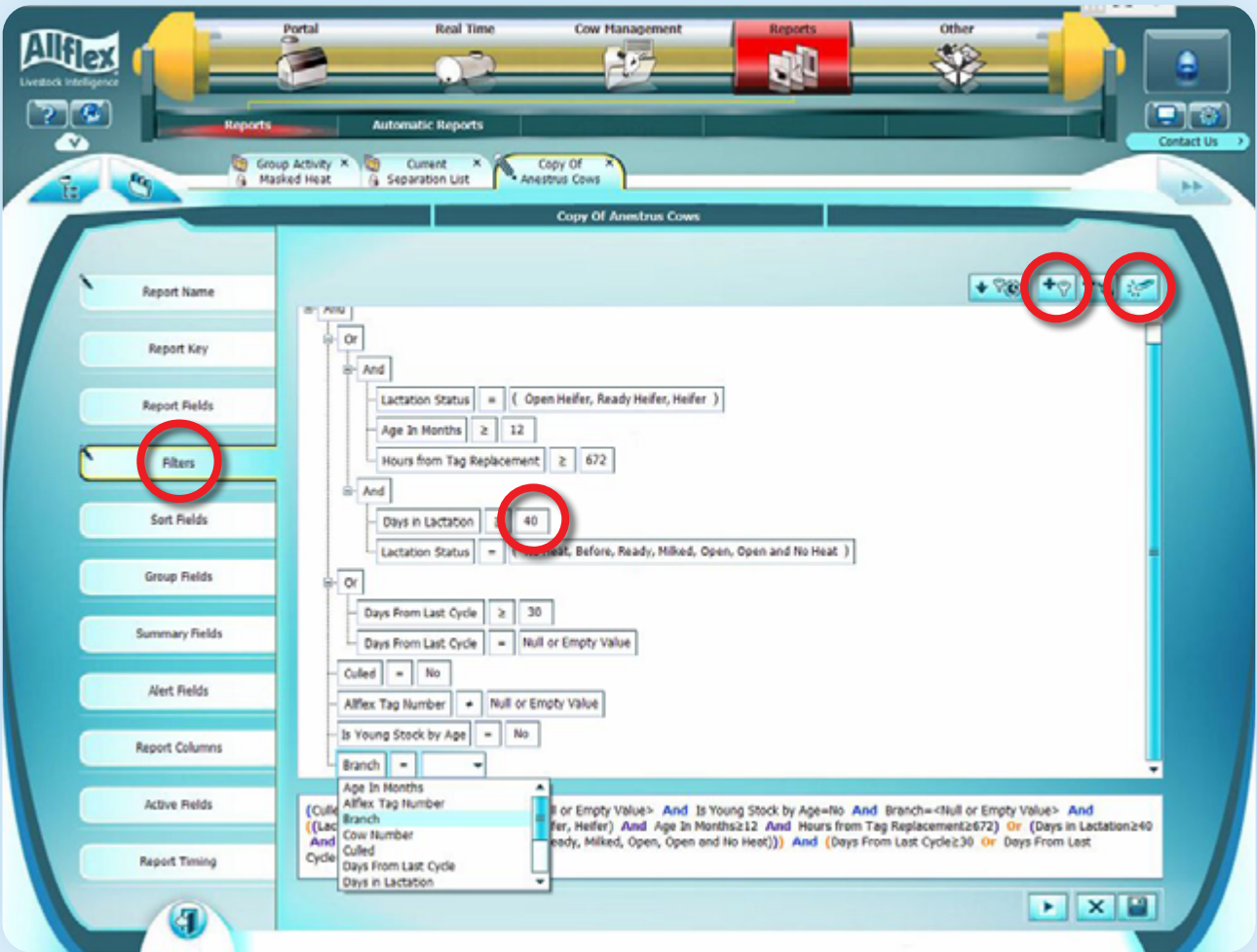


Continued →

3. Next go to the report fields tab to see what information is already in the report, and to add in any new fields you need. You can use the search bar to find it or look through folders. Double click on the new required fields, here we are adding in lactation numbers.



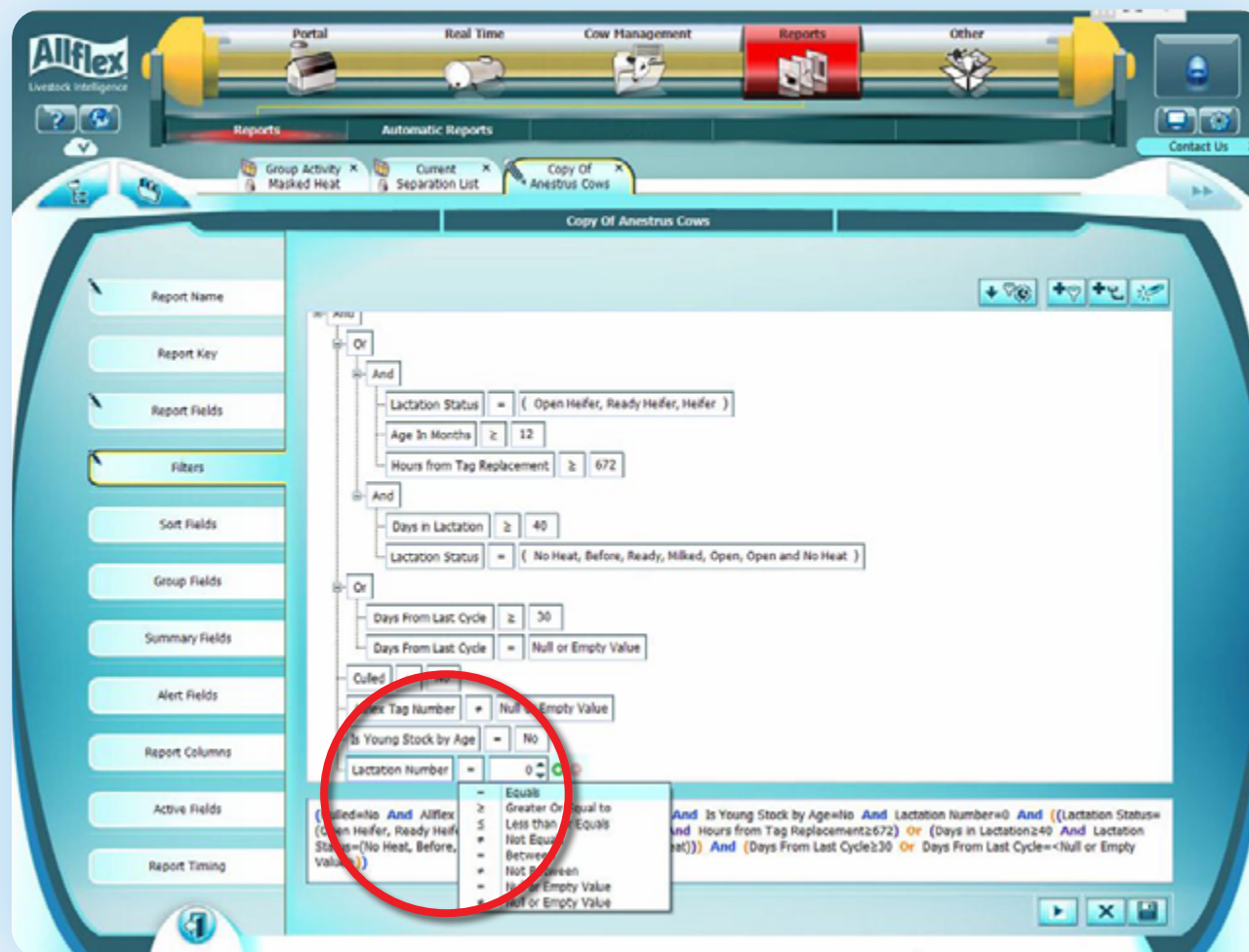
4. Once we have the information we need, we are going to edit the parameters of the report. If the filter is already in, simply change the details as I have done next to days in lactation (from 50 down to 40).



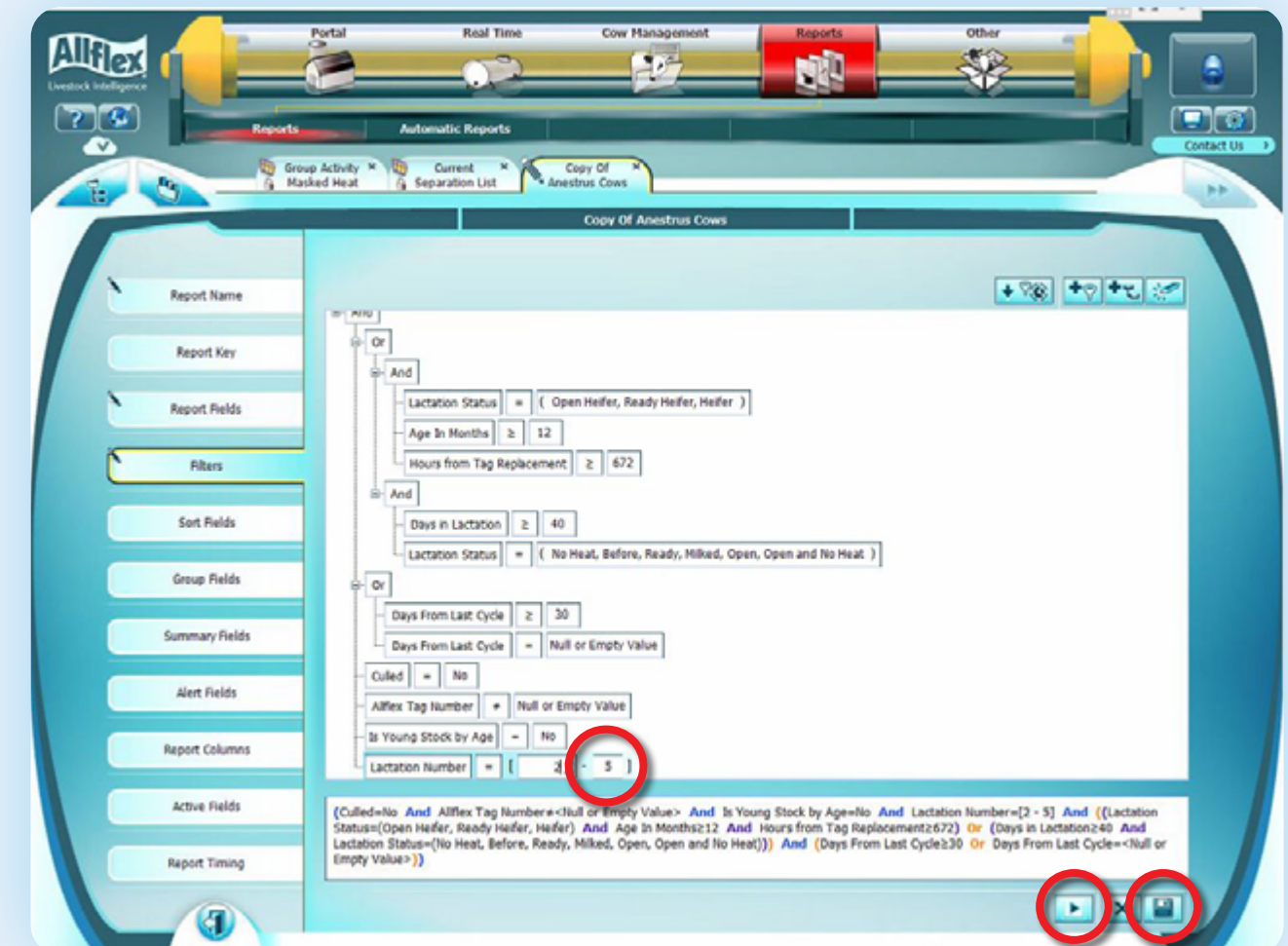
Continued →

If you are adding in a new parameter, you will need to add in the filter by first clicking on the **'add filter'** button in the top right corner (to delete a filter at any point, select it and hit the eraser button).

5. Select the information you would like to include as a filter from the list, and add the parameters.



6. If you are using a range, add in the upper limit of the range first, followed by the lower value. Then hit **'SAVE'**, and then the play button.

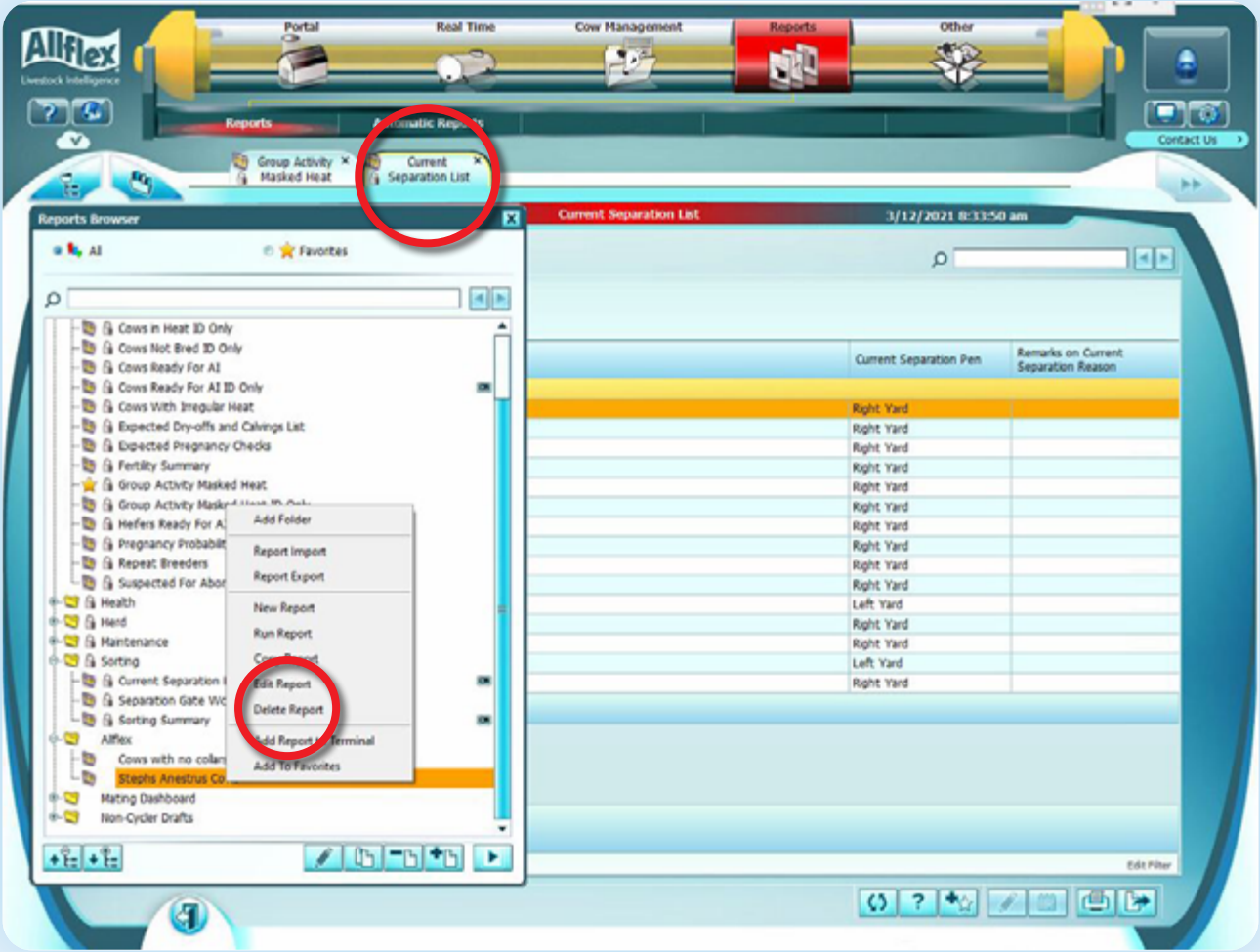


Continued →

7. If the report says what you want it to say, you are finished. If you need to tweak it further, select the pencil icon and fix it.



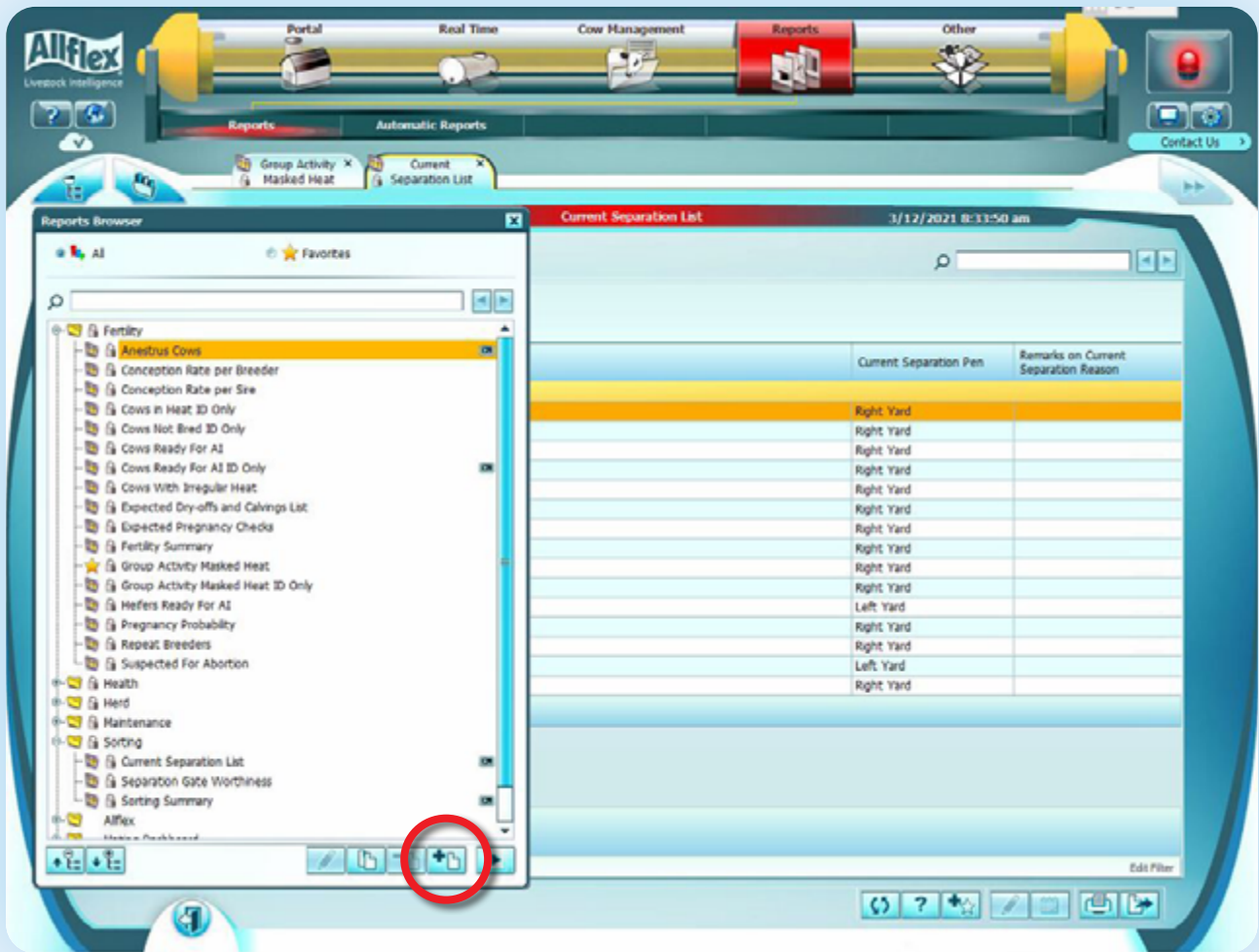
To delete a report you have built, find it on the list, right click and select delete



Continued →

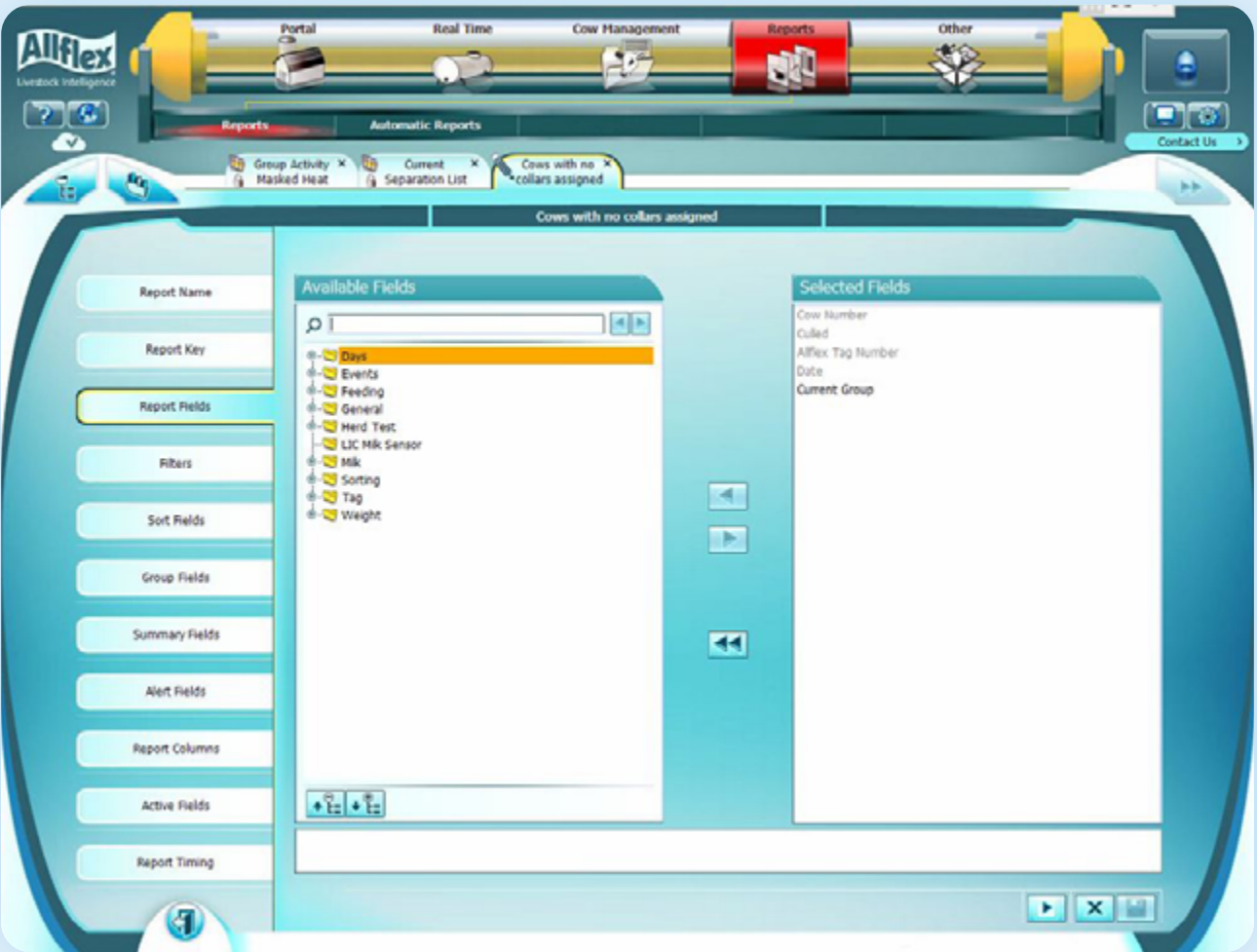
If you are building a report from scratch

1. Use the 'New report' button, name and save as above. For this example, we will create a report to tell us any cow loaded in the system, who is not assigned a collar.



2. Begin working your way down the left-hand side from the top to bottom. Choose the report key – in most instances, 'Cows' will be what you use.

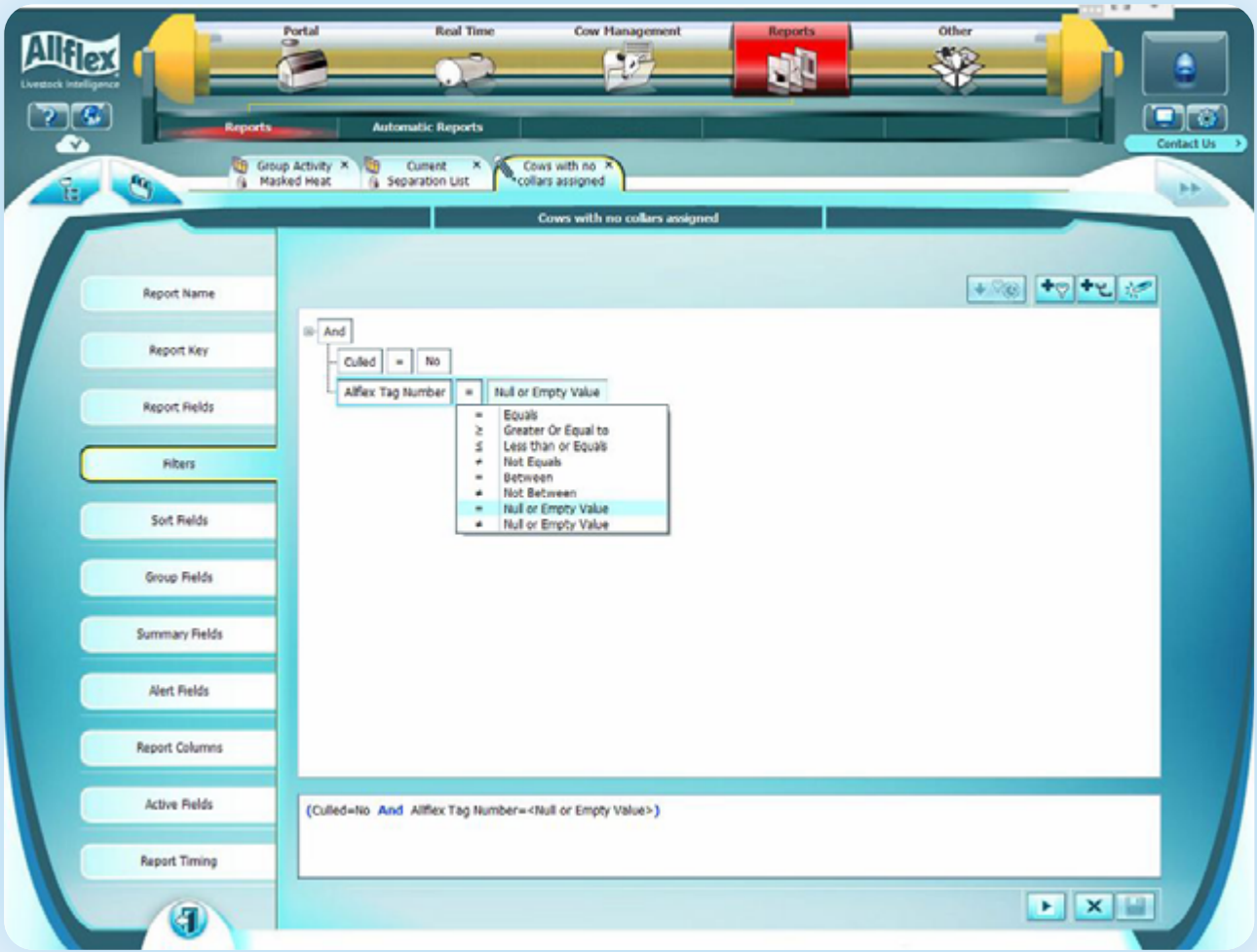
3. Fields is where you select the information you require to build, or want displayed in the report by double clicking on the fields you want.



Continued →

4. Filters are next, and where you build the parameters of the report. If you simply want to display all information selected in fields, you can skip this section. However, in this example we want to create a filter to show only animals who do not have a collar.

So we add in a filter, and change the parameters to **'= Null or empty value'**. It is possible to add in a condition too, but this is a little more complex.



5. Sort fields are how the animals are sorted. Click on the **'+'** button in the top left corner and select how you would like them to be displayed

6. Group fields allows you to display the report results by group if you wish

7. Summary fields allows you to add in totals, averages, or other useful values

8. Alert fields allows you to add in colour coding

9. Report columns allow you to decide what information the report displays – just because you may need it to create the report, doesn't mean you want it displayed!

10. Active fields allows you to create shortcuts from the reports to other areas of the programs, for example by selecting the cow card from the drop down option, when you double click on the Book Number, it will take you to the Cow Card.

11. Timing is where you select the timing. You can either have the timing set to remain at an exact point in time, or be fluid and move with the current dates.

- a. Comparative: Means that every time you open the report, it will pull through data relative to that point in time. Here we can see it is set to Comparative Date = 0 from Today. This means, every time you open the report it will be relative to the date you open it. You can change this to hours, or shifts or a combination, and you can change the = to give a range. You can also create negative values. For example if you wanted it to be yesterday's information, change the 0 to -1.
- b. Calendar is where you set the date, time or shift, to be permanent. For example your pre mating reports will want to contain heats between specific dates and not change. In this case, you would use the calendar side.

12. Hit **'SAVE'** and play, edit if required as above.



19

Troubleshooting & FAQs

I can't complete my Tag Replacement event:

When entering a collar, if an exclamation mark appears beside the Allflex Tag Number, this collar is currently assigned to another animal. To fix, please cull the other animal, or remove her collar.

I have culled the cow wearing the collar that I put on my new cow but I still can't assign it to the new cow:

Sometimes it takes the system time to recognise you have culled the cow that was wearing the collar. To speed up the process, close Heatime® and then reopen. It will then allow you to complete the Tag Replacement.

I can't assign a lifecycle event to a cow:

There are two common reasons for this.

The first is the system will not allow you to enter an event against an animal that is not eligible for going by the four lifecycle rules, with a calving signaling the start of the new cycle.

CALVING. BREEDING. POSITIVE/NEGATIVE TEST. DRY OFF.

To be able to calve a cow, she must have a dry off date (heifers do not need a dry off date). To be eligible to be bred, an animal must have a calving date.

To be eligible to have a positive or negative pregnancy test assigned to a cow, she must have a breeding date.

To be eligible for a dry off date, a cow must have a POSITIVE pregnancy test.

Heatime® will not let you dry off a cow with a Negative pregnancy test. To move her from your milking herd in the system you can do the following:

Assign her a dry-off using a Veterinary Treatment for your records. Then create a group called Carryovers. You can do a Transfer Group to get her to the Carryovers group. This allows you to have her out of your milking herd in the system. If you are going to remove her collar to run carryovers with a bull, use the Tag Replacement event. Where you usually enter a new collar number, leave this on SCR and blank. This will leave her in your system, but with no collar assigned to her.

These rules exist to protect the integrity of the data – if the system doesn't know when an animal is due to calve, it is likely to miss a calving distress event.

The second reason is that we are trying to record an event prior to an existing event. For example, if you transfer an animal into a different group, but then realise you missed her calving date from the week before, you will need to remove the group transfer event before being able to enter her calving event.

Why can't I enter a cow into the system?

If there is already a cow with that management number, birth ID, EID or collar number assigned to her in the system, you will need to cull the old animal out or remove the collar off her before you can add in the new cow into the system successfully.

Why do I get an error when trying to save an event saying some values are illegal?

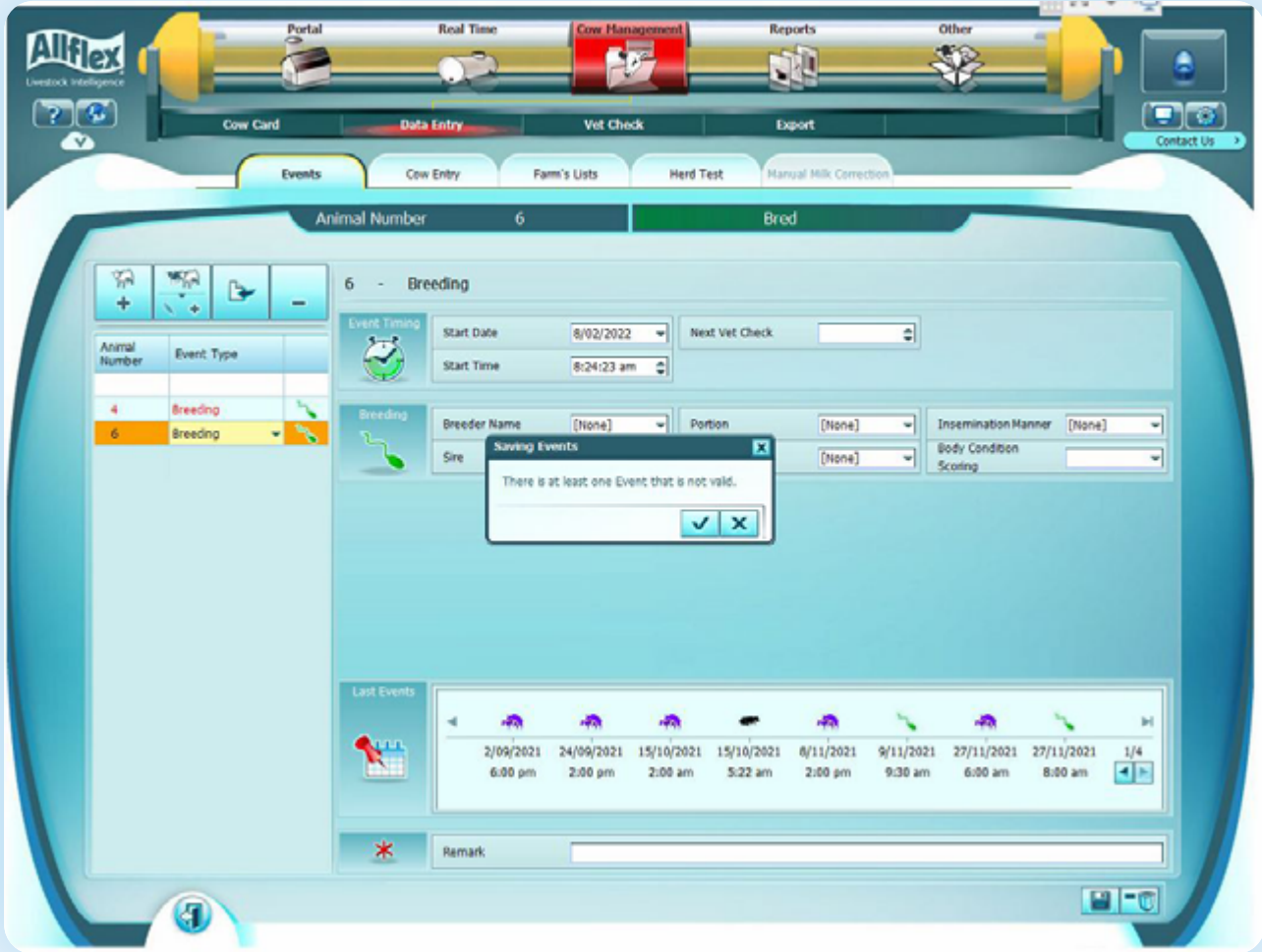
The Error for data entry graphic shows two issues – one, the blank line on the left hand side, and two that one of the data points is still red. We get this warning when there is either a blank data entry line (remove by clicking on it once, then selecting the ‘-’ button next to the ‘add batch event’ button), or if one of the events is still red, indicating the system needs more information to be able to save the event.

Frozen Screen:

Control/Alt/Delete. Select task manager. Close Heatime. To reopen, double click on Data Flow Client on your Desktop.

My Server Icon isn’t Green and Shiny:

Your server is off and this needs to be rectified. Restart your computer as per normal. If the server icon is still not green and shiny on restart, double click on the server Icon on your desktop. If this still does not correct the issue, call 0800 ALLFLEX and select option number 2.



Your App:

HC24 can be downloaded for your Android or iPhone. Your Username and Password is stored in a Notepad on your Desktop called HC24 Login.

It is your responsibility to keep track of the logins for this, we recommend using an email that will not change with staff.

20

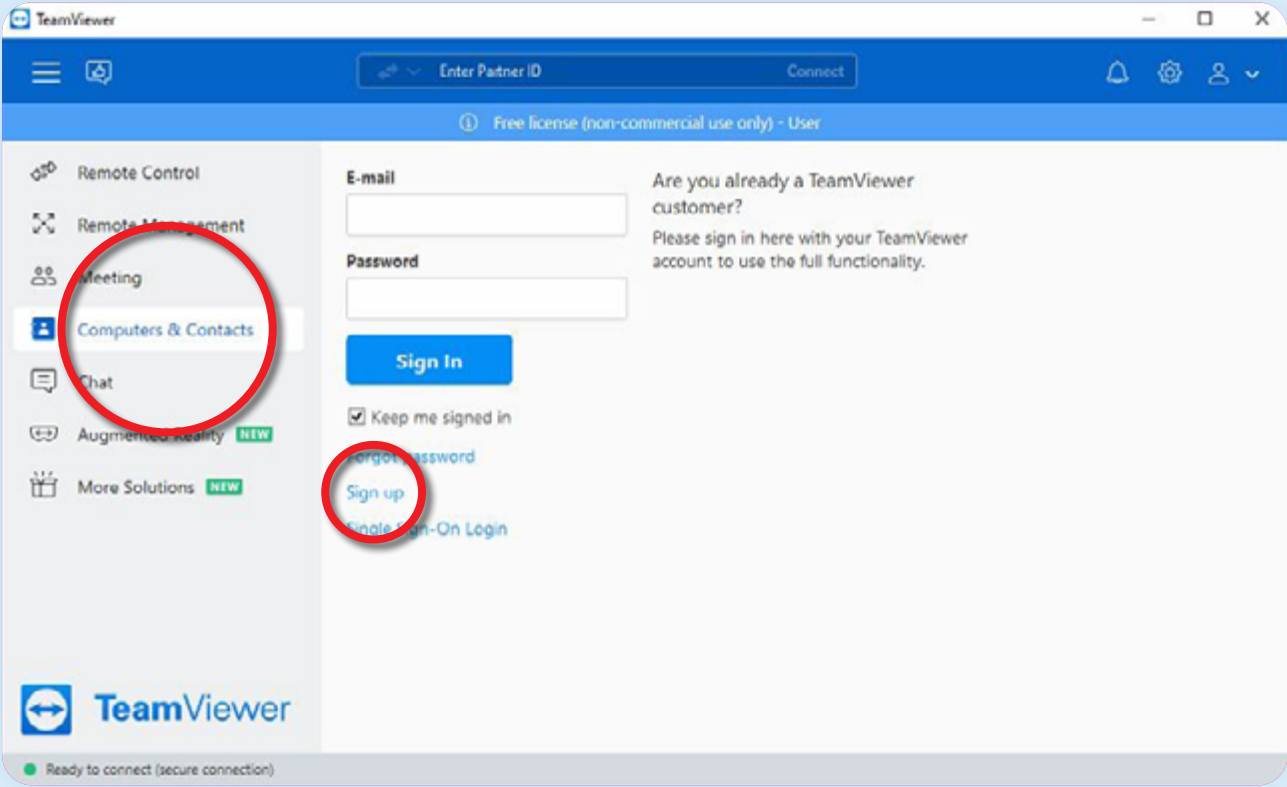
Teamviewer

Having access to the screen at the Dairy shed allows you to do anything you like remotely. Using Teamviewer is how the Allflex team accesses the system to help keep everything up to date. There is also the option to give your vet access so they are able to log on when required.

You can set your home PC up with Teamviewer (or any other sharing software you like) so you can access the information or do data entry from the comfort of your home office.

We are not able to provide assistance with your home PC or troubleshoot Teamviewer issues, but here are some steps to help you:

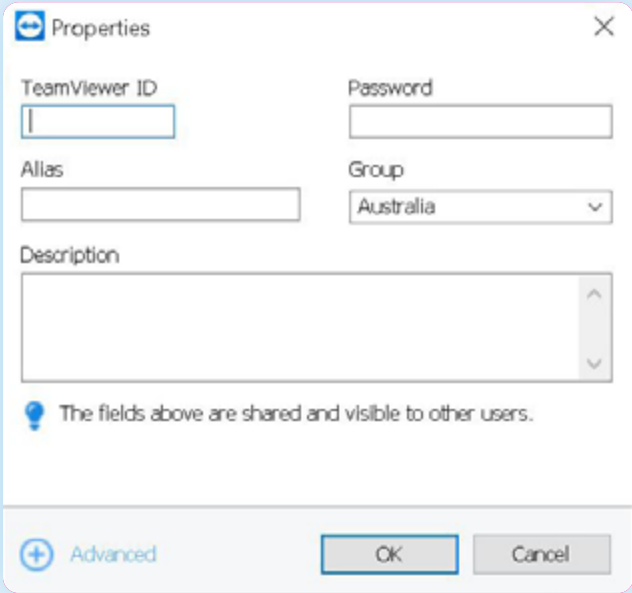
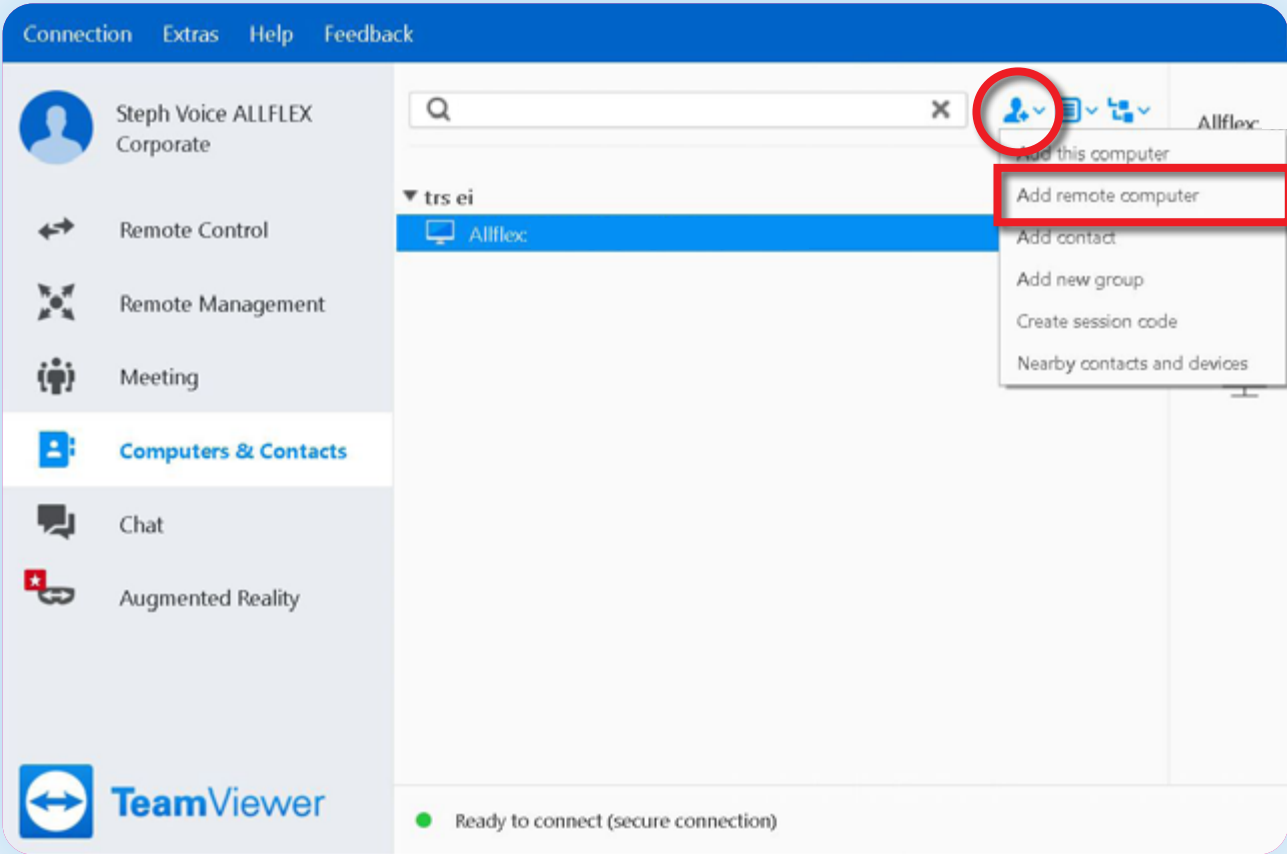
1. Download Teamviewer from www.teamviewer.com. You can start with the free version, but eventually you may need to pay for an account if you use it all the time (or use another software option such as share connect).
2. Once downloaded, create yourself an account by navigating to the Computers and Contacts menu, and clicking on ‘Sign Up’.



Continued —>

- 3. Follow the prompts to complete account set up.
- 4. Next save your shed computer in the Computers and Contacts menu, then clicking on the icon as indicated below, and clicking on **'Add Remote Computer'**.

5. Enter the details which you will need to get from your shed computer. Your Teamviewer ID can be found by opening Teamviewer at the shed, and under the menu tab **'Remote Control'**, get the ID number (you don't need the password).



- 6. Next, contact your trainer to get a permanent password.
- 7. Under Alias, you can put your shed name, particularly if you are adding in more than one system.

8. Hit **'OK'**, and test connection by double clicking on the contact. Note, Teamviewer will not work if the internet is down at the shed, and close the connection whenever you are finished with it to try and extend the amount of time you are able to utilise the free account.



Livestock Intelligence™

MSD Animal Health Intelligence

Allflex Livestock Intelligence is the world leader in the design, development, manufacturing and delivery of solutions for animal identification, monitoring and traceability. Our data-driven solutions are used by farmers, companies and countries to manage hundreds of millions of animals worldwide. By putting intelligent, actionable management information into farmers' hands, our solutions empower them to act in a timely manner to safeguard their animals' health and wellbeing, while achieving optimal production outcomes for a healthy food supply. Allflex Livestock Intelligence is a livestock portfolio of digital products within MSD Animal Health.

Through its commitment to the *Science of Healthier Animals*®, MSD Animal Health offers veterinarians, farmers, pet owners and governments one of the widest ranges of veterinary pharmaceuticals, vaccines and health management solutions and services as well as an extensive suite of digitally connected identification, traceability and monitoring products. MSD Animal Health is dedicated to preserving and improving the health, wellbeing and performance of animals and the people who care for them.

Copyright© 2022 Allflex New Zealand Ltd., subsidiary of Merck & Co., Inc., Kenilworth, New Jersey, U.S.A. The information contained herein is subject to change without notice. The only warranties for Allflex's products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty.

Allflex Livestock Intelligence shall not be liable for technical or editorial errors or omissions contained herein.