

afimilk®



AfiAct II

User Manual

AfiAct II™

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Federal Communications
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Conformité Européenne
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Preface Material

About this Manual

This manual describes how to manage your dairy cows via AfiAct II software, which is a dedicated edition of the AfiFarm software for detecting cows in heat, to allow optimal breeding results and optimise herd fertility, in either a standalone system or as part of the larger afimilk system. The manual describes how to use the system step-by-step, including common fault handling.

Intended Users

This manual is intended for the dairy farmer responsible for the care of the dairy cows' breeding and fertility issues. It is assumed that the system has been fully installed and tested by afimilk authorized technicians, where Cow Tags were attached by the farmer.

The manual includes information for both; experienced AfiFarm users, as well as new users, where chapters that are also relevant for experienced users are explicitly marked out.

Document Scope

This manual describes the new features and usage of AfiAct II system. For a description of the AfiAct II Installation, refer to AfiAct II Installation Manual.

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Important information is highlighted in a frame, as explained below:



Safety Instructions and Notice



- Read this manual carefully. Proper handling of the equipment is the basis for correct functioning.
- Only technicians who are skilled and authorized by afimilk, dealer technicians together with the farm staff, may carry out installation of the equipment.
- The equipment may be used only for the described purpose.
- This system has been checked for viruses prior to delivery. If in the course of a service call, a virus is detected, removal of the virus and any software or hardware repairs resulting from it, will be charged to the purchaser.

- The system and its components are powered by electricity from a main power supply. The power is sufficient to cause serious personal injury or even death. Check that the electricity is disconnected when assembling and/or repairing electrical and electronic components.
- Never remove cover/s or parts of the system from the system before the electrical power is disconnected.
- Do not flush the electrical or electronic equipment with water or any other liquid.
- It is the responsibility of the operator to install, operate, and maintain the system in accordance with all applicable codes, regulations, by-laws, and safety regulations.
- High voltage surges and other power irregularities can cause extensive damage to a system. It is the responsibility of the operator to provide a power protection system.

List of Terms and Abbreviations

Term/Abbreviation	Description
AfiAct II	AfiAct enables detecting heat, managing herd fertility, etc.
AfiFarm	Afimilk herd management software.
AfiAct II Software	AfiAct II software is a dedicated edition of the AfiFarm software.
DIM	Days in Milk Number of days since last calving (Days in Milk = dry date - calving date).
DNB	Do Not Breed
PD	Pregnancy Diagnosis
VWP	Voluntary Waiting Period, also known as Rest Days
Insemination	Breeding, Breeding service
Postpartum	The period of the dairy cow that determines productive and reproductive responses during lactation. Monitoring postpartum health involves the examination of cows early in the postpartum period (7 to 10 days in milk).
Open animal	An animal that is not pregnant.
Estrus, Heat	The exact period of time in which an animal can get pregnant.
Estrous cycle	The recurring physiological changes indicating the reproductive cycle. Estrus (or heat) is a specific period during the estrous cycle.
Anestrous, Missed heat	The time interval between two periods of estrus. Cows are reported as missed-heat when this interval is longer than the expected heat cycle (~20-21 days).
WEEE	Waste Electrical and Electronic Equipment

Referred Documents

PN	Document Name
9440311	AfiAct II installation manual

Revision History

Version	Date	Description
01	Aug 2013	Revision one.

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1 Introduction

Running a profitable dairy farm is based on maintaining lactation efficiency at peak levels, via an efficient reproductive policy. This is achieved by ensuring accurate detection of cows that are in heat, to optimize breeding.

AfiAct II is an **estrus and fertility monitoring** system that provides a full picture **at a glance** of your farm animals that are in estrus. It may be utilized for heifers and/or for milking cows, to provide complete fertility coverage of the dairy farm. It may be implemented either as a **standalone system** or as part of a comprehensive **afimilk system**.

AfiAct II automated estrus detection system is based on AfiTag II sensors, designed to help the dairy farmer determine the optimal times for breeding cows. This is done by collecting cows' physical activity data, aggregating the data with events information, to generate heat lists, fertility reports and fertility disorder alerts (missed-heat & abortion).

This document describes the AfiAct II new features and provides an overview of the system navigation and basic capabilities.



NOTE

AfiAct II software is a dedicated edition of the AfiFarm software.



NOTE

This manual is intended for new and for experienced AfiFarm users. The following chapters provide guidelines for all users: 1, 2, 3, 4, 5; Chapters 6, 7 are for new users; Chapter 8 provides information for advanced system usage.

1.1 AfiAct II Features

AfiAct II provides an immediate and intuitive view on your farm's in-heat animals. It includes enhanced heat detection features, and allows access to all of the basic AfiAct features.

NOTE



You may set the system to sort the animals in heat via the afimilk sorting gates system. To set the system sort-codes and triggering, refer to the relevant manual.

Enhanced Capabilities

- Auto-refreshed, aggregated cows & heifers heat lists – default system opening on an auto-refreshed, immediate and aggregated observation of all animals listed in the **To be Bred** reports (both: cows and heifers); see chapter 4, 8.1.
Note: aggregated graph is also available for animals that are not in heat.
- Activity graph – a 1 to 50 day graph, showing aggregated data of activity, deviations and reported events, providing the estrous cycle history picture of an animal that is listed in a **To be bred** report; see chapters 4, 8.1.
- User-determined tracking intervals (hourly/daily/per-session) – the user may zoom-in/zoom-out in the activity graph time interval (between 1 and 50 days), where the graph is shown with a corresponding scale, see 4.3.2
- Provide exact estrus detection and duration data – the system provides exact timing of the last estrus detection and duration, see 4.3

AfiAct II Basic Features

The system includes all the AfiAct basic capabilities, providing:

- Fertility analysis graphs and reports – the system provides various graphs and reports (based on activity, breeding, abortion, lactation, heat interval, etc.), to allow fertility management and analysis, early detection of fertility problems, etc. (see report list in section 1.2; abortion and missed-heat detection – section 8.2; advanced heat cycles analysis, section 8.1).
- Monitoring and adjustment tools – to allow adjustment of the system report thresholds (e.g. deviations etc.) to specific farm needs; see sections 3.4, 3.5.

1.2 AfiAct II Reports

AfiAct II system provides various fertility, animals and advanced reports. The following sections list the AfiAct II most common reports.

1.2.1 Fertility Reports

The following fertility reports are the most commonly accessed:

- Animals to be bred – lists all animals that should be bred (cows & heifers), based on a comprehensive analysis; see chapter 4
- Cows to be Bred – lists all the cows that should be bred
- Expected Dry – lists the daily dry off plan according to the number of days the cow is pregnant.
- Expected Calving – assists in moving dry cows from regular dry pens to steam-up groups and then to calving enclosures.
- Heifers to be Bred – lists all the heifers that should be bred
- Missed heat – lists cows that may require hormonal treatment for getting into estrus; see section 8.2.2
- Suspected Abortions – lists cows that may have aborted, providing early detection and allowing you to take necessary action for making these cows eligible for breeding once again; see section 8.2.1.

1.2.2 AfiFarm Today: Animals Reports

The listed animal reports provide details for each of the following classification:

- Milk / Dry / Cows: – lists cows that are in milk; cows that are dry correspondingly.
- Males – provides a list of the herd's males.
- Heifers (Pre) – lists heifers that are before lactation (including pregnant heifers)
- Pregnant Cows – lists cows that are not pregnant
- Pregnant Heifers – lists heifers that are not pregnant
- Heifers Open > 18 Months – lists heifers that are 18 months old but are still not pregnant.
- Cows Open > 150 DIM – lists cows that are more than 150 DIM but are still not pregnant.

1.2.3 Additional and Advanced Fertility Reports

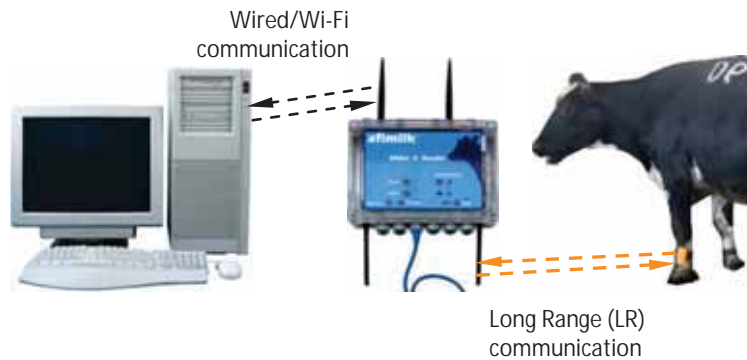
AfiAct II provides advanced reports, to be used when performing deeper analysis. The following list provides the most commonly used advanced reports.

- *Suspected Heat (Excessive Activity) Report* – lists cows that show excessive deviations but are not eligible to be listed in the Cows in Heat report, see section 5.1
- *Fertility* – provides fertility and breeding performance analysis of the farm; see 8.3
- *Pregnancy Rates Analysis* – an advanced report used for reviewing pregnancy rates, heat detection, abortions etc. , see 8.3.3
- *Suspected Heats* – lists the cows that show signs of heat but are not eligible for breeding (according to Estrus Deviation Report parameters), see sections 3.3.2.1, 5.1
- *Events Reports* – List of events per type in a defined period.
- *Group Reports* (Group List; Gynecological Status; Reproduction) - allows comparisons between the performances of groups.

1.3 Principle of Operation

AfiAct II provides aggregated fertility information, based on cow activity and on farmer events. The following diagram shows the data flow in the AfiAct II system.

Figure 1: AfiAct II system data flow



AfiTag II placed on the cows' leg holds the unique ID of each cow, and records its number of steps, standing time, rest time and bout.

AfiAct II collects data from cow tags via AfiAct II Reader, which transfers the information to a PC-based analysis.

The farmer enters all fertility events into AfiAct II, to ensure a complete and comprehensive analysis.

The AfiAct II software, located on the PC, uses the collected activity data and event data of each cow to calculate when the cow is in estrus and find the best time for breeding. The application generates reports and alerts the farmer. According to the provided reports, the farmer may decide which cow to breed, which cows may have aborted, which are showing signs of missed-heat, and more.

1.4 Deployment Types

AfiAct II can be installed and operated in the following deployments:

- **In farms using AfiFarm 4** – AfiAct II is integrated into an existing AfiFarm system. It is installed on a dedicated station, where AfiAct II collects the activity data, and the user enters the rest of the animal data into AfiFarm4 software, forming a single interface for data entry. The system automatically synchronizes data between the applications, and the user may view the aggregated AfiAct II data via the AfiAct II computer.
- **In farms with no management system** – AfiAct II is separately installed as a standalone heat detection system.
- **In farms with other management systems** - AfiAct II is installed as a standalone heat detection system, with no data sharing with the AfiFarm system (data sharing is available via supported protocols).

1.5 Prerequisites

For correct functionality, the AfiAct II system must be properly installed; then, tags and data must be maintained on a regular basis:

1. **Installation verification:** Verify that the system has been properly installed, mandatory data has been entered, and AfiTags II have been attached to the animals (see AfiAct II installation manual, referred documents, page vii).
2. **Daily AfiTag II maintenance:** Manage tags of animals removed from or added to the AfiAct II group, see chapter 2
3. **Daily (per session) data maintenance:** Enter mandatory events into the system on a regular (per session) basis, see chapter 7

NOTE



AfiActII analysis is based on deviations from the normal behavior of the cow. To calculate the average activity level AfiAct must calculate a baseline average. This requires at least 3-5 days readings (including all sessions per each day) of cow activity.





NOTE



If the number of sessions are changed, contact afimilk representative to re-configure the system.

1.6 Main System Components

The following table lists the main elements of the **AfiAct II™** system.

Picture	Name	Description
	AfiTag II	afimilk's cow-tag, including the attachment strap. A tag should be attached to every cow participating in the AfiAct II group.
	AfiAct II Reader	AfiAct II hardware components (e.g. Reader, antennas, etc.) are installed by afimilk or dealer technicians.
	Computer running AfiAct II software	AfiAct II application includes: AfiFarm for AfiAct II + RT Studio, installed by afimilk or dealer technicians.
	Printer	<i>Recommended: A printer connected to the computer, to allow printing the breeding lists and other reports.</i>

2 AfiTag II Maintenance

AfiTag II is responsible for continuously sending cow data to the AfiAct II system. It is factory-set to use the specific frequency and channel corresponding to your region. It is the farmer's responsibility to attach the tags to all cows in the group and enter their ID into the system. Furthermore, when a cow is removed from the group, it is the farmer's responsibility to remove the tag from its leg and inform the system. A removed tag may be stored or immediately re-used on another animal.

The tag is attached to the cow's leg using a flexible strap. It is mandatory to use an original afimilk strap.

This chapter provides detailed instructions for tag management:

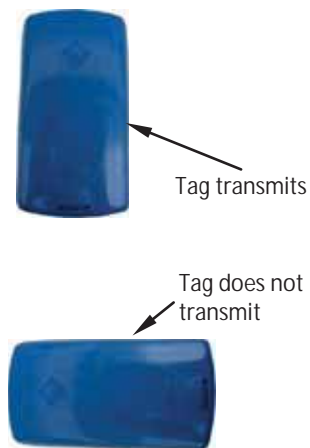
- Tag attachment, see 2.1
- Tag replacement (when a tag is moved from one animal to another) , see 2.2
- Tag storage, see 2.3



NOTE

The tags only transmit when held in vertical position. Therefore, when tags are transported, ensure they are in horizontal position.

When a cow is lying down, the data is collected, but will only be transmitted when the cow is up again.



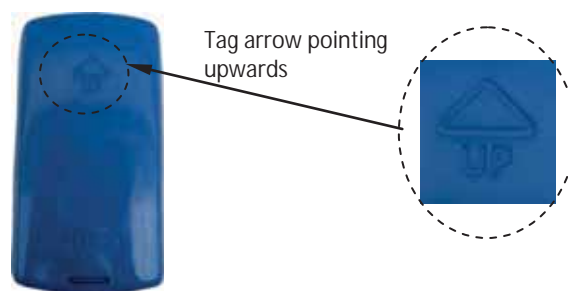
2.1 Attach AfiAct II Tags

To attach the tag onto a cow's leg:

1. Identify the tag elements, as shown below:



2. Connect the strap to the tag as follows:
 - a. Locate the tag with the arrow pointing upwards.



- b. Insert the narrow side of the strap through the back of the tag's "ear".



- c. Pull the strap to the right, until it is locked in the tag's "ear". (Ensure the strap is locked by pulling it back).

3. Prepare all tags for attachment as described in steps 1, 2.
4. Apply the tag to the cow's leg as follows:
 - a. Position the arrow of the tag upwards and wrap the strap around the cow's leg above the hoof, about 20cm/8inch above floor level.



- b. Insert the narrow side of the strap through the tag's ear.



- c. Pull the strap through the ear, ensuring the tag is not too tight, by inserting two fingers between the strap and the cow's leg.

Pull strap



Two fingers distance
between tag and cow's leg

CAUTION



The AfiTag II attached to a cow should be loose enough to rotate freely around the cows' leg, to avoid injuries or leg disease. This is especially important with heifers, where the legs are still growing.

5. Cut off the excess length of strap.



6. Keep a record of each cow with its corresponding AfiTag II number.
7. When entering a new cow into AfiAct II software, enter its corresponding AfiTag II number. See chapter 7.

2.2 Replace Tags

AfiTag II can be transferred from one cow to another, for example, on the following occasions:

- Removing from culled cows.
- Removing from cows that are dry until the time of their calving.
- Removing from a heifer that is ready for calving.

As the legs of a heifer grow, the straps can become too tight. In this case, it is highly recommended to remove the tag from a heifer before calving (if heifer heat detection is used). When the heifer starts its first lactation, the tag can be reattached with new straps.

To ensure proper maintenance and storage of tags and increase tag longevity, handle tags as follows:

- When removing a tag from a cow's leg, cut off the strap. Do not re-use straps.
- AfiTags II are encased in sealed plastic containers. A tag can be washed under running water (warm or cold) before storage or before attaching to new cows. However, tags should not be soaked in water for long periods (hours) of time.

CAUTION



Soaking AfiTags in water for hours may reduce their life expectancy.

NOTE



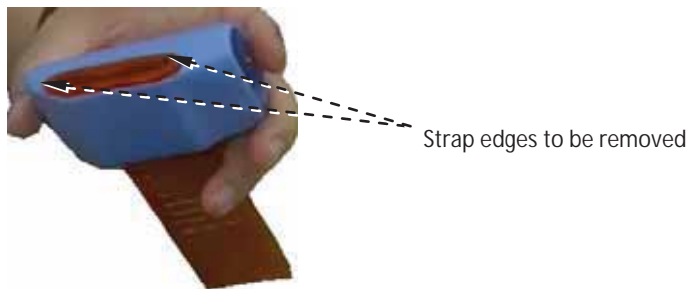
Replacing an animal's tag will be reflected in the Activity graph; as the activity count re-starts resulting with a gap in the presented graph.

To remove a tag or move it to another animal's leg:

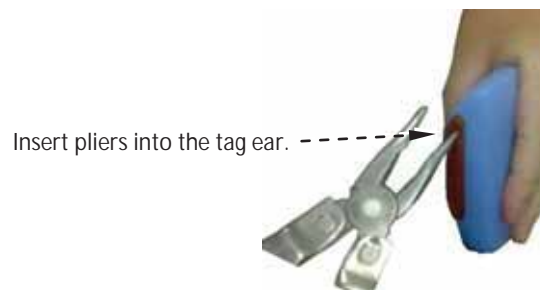
1. Use pruning-shears and carefully cut the strap of the attached tag.



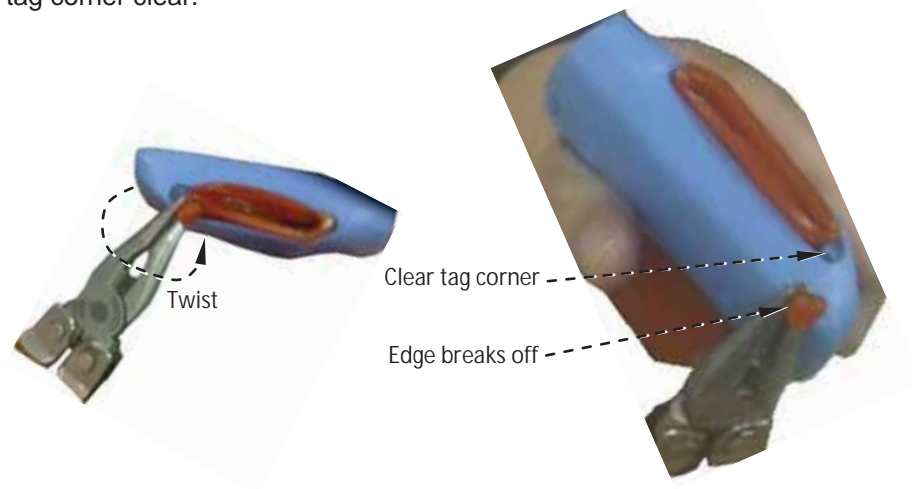
2. Hold the tag removed from the cow's leg and use Leatherman pliers to remove the remaining strap edges as demonstrated below:



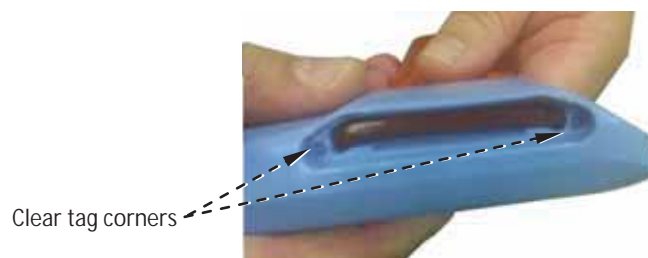
- a. Insert the pliers into the tag-ear and grip one of the strap edges.



- b. Twist the strap edge using the pliers, until the edge breaks off, leaving the tag corner clear.



- c. Repeat phase B with the second edge, leaving two clear corners.



3. Pull the strap out of the tag.



4. Your tag is now clear for re-use or storage. Make sure you record each cow with its corresponding AfiTag II number. When a tag is removed – inform the system of the removed/replaced tag and the reason (e.g. culling), See chapter 7.



2.3 Store Tags

When necessary, AfiTag II should be stored in a dry protected area. Storage should be at least 1 meter (3 feet) away from any radiating device such as main power cables, PC screens, electric crowd gates, and other high power devices.

In order to save battery life, it is recommended to lay the tag horizontally.

Following all recommendations for AfiTag II care will ensure smooth operation and maximize AfiTag II longevity.



CAUTION



Radiating devices may create an electromagnetic field that energizes the AfiTags, thus shortening their life expectancy.

3 Navigating AfiAct II Application

AfiAct II consists of two modules:

- 
Afimilk RT System module – this module controls and monitors the system and collects data from the animals (via sensors and devices). Although the GUI may be turned off, the module always runs in the background and must never be turned off. The RTG icon is located in the Windows tasks bar.
- 
AfiFarm for AfiAct II – contains the AfiAct II program and reports. In farms that do not use other AfiFarm elements, the data entry screens and activities are also accessed through this component. The AfiFarm program icon is located on the desktop. It is recommended not to turn off this module.

AfiAct II default opening view shows at a glance the farm animals that are in heat, allowing the user to scroll between these listed animals' activity graphs (see 3.1). Additional graphs and reports related to the selected animal may be accessed directly through this view.

Access to other classification-type of animals (e.g. pregnant; expected calving, etc.) or access to the entire herd's reports may be done in several flexible ways, through the report-list and herd's view.

This chapter provides guidelines for navigating the AfiAct II application.

NOTE



This chapter provides the basic navigation instructions for the AfiFarm application, as required for AfiActII usage. For further details on AfiFarm navigation, refer to the relevant UM.

NOTE



The screens' layout may be customized according to the user's preferences. The following sections provide a typical screen layout as an example.

NOTE



Terms that appear in the screens below may differ slightly according to the specific user language (e.g. insemination vs. breeding).

3.1 Opening AfiAct II Software

By default, when your computer starts, the AfiFarm special edition for AfiAct II software automatically starts. If AfiFarm was manually closed, to re-open your AfiFarm application, double-click on the AfiFarm icon placed on your desktop:



The default opening display is **animals be bred view**:

The screenshot shows the AfiAct II software interface. On the left is a 'Standard navigation tree' with options like 'AfiFarm Today', 'Data Entry', and 'Animals for Insemination View'. The main window displays 'Animals for Insemination View' with a list of animals under 'Herd 1' and an 'Activity Graph' for the selected animal (ID 3920). The graph shows 'Deviation (g)' on the y-axis and 'Days' on the x-axis. A 'NOTE' box at the bottom explains that the default display can be edited via the scheduler.

Standard navigation tree

List of animals in heat

A listed animal's activity graph (by default: 1st listed animal)

NOTE

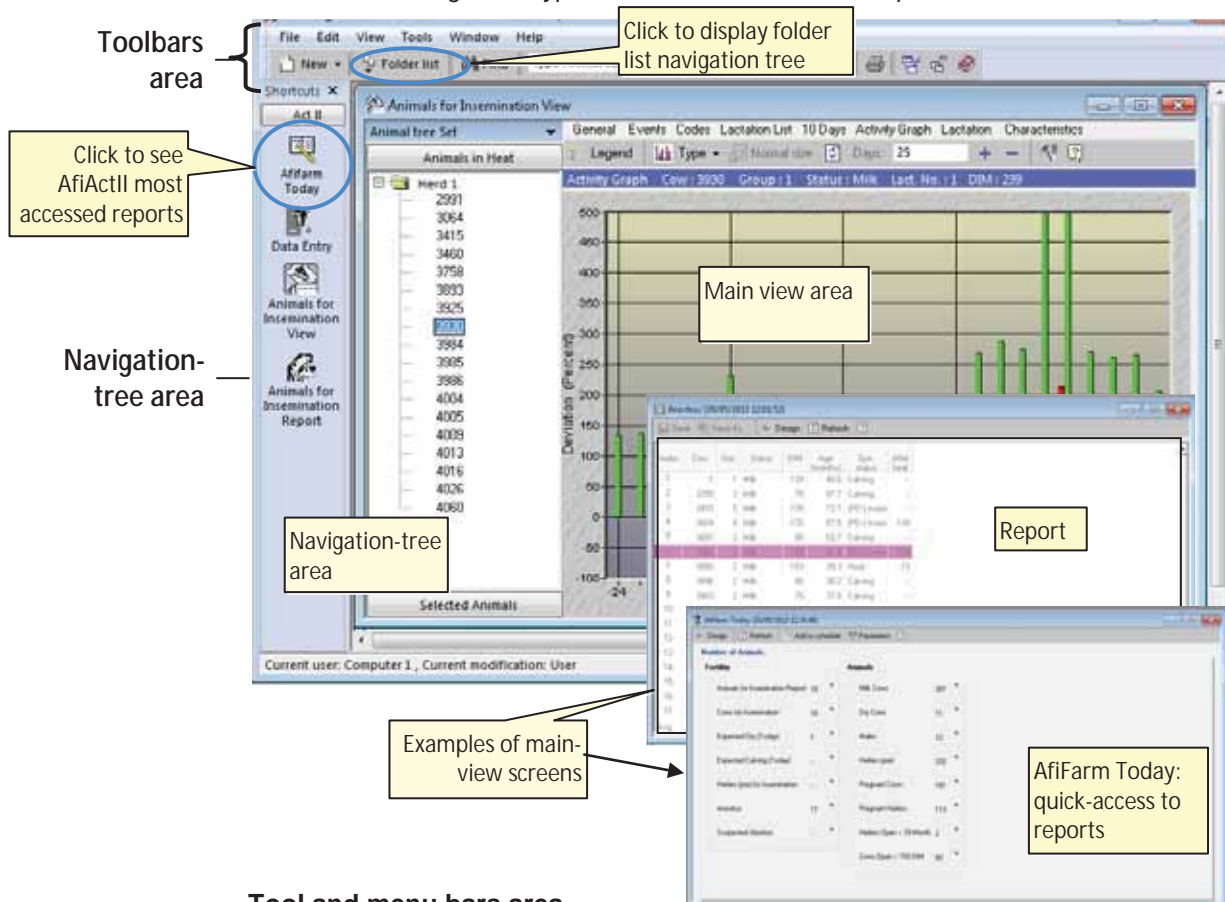
The default display may be edited by the user via the scheduler, which lists the default opening report; see section 5.2 for details.

3.2 AfiAct II Workspace

AfiAct II screens consist of three major areas:

- **Toolbars area** – for performing general operations such as file-saving, search-options, printing, editing, etc.
- **Navigation-tree area** – for choosing the required reports and management options.
- **Main view area** – provides the selected reports or options and its sub-functions.

Figure 1: Typical AfiFarm for AfiAct II Workspace



Tool and menu bars area

Two tool and menu bars are provided in the AfiFarm workspace:

- A standard menu bar for general-operations

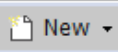

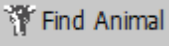





File Edit View Tools Window Help

- An AfiFarm-specific icon toolbar



The following table details the main operations provided by the icon toolbar.

Table 3-1. AfiFarm Icon Toolbar Options

Icon	Description
 New ▾	Allows entering new data into the application.
 Find	Opens the Find window for defining search criteria.
 Find Animal	Opens the Find Animal window, allowing the user to enter free-text for free search.
	Enables the user to toggle between search results (enabled when applicable).
	Prints displayed information.
	Lists the windows that are currently open.
	Closes all the open windows.
	Opens the AfiFarm Help window.

Navigation-trees area

The navigation tree area allows the user to select the desired report or operation. The selection may be either from the standard list of folders (providing all the available functions) or from a user-customized shortcut list.

Example I – using the shortcuts tree (to display Animals to be Bred view):

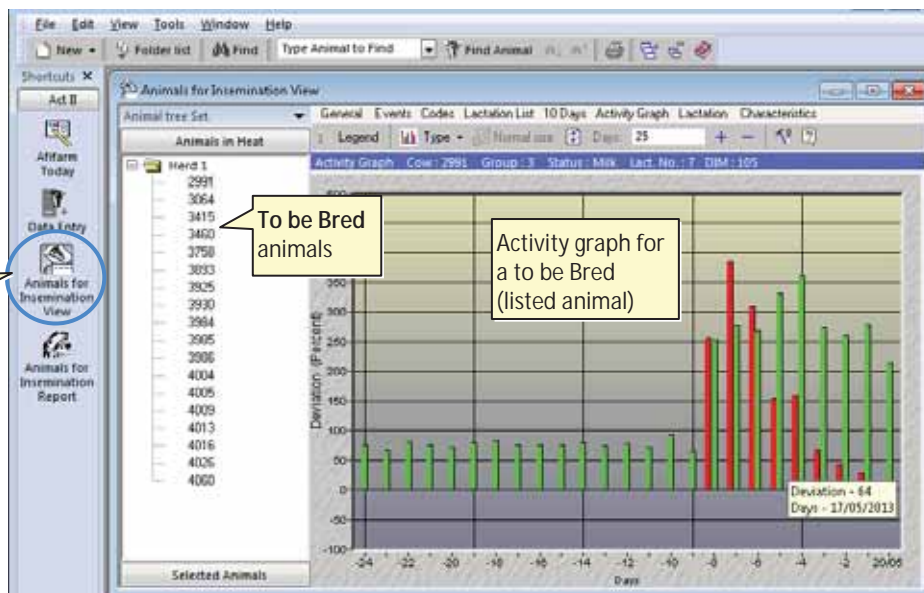
On the **shortcut** navigation-tree, click the **Animals to be Bred** button.

A list of the farm's animals that are in heat is displayed, along with the activity graph of the 1st listed animal.

NOTE



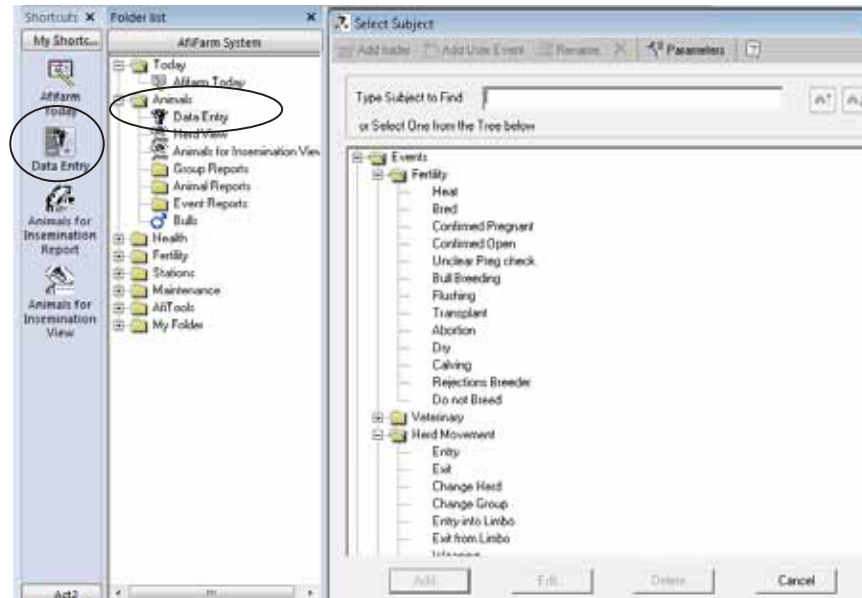
You may scroll between the listed animals to display their corresponding activity graph.



Example II: Using the Folder list OR Shortcut navigation trees to access enter-animal-data screens (for systems without AfiFarm4):

Either one of the following actions will open the Data Entry view:

- On the shortcut navigation-tree: click the **Data Entry** button OR
- From the folder list: choose **Animals** → **Data Entry**.



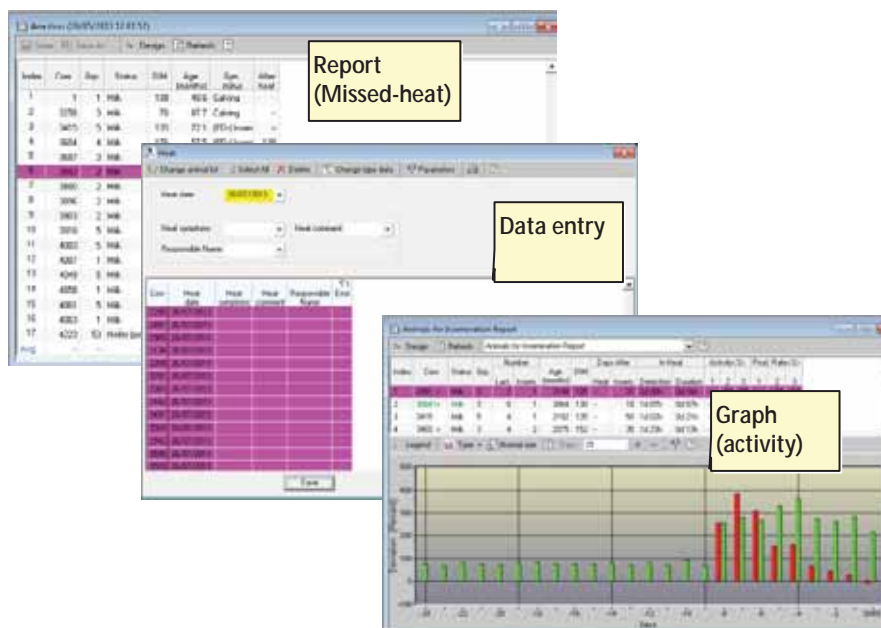
Main view area

The main view area provides details and sub-options according to the selected navigation path, e.g. reports, data-entry operations, etc.

The following major types of main-view screens are available:

- Reports and graphs (e.g. cows-to-be-bred report).
- User-actions (e.g. screen for entering new cows or data on existing cows).

Examples:



3.3 Accessing AfiAct II Reports and Graphs

AfiAct II provides various reports. For easy access, the most popular fertility and animal reports and graphs are grouped in AfiFarm Today quick-access list that was customized for AfiAct II. Additional system reports for the whole herd may be accessed via different paths.

AfiFarm Today: allows quick-access to the following AfiAct II reports

Number of Animals			
Fertility	Animals		
Animals To be Bred Report	20	Milk Cows	357
Cows To be Bred	18	Dry Cows	11
Expected Dry (Today)	1	Males	12
Expected Calving (Today)	--	Heifers (pre)	332
Heifers (pre) To be Bred	2	Pregnant Cows	181
Missed Heat	17	Pregnant Heifers	113
Suspected Abortion	--	Heifers Open > 18 Month	2
		Cows Open > 150 DIM	60

The following sections describe major navigation paths for the quick-access reports and for the entire herd and system reports.

3.3.1 Accessing AfiAct II Most Common Reports

The most common reports can be accessed via several paths. Two examples are provided below.

To access common-reports via the shortcut navigation tree


1. In the AfiFarm application open the **Animals to be Bred** report, showing the activity graph of the first listed animal.
2. From the shortcut navigation-tree select the required report.

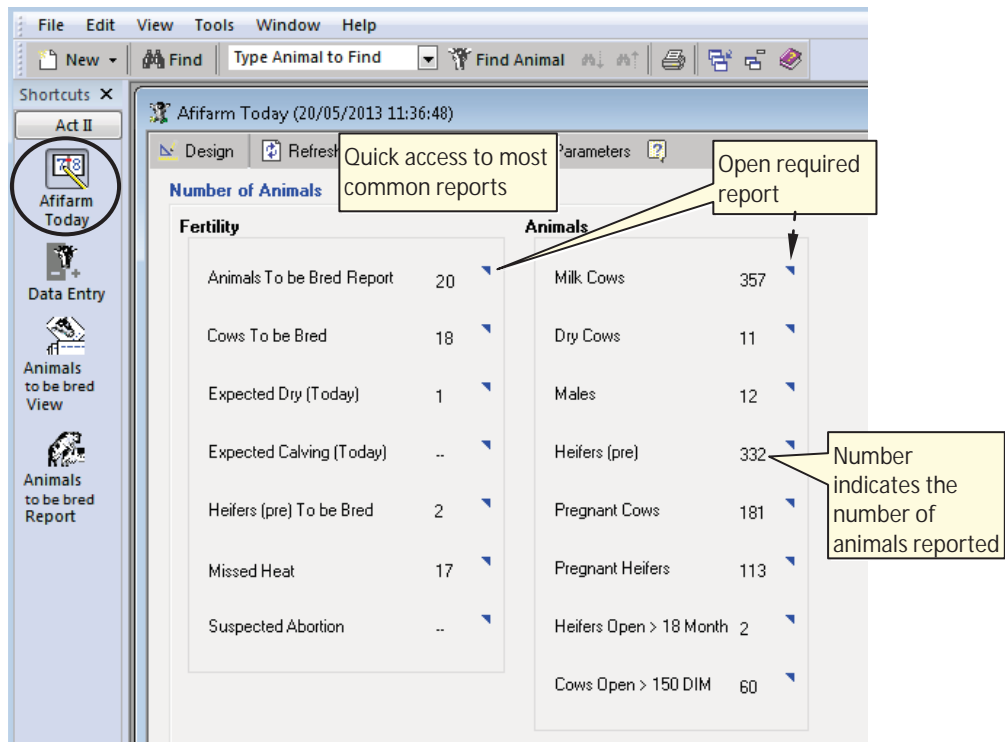
The screenshot shows the AfiAct II application interface. On the left, there is a 'Shortcuts' pane with a tree view. The 'Animals for Insemination Report' icon is highlighted, with a callout box pointing to it that says 'Select required report'. The main window is titled 'Animals for Insemination View' and shows a list of animals under 'Herd 1' on the left and an activity graph on the right. A callout box points to the animal list with the text 'Single-click -> show activity graph' and 'Double-click -> access herd-view'. The activity graph displays 'Deviation (Percent)' on the y-axis and 'Days' on the x-axis, with a legend indicating 'Type' and 'Normal size'. The graph shows a series of bars representing activity over time, with a deviation of 64 and a date of 17/05/2013.

NOTE

To customize the shortcut navigation tree, refer to the relevant user manual.

To access reports via *AfiFarm Today*

1. In your AfiFarm screen select **AfiFarm Today** from the standard navigation shortcut tree.
2. From the displayed AfiFarm Today access-list select the desired report, by clicking on the blue triangle  near that report. The relevant report appears.



3.3.2 Switching to another Report from a Presented Report

NOTE



This option is available only for some reports, when switching to a related report that is within the same reports' folder (same domain).

To switch to another **related** report directly from within a presented report

Click the **report name** combo box to display a list of available reports, and select the desired report from the roll-down menu.

Note: You may also use F4/down arrow button, etc. to select values from the combo-box.

Click to show available reports

Index	Cow	Grp	Lact	Prod. Rate
1	2991	3		74 64
2	3004	3		67
3	3415	5		60
4	3480	3		64

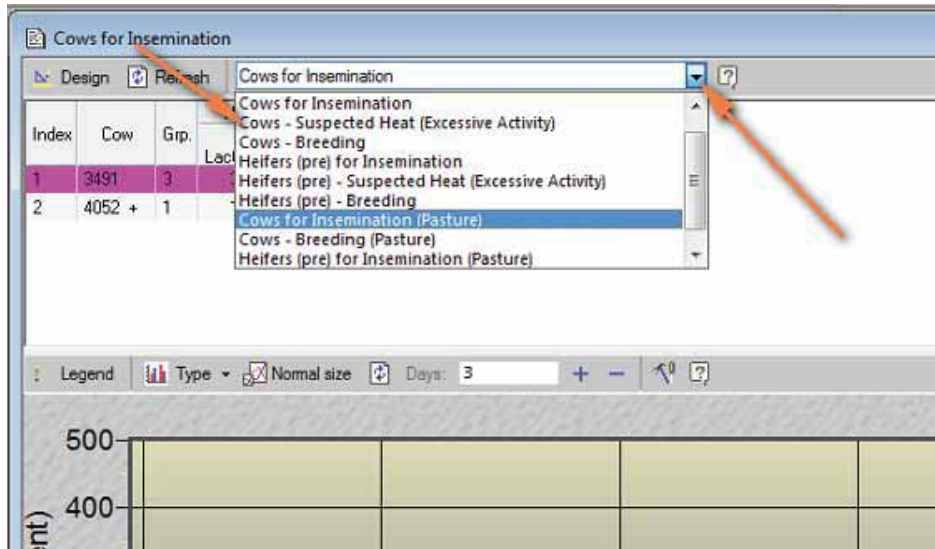
Current user: Computer 1 , Current modification: User

CAP. NUM. SCRL

3.3.2.1 Example: Accessing the Suspected Heat (Excessive Activity) Report

To access the **Cows Suspected Heat (Excessive Activity) Report**:

1. From the **Cows to be Bred** report, expand the report name field and select **Cows Suspected Heat (Excessive Activity)**.



2. The relevant report appears



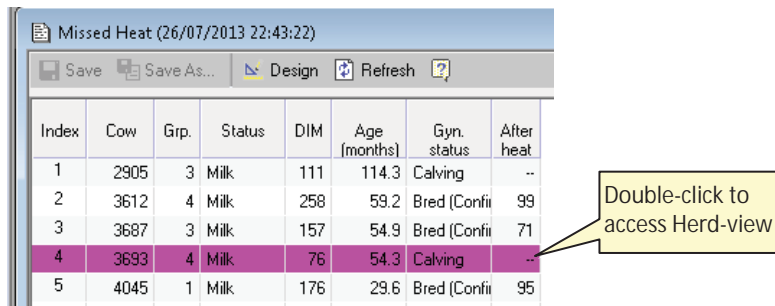
3.3.3 Accessing Additional Herd Reports (e.g. Lactation, 10-days, Activity, Events, etc.)

Some reports are accessed through the Herds view (e.g. lactation, 10-days or any animal's activity graph)

To access Herd view additional system reports

1. Perform the action relevant to your path:

- *From within the report:* double-click on the required animal's row.

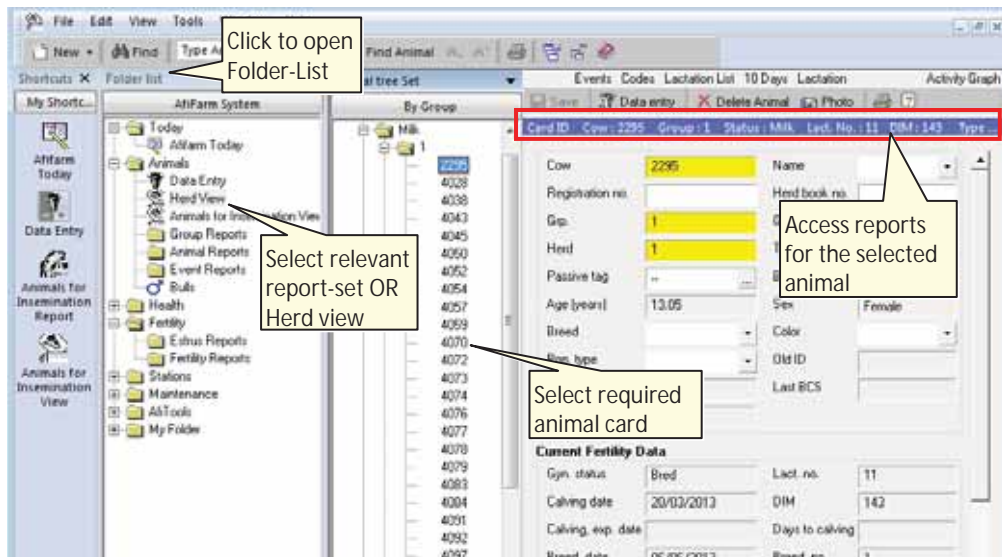


Missed Heat (26/07/2013 22:43:22)

Index	Cow	Grp.	Status	DIM	Age (months)	Gyn. status	After heat
1	2905	3	Milk	111	114.3	Calving	--
2	3612	4	Milk	258	59.2	Bred (Confi)	99
3	3687	3	Milk	157	54.9	Bred (Confi)	71
4	3693	4	Milk	76	54.3	Calving	--
5	4045	1	Milk	176	29.6	Bred (Confi)	95

Double-click to access Herd-view

- *For any animal in the herd:* Open AfiFarm folder list navigation tree, and from the Folder list select Animals→Herd view. Then choose the relevant animal-ID.



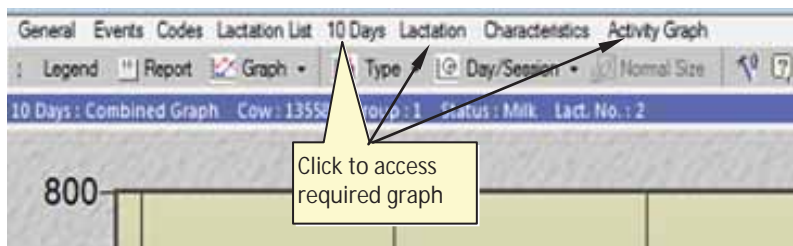
Click to open Folder-List

Select relevant report-set OR Herd view

Select required animal card

Access reports for the selected animal

2. In the displayed Herd view of the selected animal, click the requested report: Lactation, 10-days, Activity, etc.



General Events Codes Lactation List 10 Days Lactation Characteristics Activity Graph

Legend Report Graph Type Day/Session Normal Size

10 Days: Combined Graph Cow: 13552 Group: 1 Status: Milk Lact. No.: 2

800

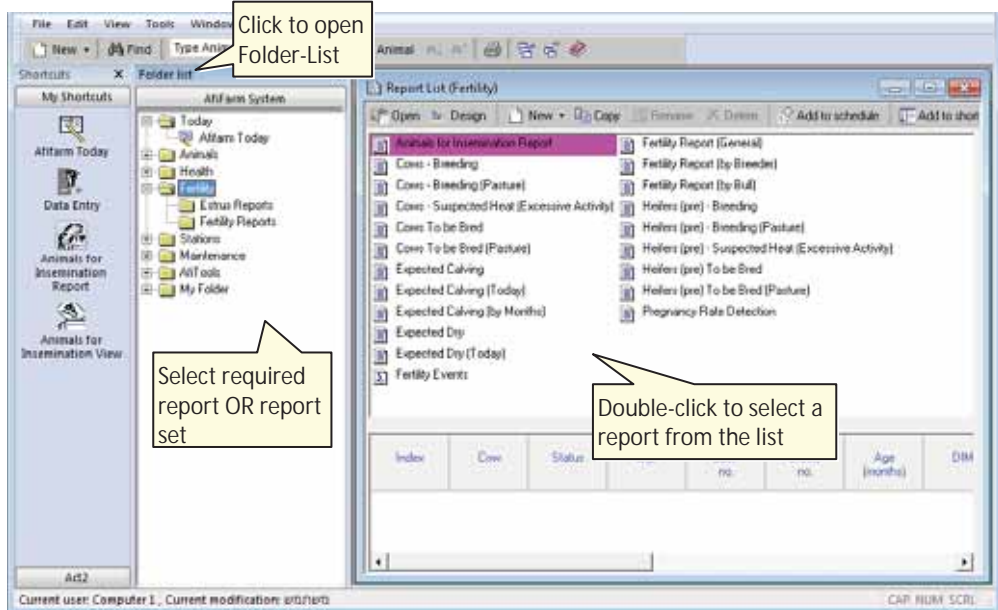
Click to access required graph

3.3.4 Accessing Reports from the Folder List

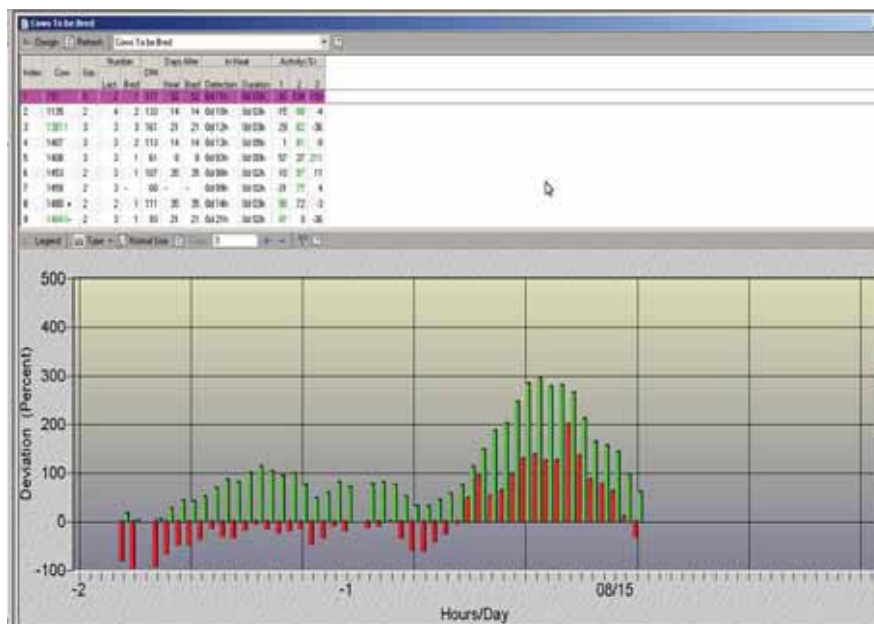
Additional system reports are available through the folder list.

To access reports via the folder-list

1. Open AfiFarm **folder list** navigation tree (click on **Folder list**)
2. From the presented Folder list navigation tree, expand and select the required report-set. In the following example, the fertility report-set was selected.



3. From the presented report-set list, select the required report and double-click to open the report. In the following example, the **Cows to be Bred** report was selected.

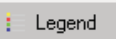
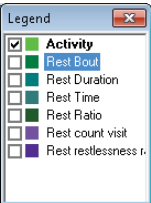


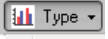




Note: To access additional graphs for this animal (e.g. Lactation, 10-days, etc.) refer to 3.3.3

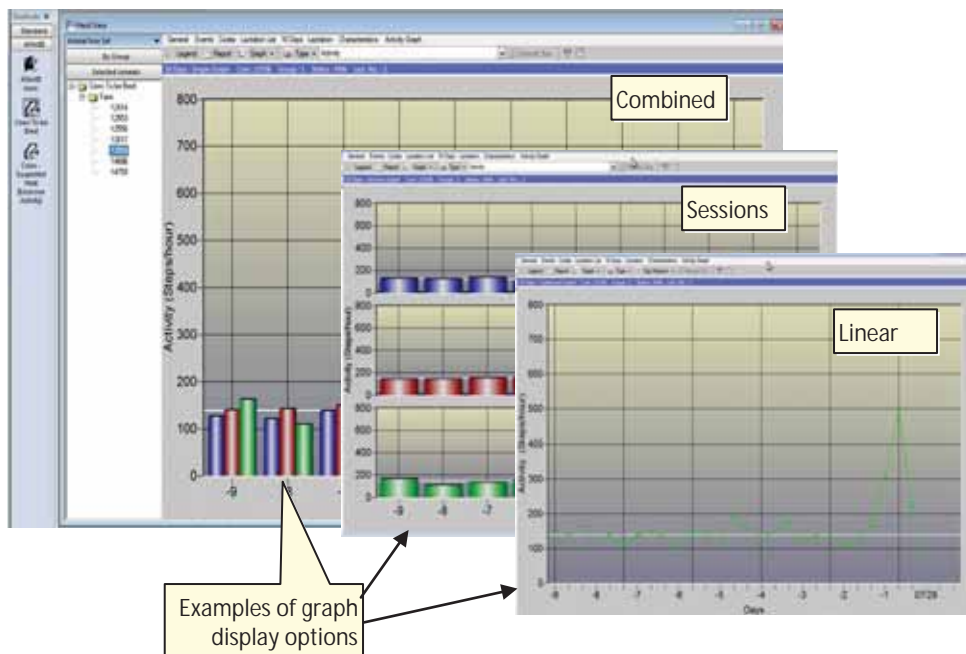
3.4 Adjusting the Look-and-Feel for a Report

Some reports have their specific look-and-feel adjustment capabilities, for example: the lactation, activity and 10-days reports. The adjustment options are accessed through the upper toolbar of the presented report and allow performing actions, some of which are specified in the table below.

Table 3-2. Look-and-Feel Customization

Icon	Opens Dialog...	Allows...	Available for...
		Selecting the type of events and data to be displayed.	10-days, lactation, activity
 	Combined Graph Single Graph Session Graph	Toggle between graph and report display; For graph – select the required display (see examples below)	10-days, lactation
 Type ▾  Line  2-D Bar		Toggle between linear or 2-D bar display	10-days, activity

Graph Display Examples:



3.5 Setting Parameters for a Report

System parameters enable adjustments of the system reports and graphs thresholds, to allow fine-tuning according to specific conditions and farm policy. The system allows both; *permanent changes* (done via the system parameters) OR *temporary changes*, where the defaults are restored when exiting the report.

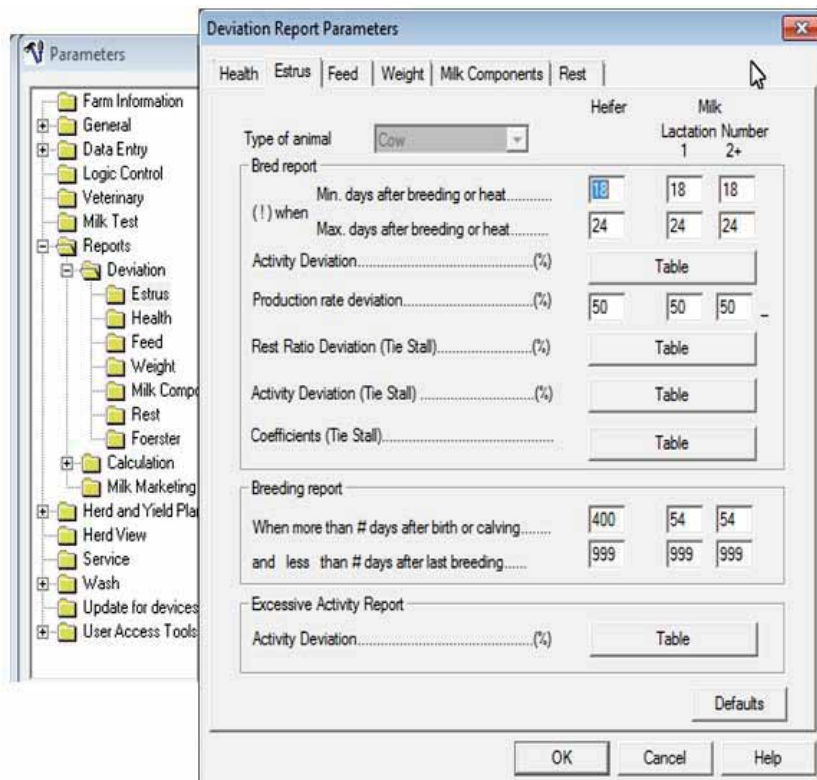
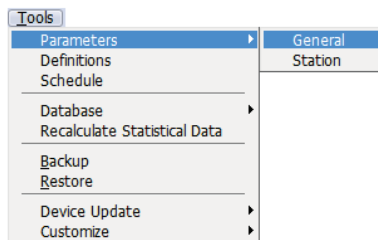
NOTE



The system factory defaults are usually suitable for most farms. When these are changed, it is highly recommended to consult with an expert.

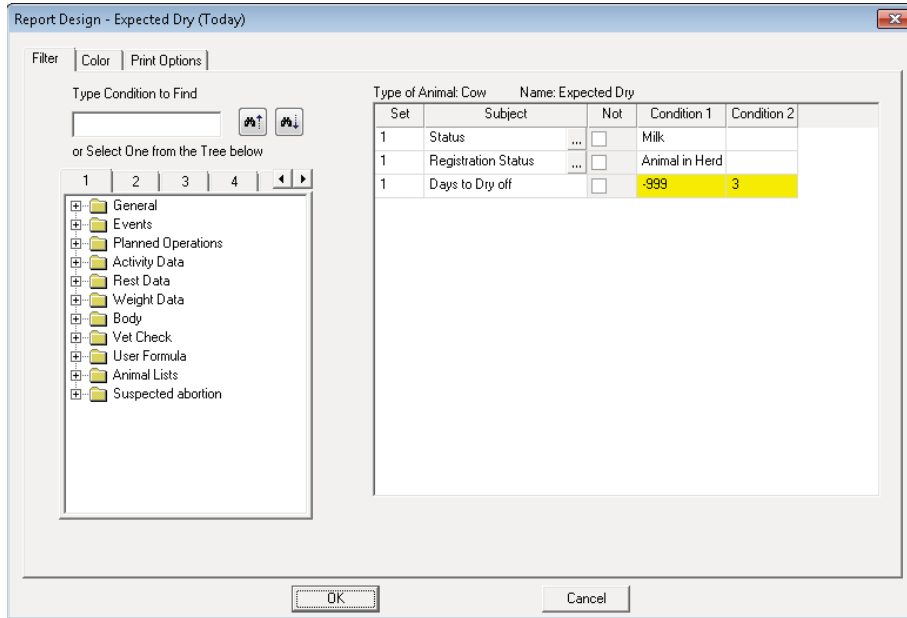
To setup report parameters permanently

From the standard toolbar, select **Tools**→**Parameters**→**General**. In the displayed **Parameters** screen, expand the **Reports** folder, then expand the **Deviation** folder and choose **Estrus**. In the displayed dialog, select the required tab and set the parameters needed.




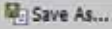
To temporarily setup parameters of a presented report

From within the report, click the **Design** button. The specific report's parameter-adjustment dialog is displayed. In the following example, the Expected-Dry design dialog is displayed:

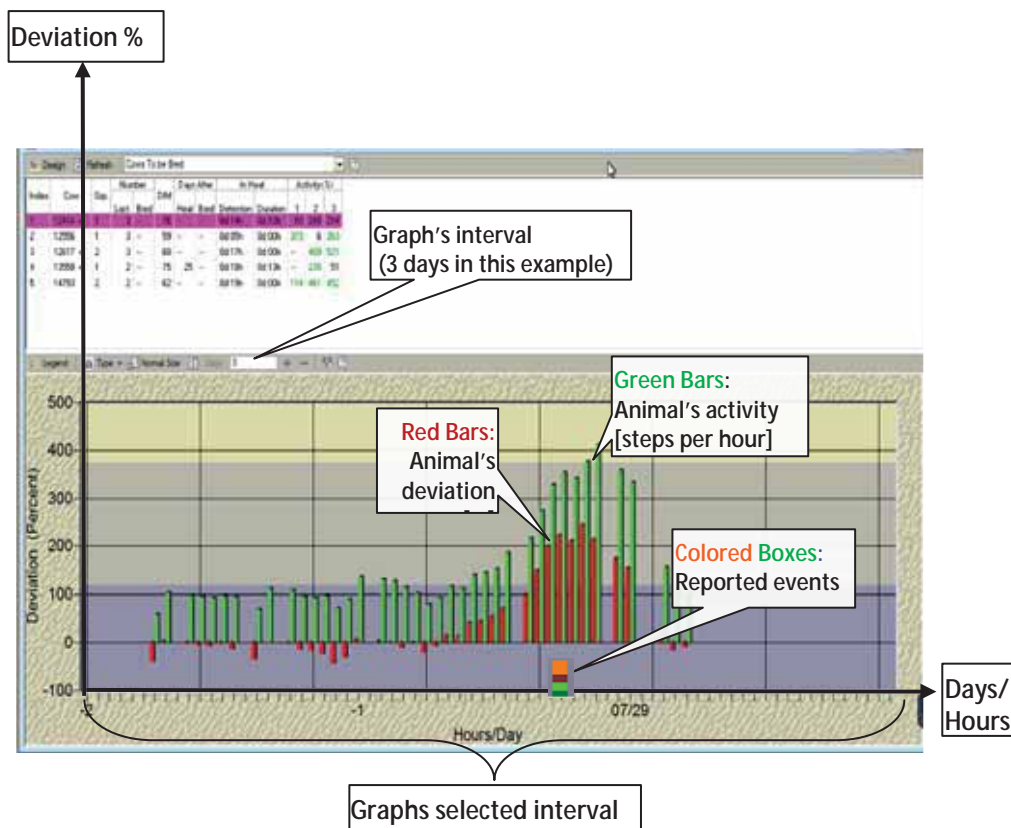


NOTE



Saving changes done by the user are available for some reports only (e.g. Fertility reports do not allow saving changes). When changes may be saved, the following options appear on the screen  Save  Save As...

4 AfiAct II To-be-Bred & Activity Reports



AfiAct II's **Animals-to-be-Bred** reports provide lists of animals that were detected by the system as ready for breeding. AfiAct II adds enhanced **Activity Graphs** to improve estrus detection, by providing all of the following data on a single graph:

- Configurable zoom-in/zoom-out report interval for the tracked activity & deviations over time (as shown in the Days/Hours axis)
- Exact estrus detection and duration indications, according to the configured activity deviation threshold
- Reported events presentation within the graph's time frame

This aggregated visual data allows the user to obtain valuable information, such as: a cow's repetitive cycle (when looking at a longer interval); the exact and best timing for breeding (when looking at the shorter per-hour interval); is there a probability that the deviation is due to stressful conditions (such as a group change), etc.

This chapter explains how to:

- Adjust the Animals-to-be-Bred reports' threshold and display, see 4.1
- Read and investigate To-be-Bred report fields, see 4.2
- Read and analyze the activity graph, see 4.3
- Examples, see 4.4

NOTE

To perform advanced heat cycles analysis of animals that appear in the To-be-Bred reports, refer to chapter 8.

4.1 Adjusting “to be Bred” Reported Animals

The system detects animals **To be Bred** via these steps:

1. Cows/Heifers in heat are identified when their increased activity deviation is above the defined threshold. The deviation thresholds may be adjusted by the user, see 4.1.1

NOTE



If the farmer notes that the number of animals that appear in the To-be-Bred reports is not valid (e.g. not enough cows), it may be an indication that the deviation threshold parameters require fine-tuning.

2. Cows/Heifers not eligible for breeding are excluded from the above list, according to several adjustable parameters or events:
 - **Do Not Breed (DNB) event** – when assigned to a specific animal (due to a culling decision), the animal will be excluded from the list; see 4.1.2
 - **Pregnant cow event** – a cow whose pregnancy is confirmed is excluded from the breeding list; see 4.1.2
 - **Voluntary Waiting Period (VWP)** – determines the “rest” period in which animals are excluded from the breeding lists even if they **do** show estrus behavior, corresponding with the DIM (Days in Milk; the number of days from calving date to dry date). The value of these rest days is determined by the farm policy for reaching optimal lactation; see 4.1.1
 - For Cows: cows are listed for breeding when they have passed the VWP number of milking days.
 - For Heifers: the VWP determines the minimum age before which they are not to be bred.

NOTE



*Cows that show excessive deviations but are excluded from the **Cows to be Bred** report, will be listed in the **Cows Suspected Heat (Excessive Activity)** report, see section 5.1*

The following sections explains how to adjust the breeding report via parameter-thresholds (when the default value is not sufficient) and animal events, as well as visual and color adjustments (see 4.1.3).

4.1.1 Adjusting Breeding Lists VWP and Deviation Thresholds

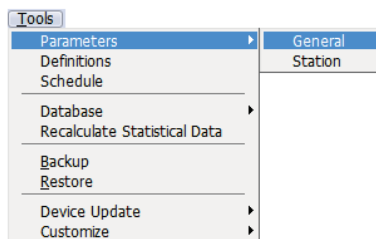
NOTE



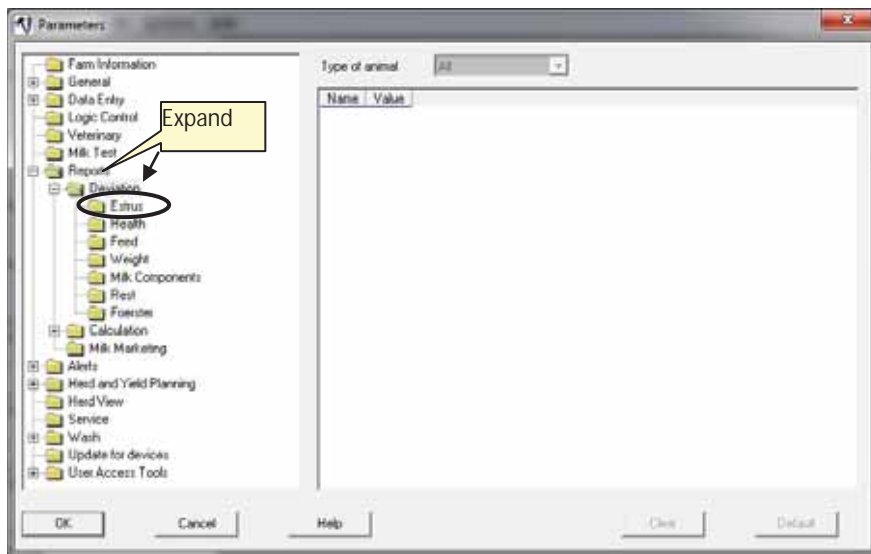
The factory defaults of VWP and deviation thresholds are suitable values for most farms. When changing these defaults, it is strongly recommended to consult with experts, as such wrong values may affect the system behavior.

To set the Breeding list thresholds (VWP, deviations)

1. In the AfiFarm application, from the standard toolbar, select **Tools**→**Parameters**→**General**.



2. In the displayed **Parameters** screen, expand the **Reports** folder, then expand the **Deviation** folder and choose **Estrus**.



3. In the displayed dialog, select the Estrus tab.

To set VWP values

- In the Breeding Report area, set the following **VWP** parameters according to farm needs:

- For the ***When more than # days after birth or calving*** parameter: set values of VWP for heifers, cows' 1st lactation, cows' 2nd or higher lactation
- For the ***and less than # days after birth or calving*** parameter: set values of VWP for heifers, cows' 1st lactation, cows' 2nd or higher lactation.



NOTE

The value 999 indicates that the VWP is infinite.

To set activity deviation thresholds

- To set the **Activity Deviations**, click **Table** in the Excessive activity report area

6. In the displayed activity table, fill in the activity deviation parameters, according to the recommended table that follows.

Activity (steps/hour)	Heifer	Milk Lactation Number	
		1	2+
0 - 49	80	80	80
50 - 99	80	80	80
100 - 149	75	75	75
150 - 199	75	75	75
200 - 249	70	70	70
250 - 299	65	65	65
300 - 349	60	60	60
350 - 399	55	55	55
400 - 499	50	50	50
500 - 599	45	45	45
600 - 699	40	40	40
700 +	35	35	35

Activity Deviation Parameters

Adjust the activity deviation parameter table according to your farm specific needs, where the same parameters should be used for Heifers and for Milking cows.

The following table provides the default factory values.

Table 4-1. Deviation Parameter Default Setup

Deviation (%)	Activity Average (steps / hour)
80	0-49
80	50-99
75	100-149
65	150-199
55	200-249
45	250-299
40	300-349
35	350-399
35	400-499
30	500-599
30	600-699
30	700+

7. Click **OK** to save changes.

4.1.2 Setting DNB or Pregnant Events

Animals with a **DNB** or a **Pregnant** event are excluded from the **To be Bred** reports. You may see these animals in the **Suspected Heat (Excessive Activity)** report, see chapter 5.1

NOTE



When a cow is selected for culling at the end of the lactation, a Do Not Breed event for this cow should be entered, and the cow will be excluded from the Cows to be Bred Report in the future.

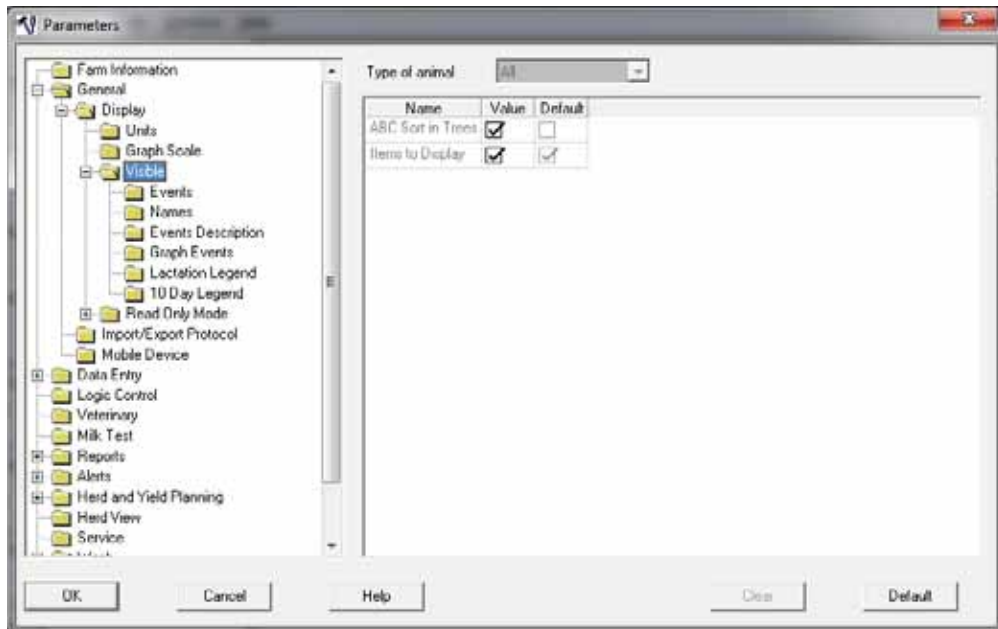
To set an animal as pregnant, see 7.12

To set an animal as DNB, see 7.14

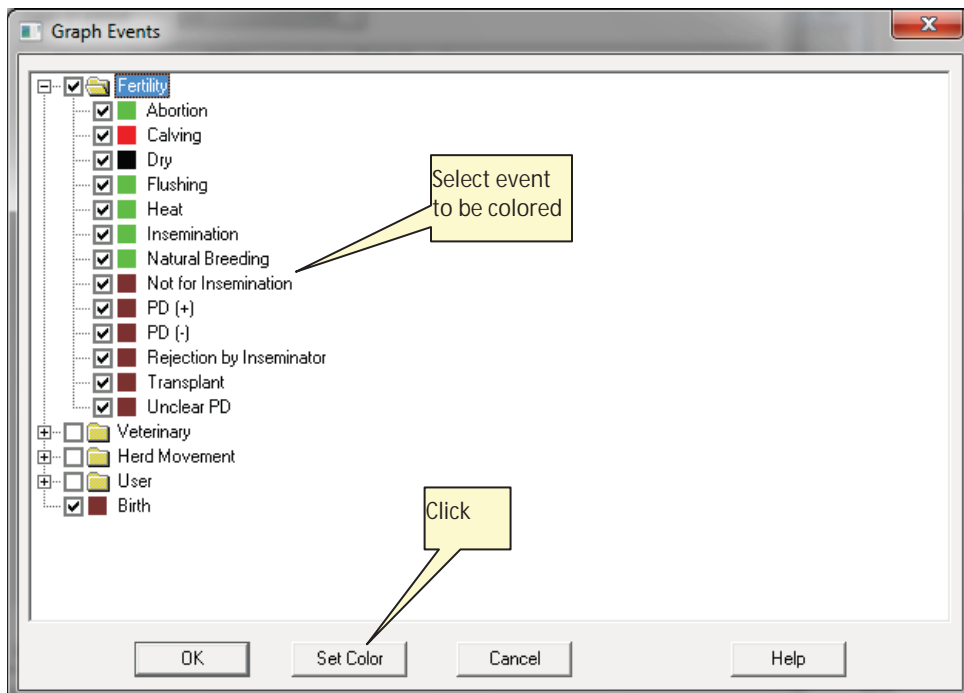
4.1.3 Adjusting the Displayed Events' Colors

To determine the events color codes

1. In your AfiFarm application, from the standard toolbar select **Tools** → **Parameters** → **General**. The **Parameters** screen appears.



2. Expand **General** → **Display** → **Visible** and click **Graph Events**
3. Expand **Fertility**. Select the event for which the color is to be changed and click **Set Color**.



4. Choose the desired color for the event and click **OK**.



4.2 Animals to be Bred Report Fields

The following figure and table describe the **To be Bred** report columns

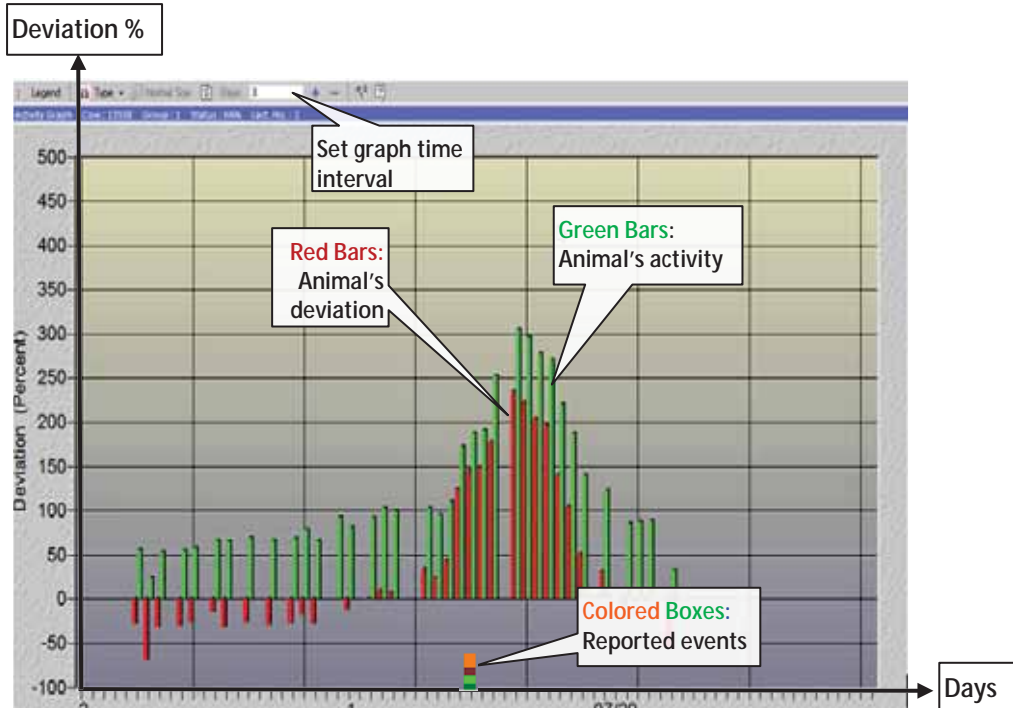
Index	Cow	Grp.	Number		DIM	Days Altr		In Hea		Activity<%>	
			Lact.	Bred		Heat	Bred	Detection	Duration	1	2
1	1601	1	1	6	282	21	21	0d 04h	0d 04h	11	172
2	180 +	1	1	1	78	27	27	1d 18h	0d 15h	3	18
3	206 +	1	1	4	148	25	25	0d 19h	0d 02h	75	-35

Table 4-2. Cows to be Bred Report Fields


Field	Means...	Notes
Cow	Animal number (identifier).	<p>Legend:</p> <ul style="list-style-type: none"> • Green: high activity deviation • !: high probability for estrus (current high activity is during the cow's normal heat cycle) • +: Increased activity within the last 24 hours, BUT no heat/bred events OR activity continued after event <p>See examples in section 4.4.4.</p>
Group	Group number to which the cow is assigned.	Two group numbers indicate the cow moved from its original group (1 st number) to another group.
Lactation Number	Number of times the cow has lactated.	
Bred (Service) Number	Number of breeding services for this cow in the present lactation.	This value facilitates a culling decision after a maximum number of breeding attempts was made (as determined by farm policy).
DIM	Days In Milk	Number of days since last calving, see section 4.1
Days After Heat	Number of days since the last heat (i.e. since last Bred event).	This value may indicate double/long/ missed cycles.
Days After Bred	Number of days since last breeding	Farm policy may determine whether or not to send a cow to be bred according to this parameter.
In Heat: Detection	Enhanced option	The time that passed since the cow was detected in heat and up to this moment. See examples in sections 4.4.5, 4.4.2
In Heat: Duration	The overall time that the cow was in heat since the last detection.	If the cow is still in heat, the value will be equal to the Heat Detection. See examples in sections 4.4.1, 4.4.2
Activity (%)	Deviation in percentage from the average of the last 10 similar sessions, measured per defined session.	<p>Green: increased activity in current session, above the threshold defined in the Estrus Deviation Report Parameters. Example: for 2 or 3 sessions</p> <ul style="list-style-type: none"> • <i>Session #1</i> : morning • <i>Session #2</i>: noon /evening • <i>Session #3</i>: evening.


4.3 Activity Graph Display and Analysis


The activity graph displays the animals detected by the system as ready for breeding, with their activity, deviation levels, and reported events (e.g. **Bred**, **Heat**, etc.). The user may choose to view the graph interval, and display the data either as a bar chart or in linear format (see section 3.4).



4.3.1 Reading the Activity Graph

 The green bars show the cow activity (per hour/session/day, depending on graph resolution).

 The red bars show the cow deviations.

 The colored squares under the graph indicate reported events, corresponding to the color code. To change event colors refer to 4.1.3

4.3.2 Adjusting the Activity Graph Time Period Display

The user may determine the activity graph's interval – between 1 day and up to 50 days (default: 25 days, allowing a full 20-21 days cycle view), where the scale changes correspondingly:

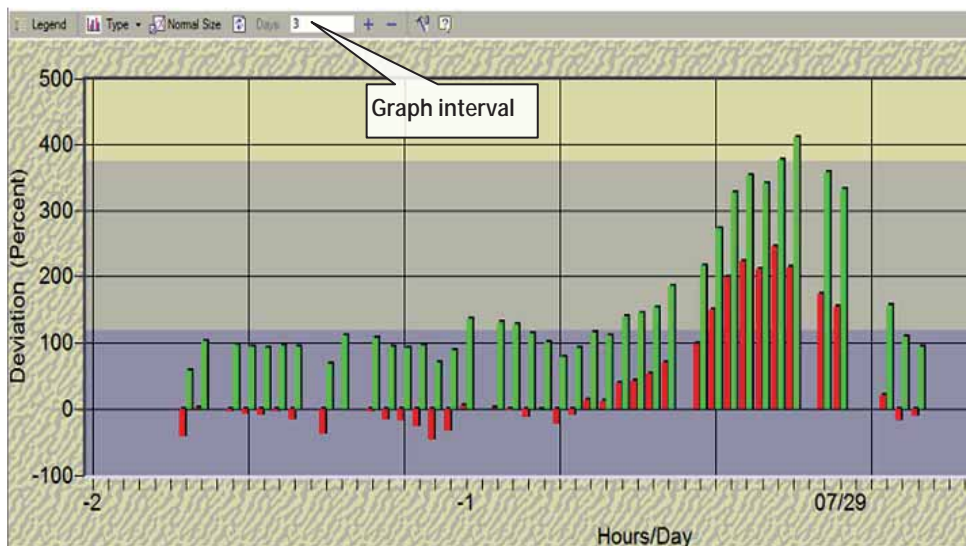
- For one-three days – the scale is hourly.
- For 4-10 days – the scale is per session.
- For 11-50 days – the scale is per day.

To view a longer history of the heat cycle and cyclic behavior, the user may choose to see a lactation graph, which provides the behavior over the whole cycle between calving→DIM (e.g. 60) →heat cycle ~21 days (with breeding & PD+ event) → dryoff.

To access the lactation graph see 3.3.3. For lactation graph advanced examples see 8.1.1.

To select the required interval:

In the graph's top menu **Days** field, click the number of days to be displayed.



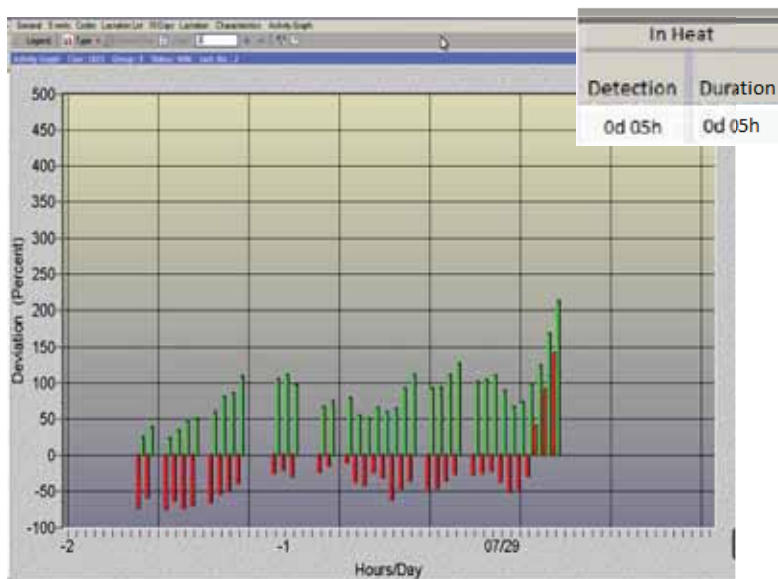
4.4 Activity and To-be-Bred Report Examples

The following sections provide examples for using the activity graphs and the To-be-Bred reports.

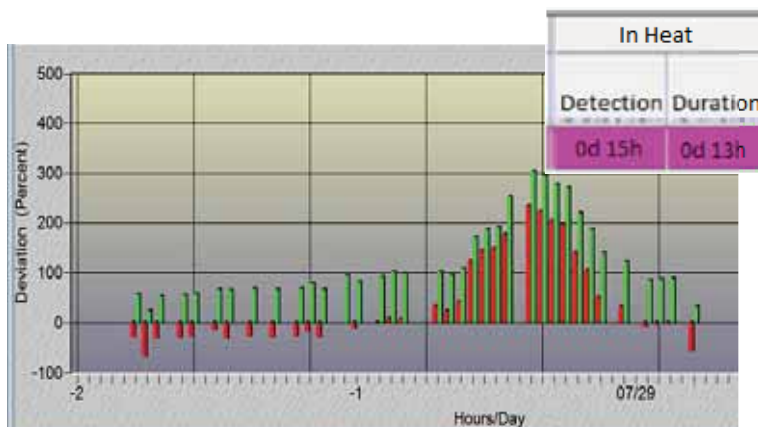
4.4.1 Example I: Heat Cycle Duration Complete/Open

The heat duration field shows the time that the cow was in heat since the last detection. The end of the cycle is identified by the system, when for two hours the deviation had been lower than the threshold. If the current heat had not been completed yet, the duration values will be identical to the detection.

The following figure shows a heat cycle that had not been terminated yet, and therefore – the duration field's value is identical to the detection.

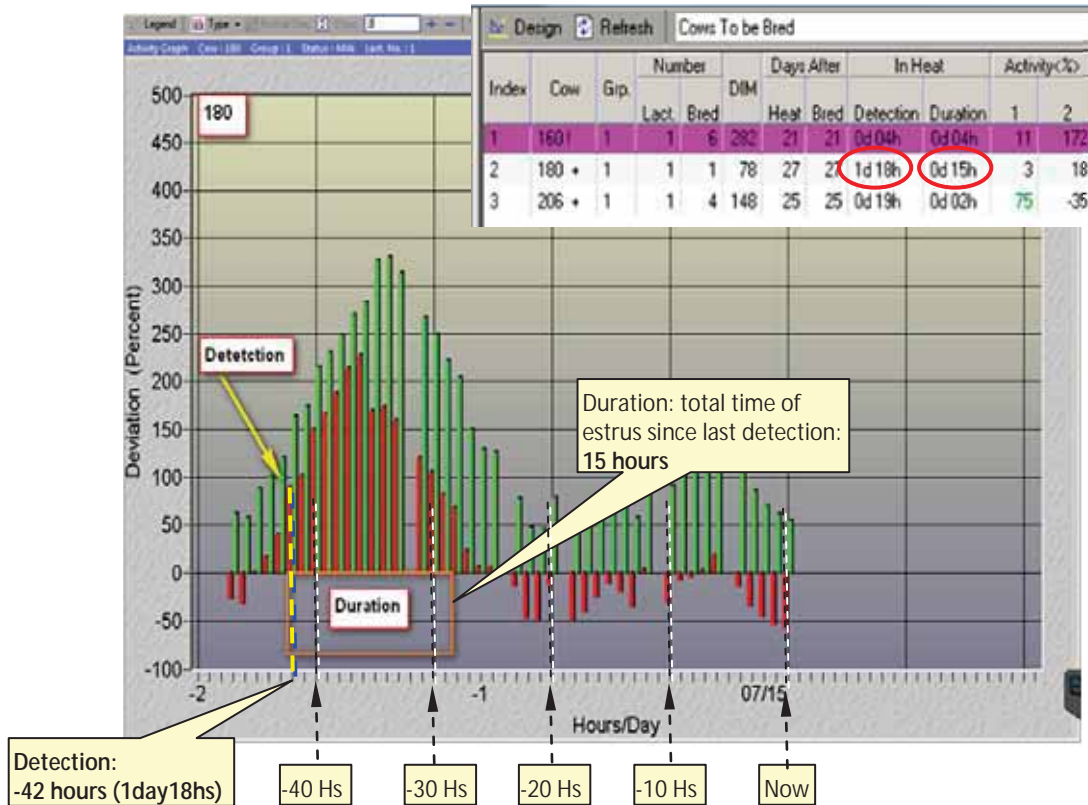


The following example shows a heat cycle that had been terminated, where the duration field shows the heat duration.



4.4.2 Example II: Heat Detection and Duration

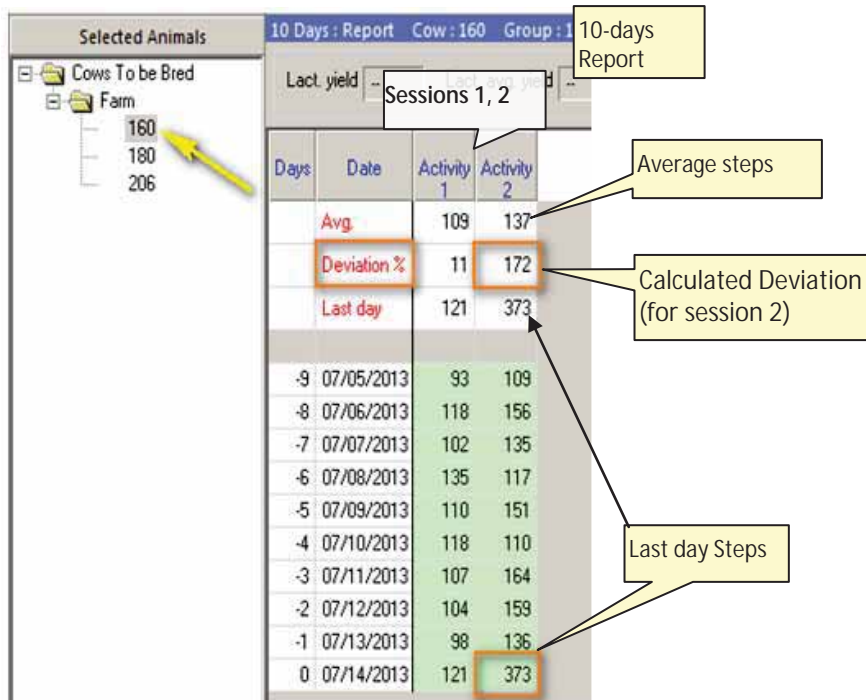
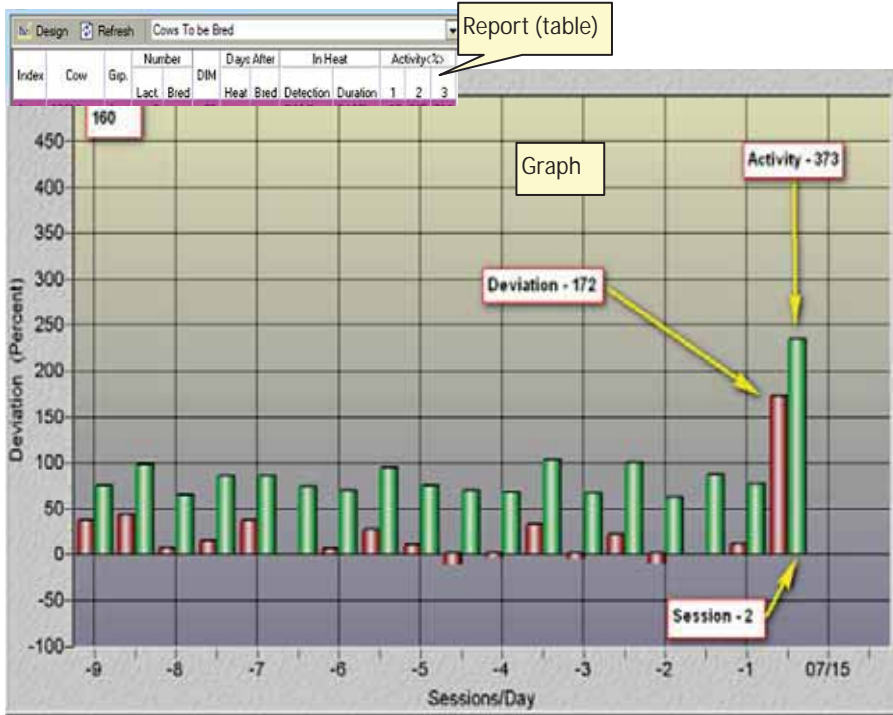
The following figure shows the last 3 days of behavior of the second cow listed (ID 180) plotted on a graph.



As appears in the table for cow 180, the estrus detection was 1 day 18 hours ago (i.e. -42 hours). The total estrus duration was 15 hours.

4.4.3 Example III: Deviation

The following figure shows a cow's activity report and graph, with the corresponding 10-days report. (For accessing the 10-days report see 3.3.3). The figures show a deviation of 172%, as calculated for the last session's activity value of 373. (The maximum session's activity deviation is compared with the average. Note that the report displays the deviation values and not the activity; the graph shows both).



4.4.4 Example IV: Analyzing the Cow-ID legend (! + Green)

Using a sample Cows to be Bred Report, this section explains how to use the information in the report for breeding cows.

Index	Cow	Grp.	Number		DIM	Days After		Activity<%>			In Heat	
			Lact.	Insem.		Heat	Insem.	1	2	3	Detection	Duration
1	6049	3	5	1	98	18	18	51	1	3		
2	6316!	3	5	2	112	21	21	71	-10	-21		
3	6535!+	3	3	--	70	20	--	-2	6	-25		
4	6603!	2	3	2	148	21	21	151	85	-11		
5	6609	2	3	2	145	43	43	40	292	-1		
6	6651!	2	2	--	85	20	--	-5	75	-4		
7	6649 +	1	2	1	109	49	49	12	6	-1		
8	6707 +	1	2	3	192	24	24	2	19	6		
9	6745!	1	2	1	106	21	21	166	529	14		
10	6904 +	4	1	4	187	25	25	318	6	-12		

In the above Cows to be Bred Report figure, we learn the following:

Table 4-3. Estrus Report Parameters for Cows

Index /Line	Cow ID	Description
1	6049	This cow is showing an activity increase (51% in session 1) but not during a normal heat cycle (21 days). May require further investigation to determine best time for breeding. See chapter 8.1.
3	6535!+	!+: during the previous 24 hours this cow showed signs of heat within a normal cycle (21 days); If no Bred event - breed this cow as soon as possible.
9	6745!	!: This cow is showing a high activity increase (166% in session 1 and 529% in session 2) within a normal cycle (21 days). Breed this cow as soon as possible.
7	6649+	This cow has shown an activity increase during the previous 24 hours but not during the normal heat cycle (21 days). May require further investigation to determine best time for breeding. See chapter 8.1.

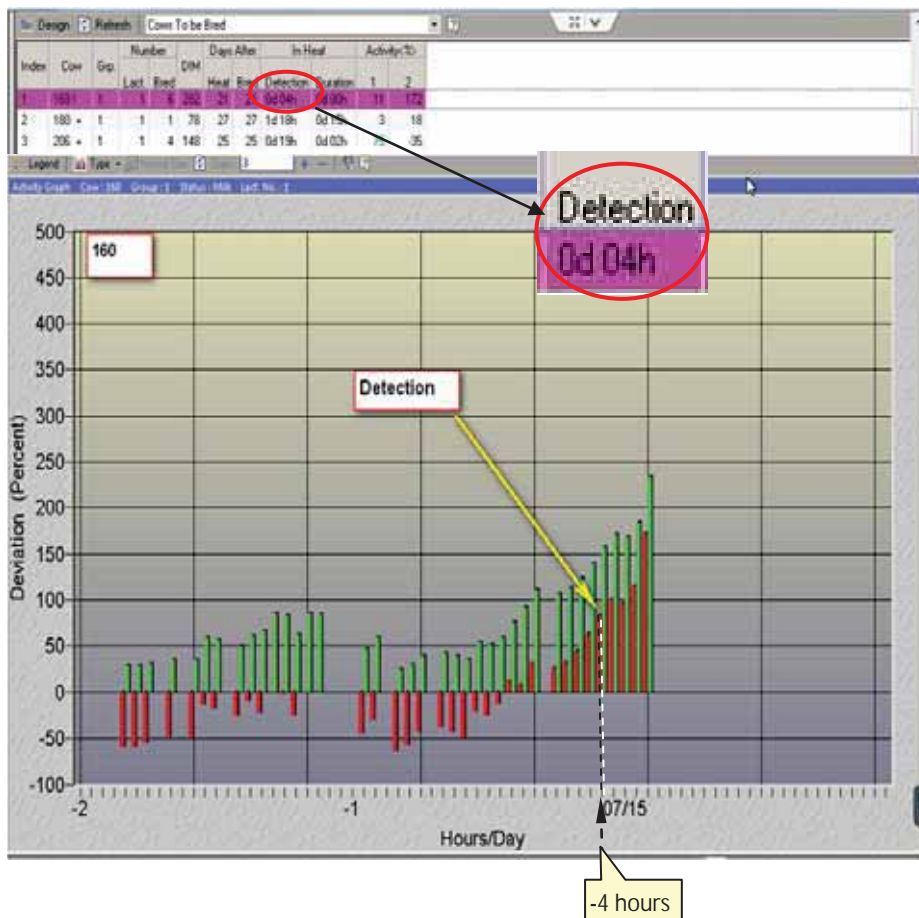
4.4.5 Example V: Heat Detection

The following figure shows an example **Cows to be Bred** activity graph, listing three cows. These cows were detected by the system as cows that had deviation levels indicating they are ready for breeding, where the graph shows the behavior of the first listed cow (ID 160).

NOTE



The deviation threshold determining the level for breeding is set per system level.



5 System Common Reports and Scheduler

This chapter explains how to use the system most commonly accessed reports and the system scheduler

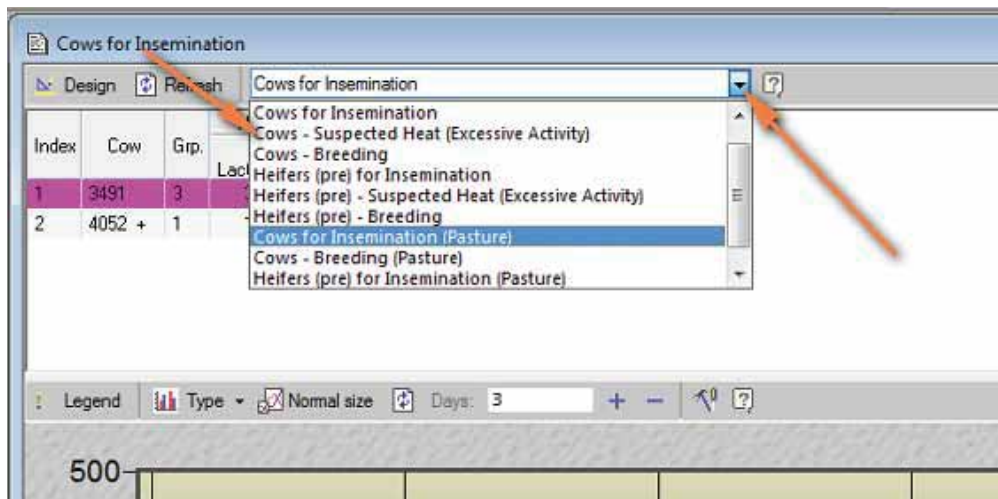
5.1 Suspected Heat (Excessive Activity) Report

Cows that show excessive activity deviations but are not eligible to be listed in the **Cows to be Bred** report will appear in the **Cows Suspected Heat Excessive Activity** report. This allows verifying and analyzing animals that are in heat, but are excluded from the To-be-Bred reports due to one of the following reasons:

- The deviation signs are detected in fewer days than the configured VWP (see 4.1):
 - *For Cows:* when they have not passed the VWP number of milking days.
 - *For Heifers:* when their age did not reach the configured VWP.
- Pregnant cows (suspected of an abortion)
- Cows in a DNB status (allowing a re-consideration of the culling decision)

To access the Cows Suspected Heat Excessive Activity Report:

From the **Cows to be Bred** report, expand the report name field and select **Cows Suspected Heat Excessive Activity**.



The **Cows Suspected Heat Excessive Activity** report appears.

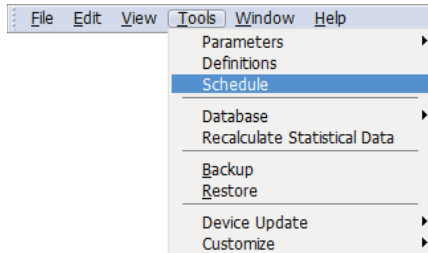


5.2 Managing Scheduled Reports

AfiAct II allows the user to add / delete / change the default view and generate timed reports. This process is managed through the scheduler.

To manage scheduled reports

1. In your AfiFarm application, access the **scheduler** screen: in the toolbars area, select **Tools**→**Schedule** from the standard toolbar.



Click to add a scheduled report

The scheduler screen appears, showing the report viewed when accessing the screens. The following row is the default, where **Animals for Insemination view** is displayed when opening the application.

Click to edit an existing schedule

 A screenshot of the 'Schedule' window. The window title is 'Schedule'. It has a toolbar with 'View', 'Edit', 'Delete', 'Execute now', and a help icon. Below the toolbar is a table titled 'Schedule List:'.

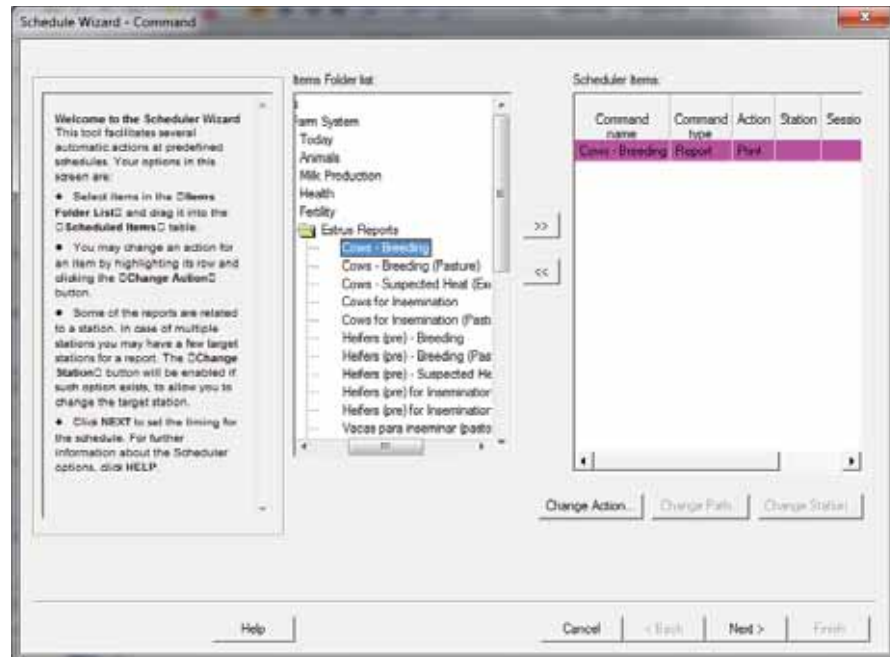
Command name	Command type	Action	Enable	Station	Session	Last executed event time	Next planned date of execution	/ 1	Next planned of execution
Animals for Insemination View	Report	View	<input checked="" type="checkbox"/>			11/03/2013 09:28:25	Start AfiFarm		

2. To delete a scheduled report:

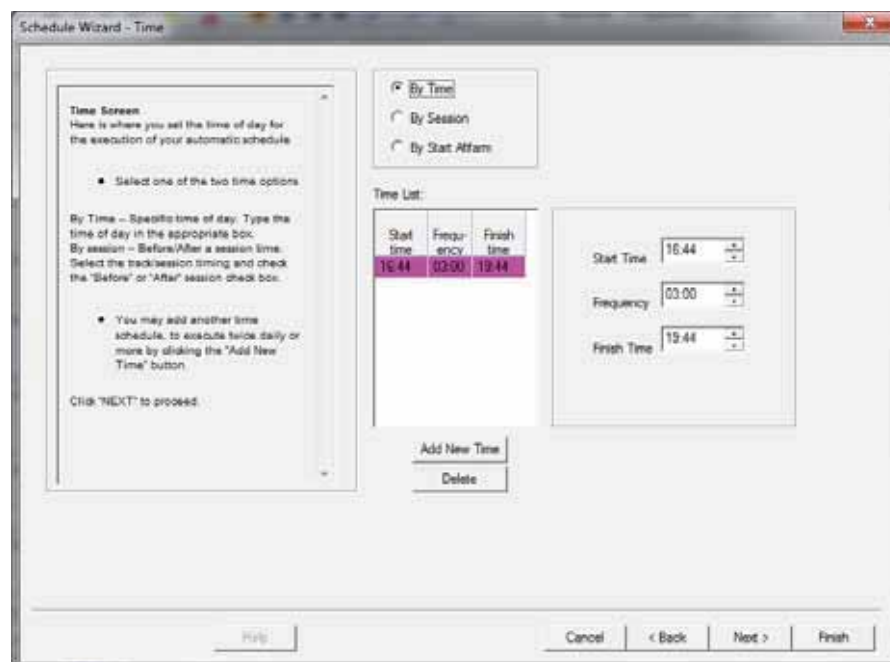
Select the required row showing the scheduled report and click **Delete**. The line is removed.

3. To add/edit a scheduled report:

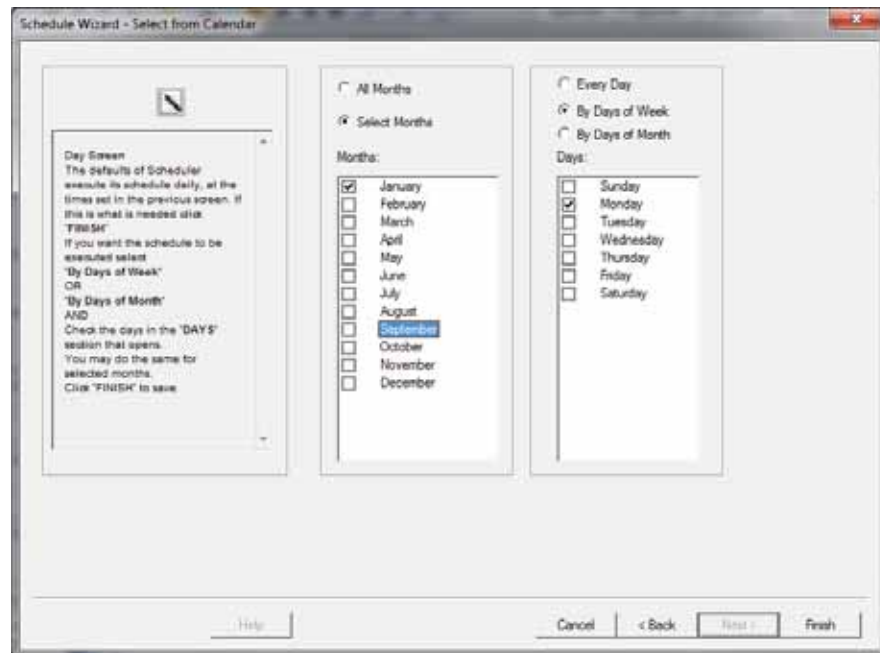
- Click **New** or select an existing report and click **Edit**. The schedule wizard appears, allowing you to select a report from the list by double-clicking it. In the following example, Cows-Breeding was selected.



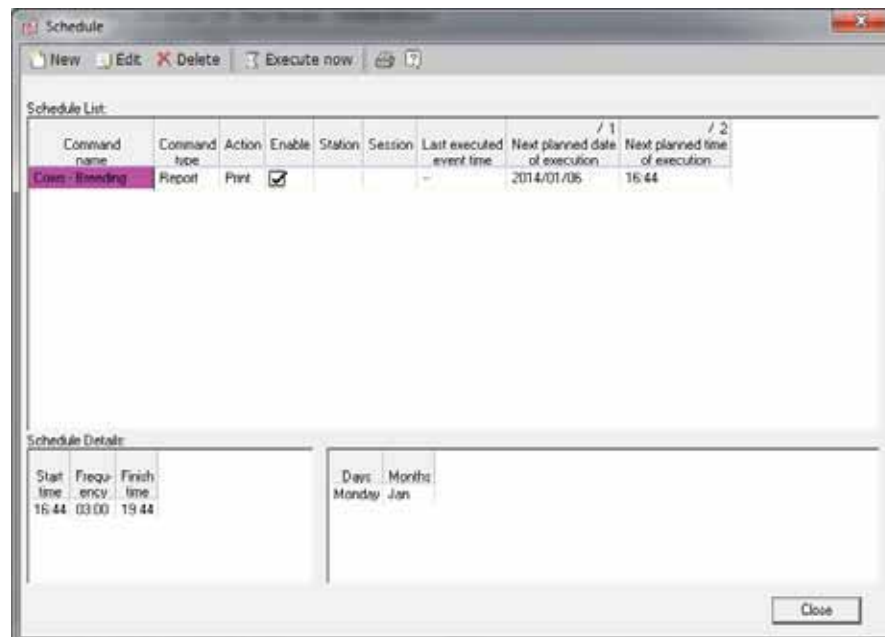
- Click **Next**. Select the times or events (by session / by start Afifarm) in which the report will be generated.



- Select the calendar months and days on which the report will be performed.

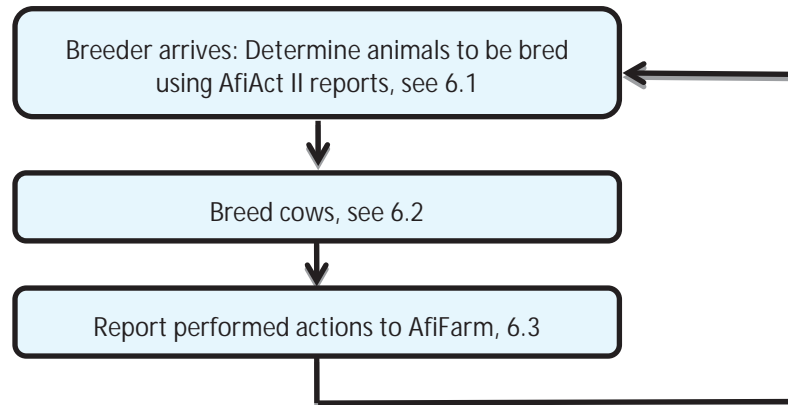


- Click **Finish**. The report schedule details are added to the scheduler.



6 Daily Breeding Activity Using AfiAct II

This chapter describes a basic per-session workflow for breeding cows, and provides tools that can assist in making breeding decisions



6.1 Determine Animals to be Bred via AfiAct II

To determine animals to be bred, perform the following actions:

1. **Adjust the reports' parameters to suit your farm needs** (activity deviation thresholds, VWP, event color-codes), see section 4.1
2. Review and analyze Cows/Heifers to be Bred Reports and activity graphs, see sections 4.2, 4.3.
3. Perform advanced analysis where needed, see chapter 8.



NOTE

Refer to chapter 8.5 for AfiAct II Best Practices Recommendations.

6.2 Breeder Additional Actions

When the breeder arrives, the following actions must be performed at the cowshed:

- Identify each cow by the cow number.
- Check if the identified animal appears in your Cows-to-be-Bred report, and examine the cow.
- Perform the required breeding decisions based on the report and on the breeder's examination of each reported cow.

6.3 Report Performed Actions

Update AfiFarm with the performed actions, entering all of the mandatory events (as listed in chapter 7) by recording the actions performed by the breeder, and then updating the AfiFarm application with the performed actions.

The steps for adding / deleting any of the available events are similar and involve the following sequence of operations:

1. Access the **Data Entry** screen.
2. Select the type of event/data to be entered (e.g. **Fertility events**) and click **Add**.
3. Select the relevant animal(s) on which the event is reported (e.g. select cow numbers to be reported in heat).
4. Fill in the required data on the form presented for your operation.

This chapter explains how to enter animal data into the system.

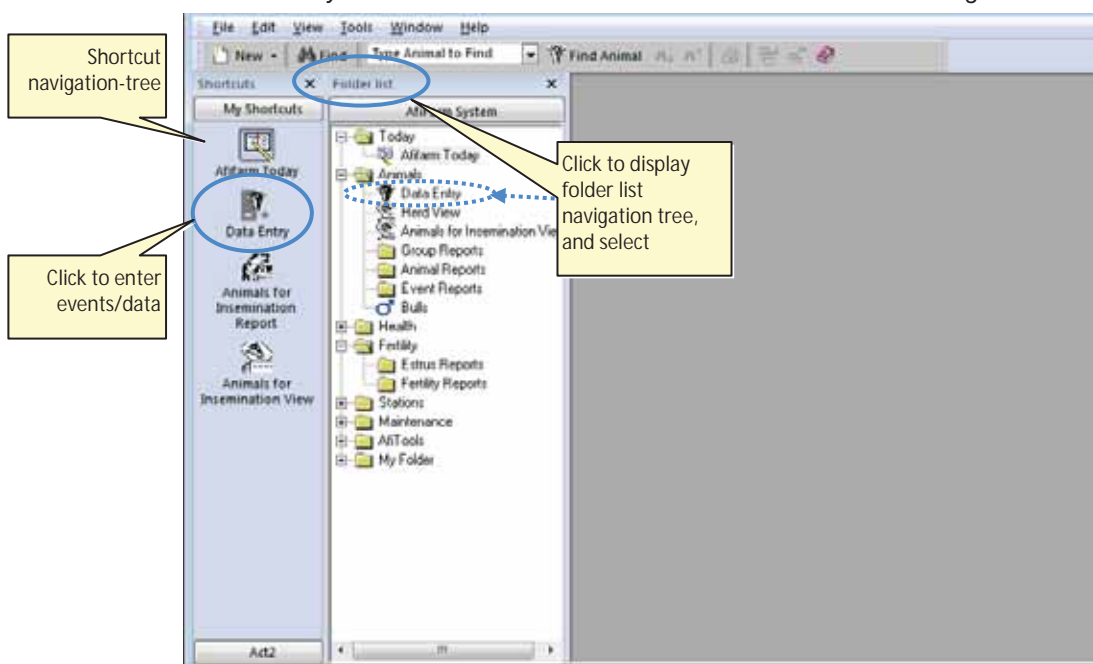
7.1 Adding/Deleting Data or Events - Overview

This section details the general steps to be followed when adding / deleting data or events.

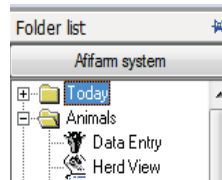
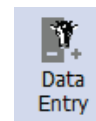
To add/delete data/events

1. Access your AfiFarm application.

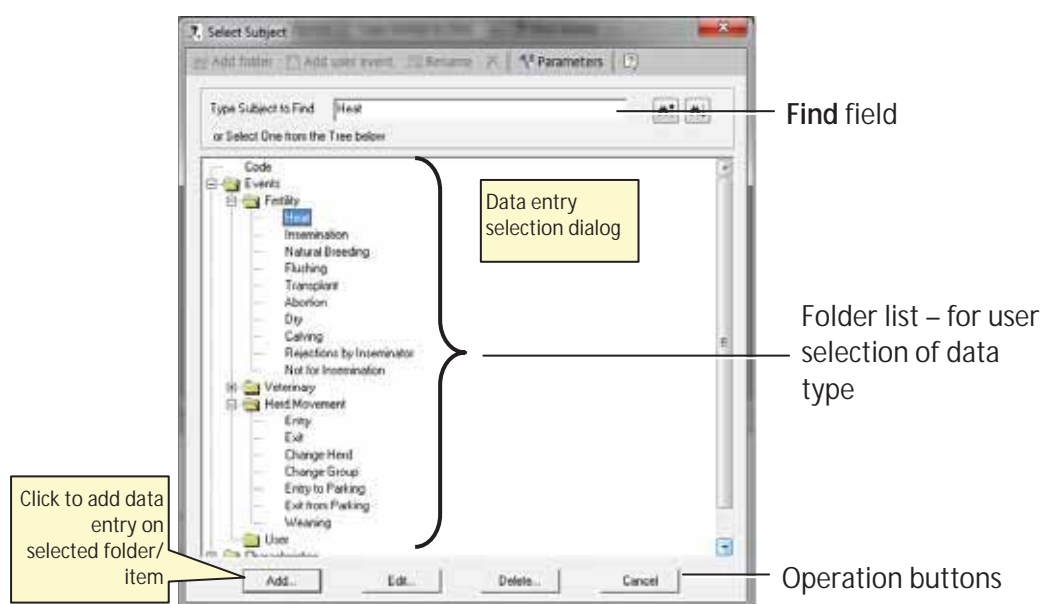
*Note: You may click the **Folder List** button to view and use the folder navigation tree.*



2. Access the **Data Entry** screens by either of the following:
 - Click the **Data Entry** button on the shortcut navigation tree
 - OR
 - In the **Folders List** choose the **Animals→Data Entry** folder



The **Data Entry selection** dialog is displayed:



3. In the displayed **Data Entry Selection** dialog, navigate to the required event/data entry type by either of the following:
 - Browse through the folder-list to choose the required event/data,
 - OR
 - Type your required event in the **Type Subject to Find** field and click enter.
4. Click the **Add** button to add a new entry.




NOTE

You may click *Cancel* to exit the data-entry-selection dialog.

5. *If the data entry is an event which is related to a farm animal:* the **Select Animals** window opens. Proceed as follows:
 - a. Select the cow numbers to be reported for your event (e.g. cows in heat to be reported) by either of the following:
 - Scroll through the **Animals List** and double-click the relevant ID
 - OR
 - Enter the animal ID into the **Type animal number** field and press **Enter**.

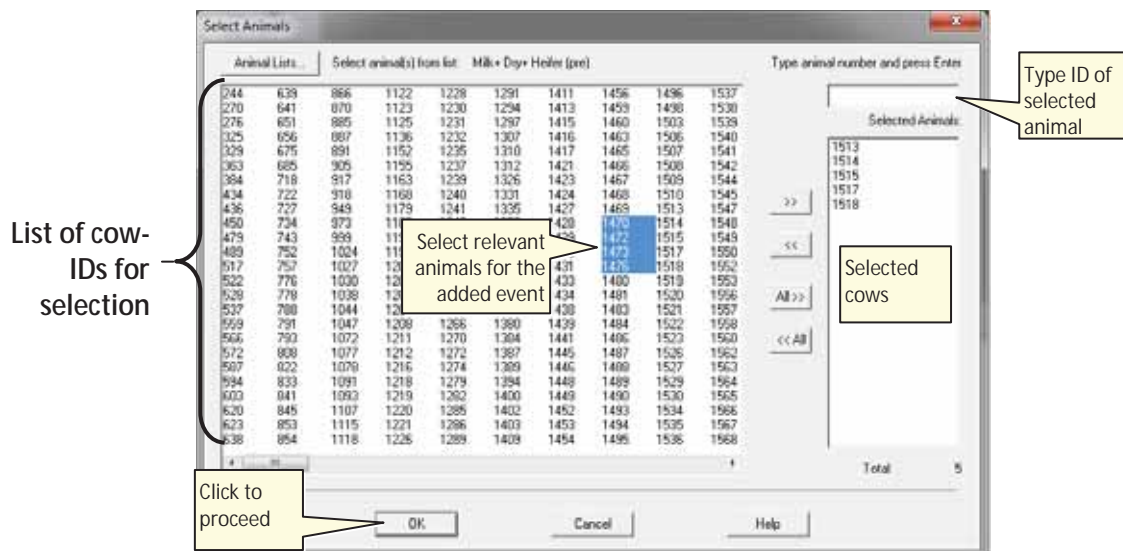
The selected cow numbers appear in the Selected Cows box on the right.

Note: You may add IDs to the selected animals list using the add button ;

delete a selected ID from the selected animals list using the del button ;

remove all IDs from the selected animals list using the All button 

- b. Click OK



3. The specific data-entry / event screen is displayed.
4. Continue with the instructions relevant for your specific event-type.

7.2 Entering Events directly from a Report

The most efficient way to enter events is directly from AfiAct reports. Entering events directly from a report enables you to multi-select from the animals that are listed in the report. Then when the Data Entry window opens, the selected cows are listed.

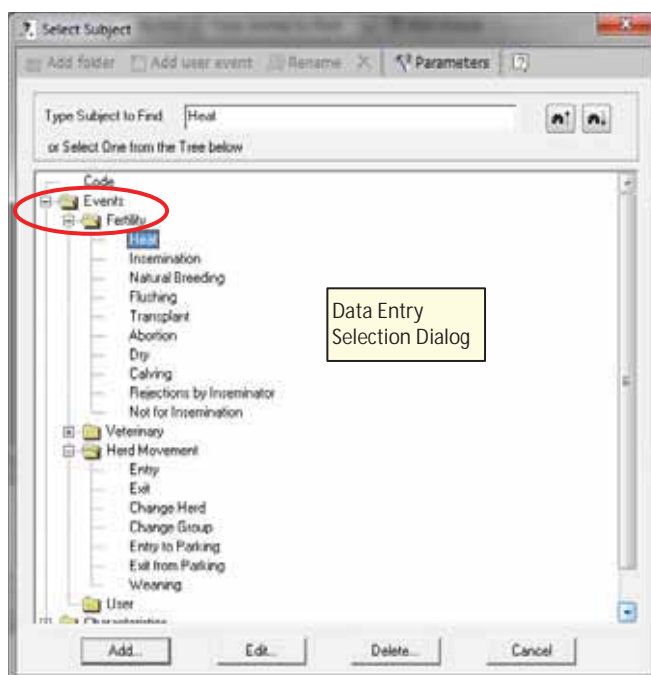
To enter an event directly from an AfiAct report:

1. From within an AfiAct report, select the cow/s.
2. Right-click the selected cows and from the right-click menu, select Data Entry. The Select Subject window opens. Events are listed in the Events tree.
3. In the Type Subject to Find field, type a subject. OR Select an option from the Events tree. The selected subject appears highlighted in the tree.
4. Click Add. The Data Entry window for the selected event opens. All of the selected animals are listed and appear highlighted in pink.
5. In the Data Entry window, you can assign the same event details to all of the selected animals. Or, alternatively, you can select specific animals and assign different event details to different animals.

7.3 Report a Fertility Event

Fertility events include: Heat, Bred, PD, Abortion, Calving, Dry, Rejection Breeder, Do-Not-Breed.

All the above fertility events are accessed through the **Data Entry→Events→Fertility** path:




The following sections detail the steps for each type of event.

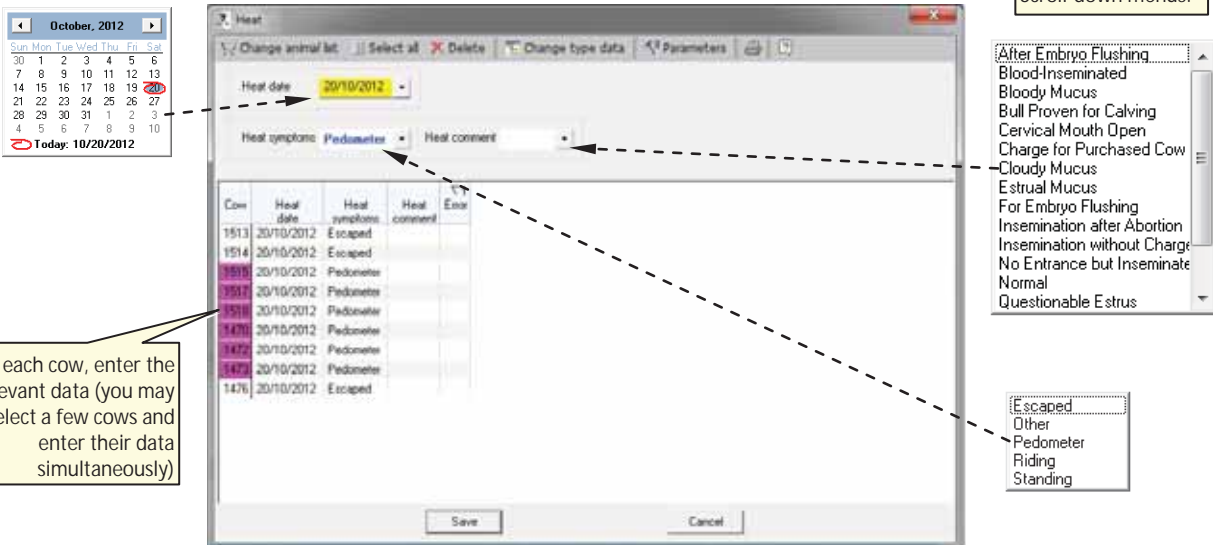
7.4 Heat Event

To report a heat event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list).
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Fertility→Heat** folder (browse through the folders or type **Heat** in the find field), and click **Add**.

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

3. In the displayed **Select Animals** screen select the IDs of cows in heat to be reported *in heat* by either:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.
4. Click **OK**. The **Heat** dialog box opens.



For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

Scroll-down menus:

Cow	Heat date	Heat symptoms	Heat comment	Enter
1513	20/10/2012	Escaped		
1514	20/10/2012	Escaped		
1515	20/10/2012	Pedometer		
1517	20/10/2012	Pedometer		
1518	20/10/2012	Pedometer		
1476	20/10/2012	Pedometer		
1472	20/10/2012	Pedometer		
1473	20/10/2012	Pedometer		
1476	20/10/2012	Escaped		

Heat symptoms: Pedometer

Heat comment:

Escaped
Other
Pedometer
Riding
Standing

After Embryo Flushing
Blood-Inseminated
Bloody Mucus
Bull Proven for Calving
Cervical Mouth Open
Charge for Purchased Cow
Cloudy Mucus
Estrual Mucus
For Embryo Flushing
Insemination after Abortion
Insemination without Charge
No Entrance but Inseminate
Normal
Questionable Estrus

5. For each cow in the list, type in the relevant data, using the roll-down values
 - **Date** – date of heat detection (current date is entered by default).
 - **Symptom** – select the detected symptoms from the roll-down menu.
 - **Heat Comment** - select a description from the roll-down menu.

Note: You may select a group of cows and set the same data for all of them simultaneously.
6. To save the data, click **Save**. To exit the window, click **Cancel**.

NOTE


If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.5 Bred Event

To report a Bred event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Fertility→Bred** folder (browse through the folders or type **Bred** in the find field).

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

3. In the displayed **Select Animals** screen, select the IDs of bred cows to be reported by either:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.

4. Click **OK**. The **Bred** dialog box opens.

For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

Bull-selection dialog

5. For each cow in the list, type in the relevant data, using the scroll-down values:

- **Date** – date of breeding service (current date is entered by default).
- **Bull-ID** or **Bull-Name** – select breeding bull ID or name from bull-selection dialog.
- **Breeder's name** - select from listed breeders in the roll-down menu (to add breeders, refer to the AfiFarm user manual).
- **Breeder Comment** – select the relevant comment from the roll-down menu.

Note: You may select a group of cows and set the same data for all of them simultaneously.

6. To save the data, click **Save**. To exit the window, click **Cancel**.

NOTE




If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

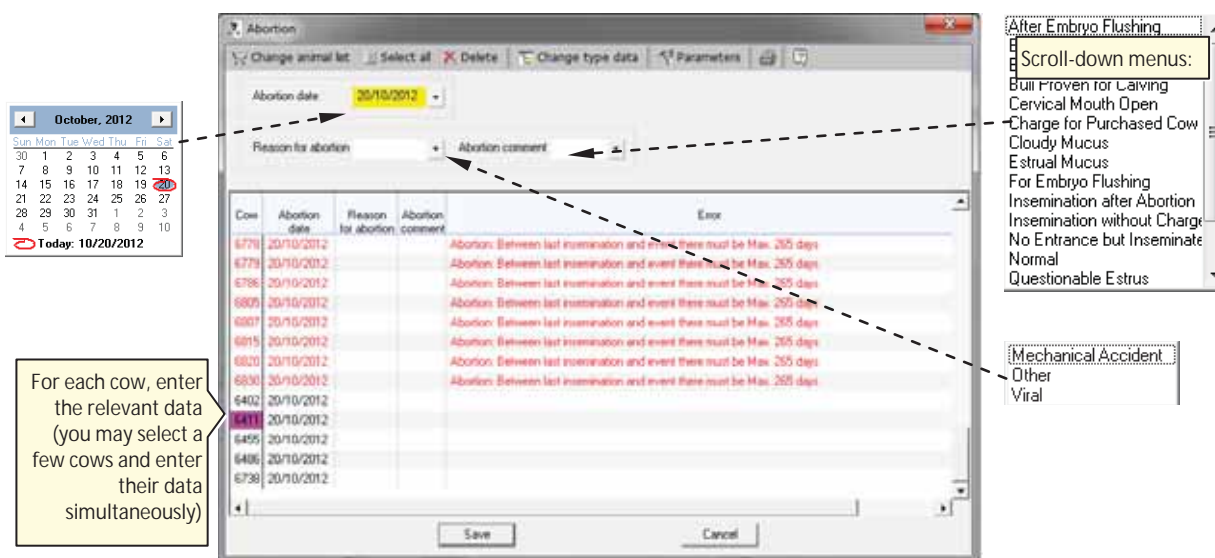
7.6 Abortion Event

To report an abortion event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events**→**Fertility**→**Abortion** folder (browse through the folders or type **Abortion** in the find field).

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

3. In the displayed **Select Animals** screen select the IDs of cows that aborted to be reported:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.
4. Click **OK**. The **Abortion** dialog box opens.



For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

Scroll-down menus:
 After Embryo Flushing
 Bull Proven for Laying
 Cervical Mouth Open
 Charge for Purchased Cow
 Cloudy Mucus
 Estrual Mucus
 For Embryo Flushing
 Insemination after Abortion
 Insemination without Charge
 No Entrance but Inseminate
 Normal
 Questionable Estrus

Mechanical Accident
 Other
 Viral

Cow	Abortion date	Reason for abortion	Abortion comment	Error
6778	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6779	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6786	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6805	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6807	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6815	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6820	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6830	20/10/2012			Abortion: Between last insemination and event there must be Max. 265 days
6402	20/10/2012			
6411	20/10/2012			
6455	20/10/2012			
6486	20/10/2012			
6738	20/10/2012			

NOTE

The cows to be reported for abortion must be listed as Pregnant. Otherwise the system does not allow reporting them for Abortion.

5. For each cow in the list, type in the relevant data, using the roll-down values
 - **Date** – date of abortion (current date is entered by default).
 - **Optional Reason of Abortion** – select the relevant abortion cause from the roll-down menu (only if such comments exist in the system).
 - **Optional Abortion Comment** – select the relevant comment from the roll-down menu.

Note: You may select a group of cows and set the same data for all of them simultaneously.
6. To save the data click **Save**. To exit the window, click **Cancel**.

NOTE


If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.7 Calving Event

To report a calving event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Fertility→Calving** folder (browse through the folders or type **Calving** in the find field).

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

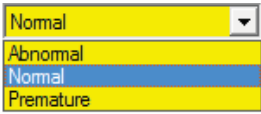
3. In the displayed **Select Animals** screen select the IDs of calving cows to be reported:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.

4. Click **OK**. The **Calving** dialog box opens.

5. Fill in the fields in the form according to the following table:

Table 7-1. Calving Form Fields

Field	Roll-down screen/menu	Remarks/Description
Calving date		Date of calving
Cow's Group		Animal group to which the animal is assigned (if groups exist).
Tag		Cow's tag ID
Manner of Calving		
Comment		
Offspring → sex		After selecting the offspring sex, additional offspring fields are displayed.
Offspring → Destination		

Field	Roll-down screen/menu	Remarks/Description
Offspring →condition		
Herd		Herd number, for multi herd management or classification of cows according to original herd or breed (if relevant).
Number		AfiFarm ID of offspring

6. To save the data, click **Save**. To exit the window, click **Cancel**.

NOTE




If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.8 Dry Event

To report a dry event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Fertility→Dry** folder (browse through the folders or type **Dry** in the find field).

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

3. In the displayed **Select Animals** screen, select the IDs of Dry cows to be reported:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.

4. Click **OK**. The **Dry** dialog box opens.

For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

Drug for Dry dialog)

5. For each cow in the list, type in the relevant data, using the scroll-down values
- **Date** – date of dry event (current date is entered by default).
 - **Grp.** - Animal group to which the animal is assigned (if groups exist).
 - **Drug for Dry** – in case a drug is used, click the browse button to open the drug-form; select the drug used, select the dose used, and click **OK**.
 - **Vet** – select the name of the vet from the roll-down menu. To add a vet to the list, refer to the AfiFarm user-manual.
 - **Dry Comment** – select the relevant comment from the roll-down menu.
- Note: You may select a group of cows and set the same data for all of them simultaneously.*
6. To save the data click **Save**. To exit the window click **Cancel**.

NOTE




If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.9 Rejection Breeder

To report a rejection breeder event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Fertility→Rejection Breeder** folder (browse through the folders or type **Rejection Breeder** in the find field).

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

3. In the displayed **Select Animals** screen select the IDs of Rejected Breeder cows to be reported:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.
4. Click **OK**. The **Rejection Breeder** dialog box opens.



Rejections by Inseminator

Change animal list Select all Delete Change type data Parameters

Inseminate date: 20/10/2012

Inseminator's name: Inseminator's resp. comm.

Cow	Date of rejections by inseminator	Inseminator's name	Inseminator's resp. comm.	Error
5499	20/10/2012			
5569	20/10/2012			
5605	20/10/2012			
5778	20/10/2012			
5901	20/10/2012			
5929	20/10/2012			
5945	20/10/2012			
6021	20/10/2012			
6057	20/10/2012			
6062	20/10/2012			
6068	20/10/2012			
6077	20/10/2012			
6126	20/10/2012			
6139	20/10/2012			

Save Cancel

Blood
 Capillary Insertion not Possible
 Cloudy Mucus
 Inseminate Tomorrow
 Mucus with Urine
 No tone
 Other Reasons
 Pus
 Uterine Entrance not Possible

For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

5. For each cow in the list, type in the relevant data, using the roll-down values
 - **Date** – date of rejection event (current date is entered by default).
 - **Breeder's name** – select the name of the breeder from the roll-down menu. To add a name to the list, refer to the AfiFarm user-manual.
 - **Breeder's reject. Comment** – select the relevant comment from the roll-down menu.

Note: You may select a group of cows and set the same data for all of them simultaneously.
6. To save the data click **Save**. To exit the window click **Cancel**.

NOTE


If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.10 Report a Cow as Do Not Breed

To report a cow Do Not Breed event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Fertility→Do Not Breed** folder (browse through the folders or type **Do Not Breed** in the find field).

Note: You may need to expand the fertility folders by clicking the plus sign to the left of Fertility folder:

3. In the displayed **Select Animals** screen select the IDs of Do-Not-Breed cows to be reported:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.

4. Click **OK**. The **Do Not Breed** dialog box opens.

For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

Delay Insemination-Disease
 Delay Insemination-Milk Yield
 Not to be Inseminated - Fertility
 Not to be Inseminated - Legs
 Not to be Inseminated - Mastitis
 Not to be Inseminated - SCC
 Not to be Inseminated - Udder

5. For each cow in the list, type in the relevant data, using the scroll-down values
- **Date** – date of rejection event (current date is entered by default).
 - **Not to be Bred Comment** – select the relevant comment from the roll-down menu.

Note: You may select a group of cows and set the same data for all of them simultaneously.

6. To save the data click **Save**. To exit the window click **Cancel**.

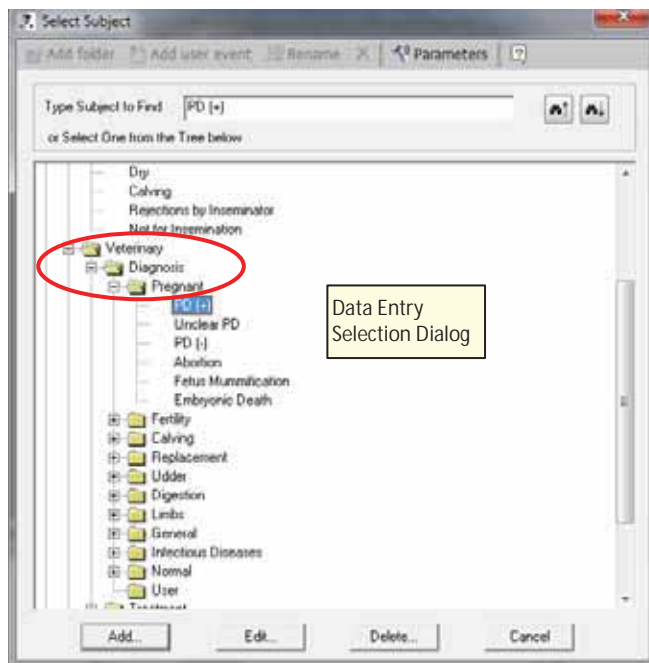
NOTE



*If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.*

7.11 Report a Veterinary Pregnancy Event (PD+/-)

Veterinary Pregnancy events are accessed through the **Data entry**→**Events**→**Veterinary**→**Diagnosis**→**Pregnant** path:




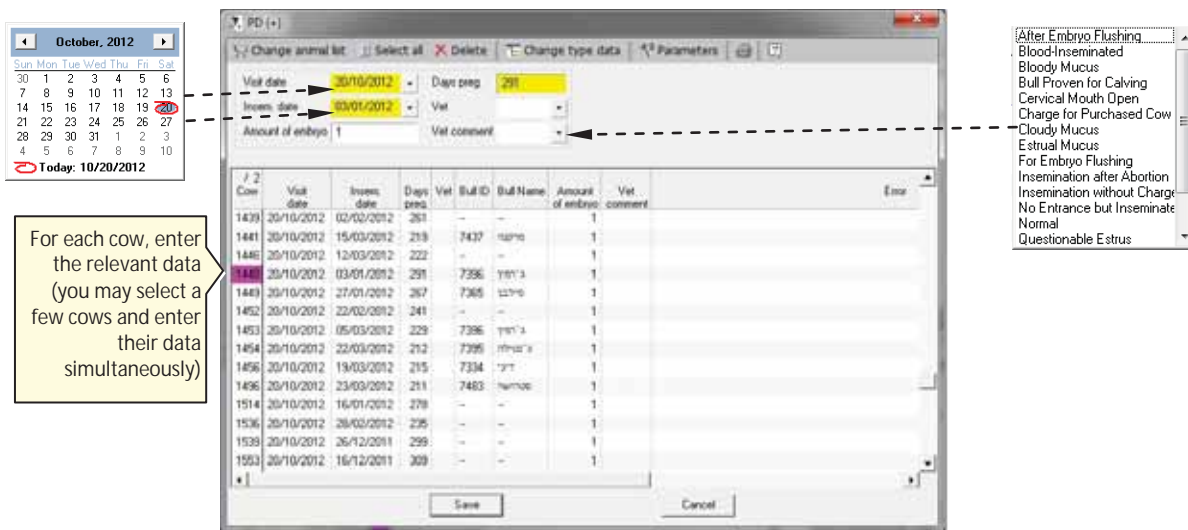
7.12 Report a Confirmed Pregnant (PD+) Event

To report a Confirmed Pregnant (PD+) event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events**→**Veterinary**→**Diagnosis**→**Pregnant**→**PD(+)** folder (browse through the folders or type **PD (+)** in the find field).

Note: You may need to expand the veterinary folders by clicking the plus sign to the left of Veterinary folder:

- In the displayed **Select Animals** screen select the cow-numbers to be reported in **PD+** by either:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.
- Click **OK**. The **PD+** dialog box opens.



The screenshot shows the PD+ dialog box with the following fields and options:

- Visit date: 20/10/2012
- Days preg: 291
- Inse date: 03/01/2012
- Vet: [empty]
- Amount of embryo: 1
- Vet comment: [dropdown menu]

The dropdown menu for Vet comment includes the following options:

- After Embryo Flushing
- Blood-Inseminated
- Bloody Mucus
- Bull Proven for Calving
- Cervical Mouth Open
- Charge for Purchased Cow
- Cloudy Mucus
- Estrual Mucus
- For Embryo Flushing
- Insemination after Abortion
- Insemination without Charge
- No Entrance but Inseminate
- Normal
- Questionable Estrus

The table below shows the list of cows in the PD+ dialog box:

Cow	Visit date	Inse date	Days preg	Vet	Bull ID	Bull Name	Amount of embryo	Vet comment
1439	20/10/2012	02/02/2012	261	-	-	-	1	-
1441	20/10/2012	15/03/2012	219	7437	marco	-	1	-
1446	20/10/2012	12/03/2012	222	-	-	-	1	-
1449	20/10/2012	03/01/2012	291	7396	frank	-	1	-
1449	20/10/2012	27/01/2012	267	7365	edro	-	1	-
1452	20/10/2012	22/02/2012	241	-	-	-	1	-
1453	20/10/2012	05/03/2012	229	7396	frank	-	1	-
1454	20/10/2012	22/03/2012	212	7399	frank	-	1	-
1456	20/10/2012	19/03/2012	215	7334	frank	-	1	-
1496	20/10/2012	23/03/2012	211	7483	marco	-	1	-
1514	20/10/2012	16/01/2012	278	-	-	-	1	-
1536	20/10/2012	28/03/2012	236	-	-	-	1	-
1539	20/10/2012	26/12/2011	299	-	-	-	1	-
1553	20/10/2012	16/12/2011	309	-	-	-	1	-

Annotations in the image include a calendar for October 2012, a callout box stating "For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)", and a dashed line pointing to the Vet comment dropdown menu.

- For each cow in the list, type in the relevant data, using the scroll-down values
 - Visit Date** – date of vet visit (current date is entered by default).
 - Breed. Date** – date of breeding service.
 - Days preg.** – days in pregnancy
 - Vet** - select the name of the vet from the roll-down menu. To add a name to the list, refer to the AfiFarm user-manual.
 - Amount of embryo** – fill in the number of embryo (default is 1)
 - Vet Comment** – select the relevant comment from the roll-down menu

Note: You may select a group of cows and set the same data for all of them simultaneously.
- To save the data click **Save**. To exit the window click **Cancel**.

NOTE


If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.13 Report a Confirmed Open (PD-) Event

To report a Confirmed Open (PD-) event

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), and click **Add**.
2. In the displayed **Data Entry** selection dialog, navigate to the **Events→Veterinary→Diagnosis→Pregnant→PD(-)** folder (browse through the folders or type **PD (-)** in the find field).

Note: You may need to expand the veterinary folders by clicking the plus sign to the left of Veterinary folder:

3. In the displayed **Select Animals** screen select the cow-numbers to be reported in **PD-** by either:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s),
OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.

4. Click **OK**. **PD**- dialog box opens.

For each cow, enter the relevant data (you may select a few cows and enter their data simultaneously)

Cow	Visit date	Diagnosis	Treatment	Treatment start date	Treatment end date	Drug start date	Drug end date	Vet	Vet comment
7266	20/10/2012	PD (I)							
7270	20/10/2012	PD (I)							
7271	20/10/2012	PD (I)							
7273	20/10/2012	PD (I)							
7274	20/10/2012	PD (I)							
7276	20/10/2012	PD (I)							
7280	20/10/2012	PD (I)							
7281	20/10/2012	PD (I)							
7282	20/10/2012	PD (I)							
7286	20/10/2012	PD (I)							
7293	20/10/2012	PD (I)							

5. For each cow in the list, type in the relevant data, using the roll-down values
- **Visit Date** – date of vet visit (current date is entered by default).
 - **Treatment** – click the browse button to open the treatment-form; select the type of treatment and click **OK**.
 - **Drug**– in case a drug is used, click the browse button to open the drug-form; select the drug used, select the dose used, and click **OK**.
 - **Vet** - select the name of the vet from the roll-down menu. To add a name to the list, refer to the AfiFarm user-manual.
 - **Vet Comment** – select the relevant comment from the roll-down menu
- Note: You may select a group of cows and set the same data for all of them simultaneously.*
6. To save the data click **Save**. To exit the window click **Cancel**.


NOTE

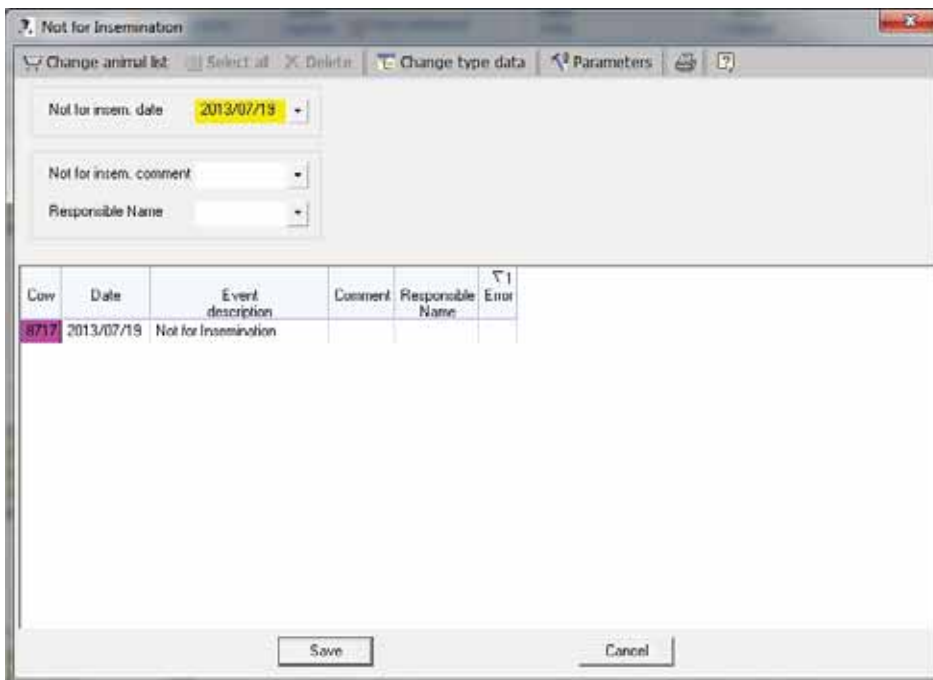


If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.14 Report a DNB

To report a DNB cow

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), OR from the Herd view screen or by right-clicking from any report screen).
2. In the **Data Entry** selection dialog, navigate to **Fertility**→**DNB** (browse through the folders or type **DNB** in the find field).
3. In the displayed **Select Animals** screen select the cow-numbers to be reported in **DNB** by either:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.
4. Click **OK**. **DNB** dialog box opens.



Cow	Date	Event description	Comment	Responsible Name	Error
8717	2013/07/19	Not for Insemination			

5. For each cow in the list, type in the relevant data, using the roll-down values
6. To save the data click **Save**. To exit the window click **Cancel**.

NOTE

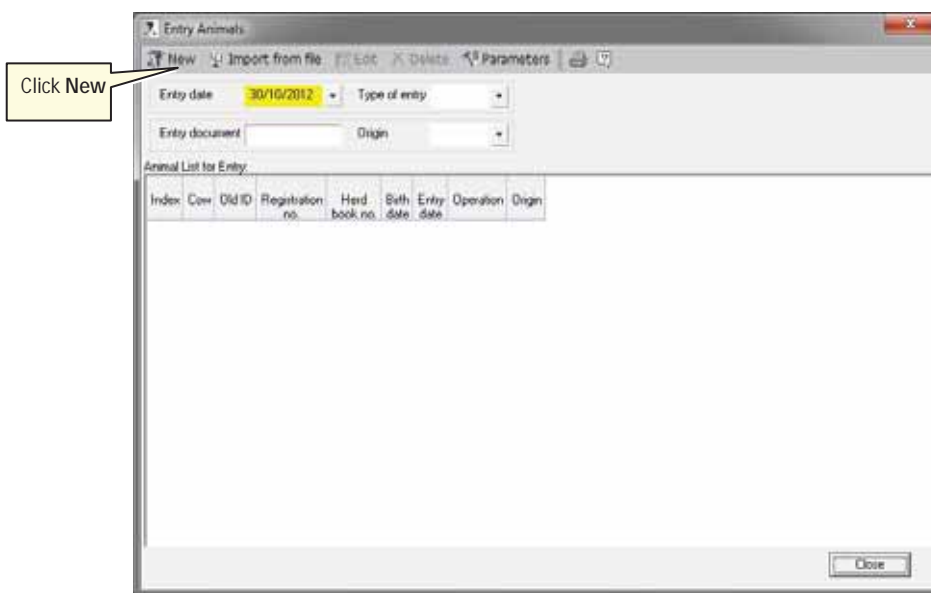


If you click **Cancel** before saving the changed data, a save-confirmation dialog will appear, prompting the user: **Save data?** You may click **Yes** to save or **No** to abort.

7.15 Report a new Cow

To report a new cow

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), OR from the Herd view screen or by right-clicking from any report screen).
2. In the **Data Entry** selection dialog, navigate to **Herd Movement**→**Entry** (browse through the folders or type **Entry** in the find field). The **Entry Animals** screen appears.



3. Click the **New** button. The **new cow** screen appears:

- Fill in the data in the relevant fields, according to the following table, describing the fields that are mandatory for the system (for additional information refer to AfiFarm UM).

Table 7-2. Animal Data Entry Fields

Field	Description
Cow	Unique cow ID for AfiFarm reports.
Registration no.	Government registration number.
Birth date	Date of birth
Grp.	Animal group to which the animal is assigned (if groups exist).
Herd	Herd number, for multi-herd management or classification of cows according to original herd or breed (if relevant).
Calving date	Calving date
Lact. No.	Lactation number
Type breed.	Type of breeding service. If the field is not blank (a value is entered), the rest of breeding-related fields are enabled.
Bred date	Date of last breeding service
Ins no.	Breeding service number in the present lactation.
Bull ID	ID of breeding bull
Bull Name	Name of breeding bull
Pregnant	Pregnancy status
Dry date	Dry off date

- When finished, click **Save and Close**.

NOTE

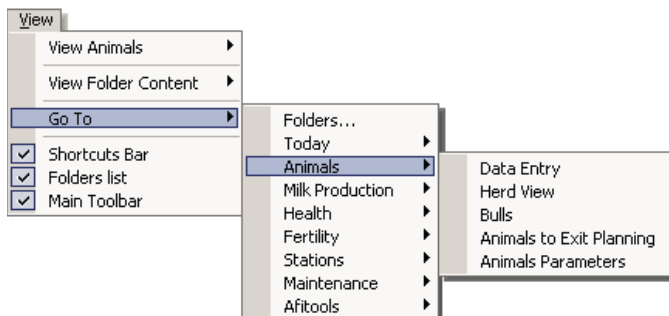


To enter a new calf born in the herd it is recommended to use: Data Entry → Calving. That window has automatic counters for animal #, registration # and automatically updates the mother's data and status.

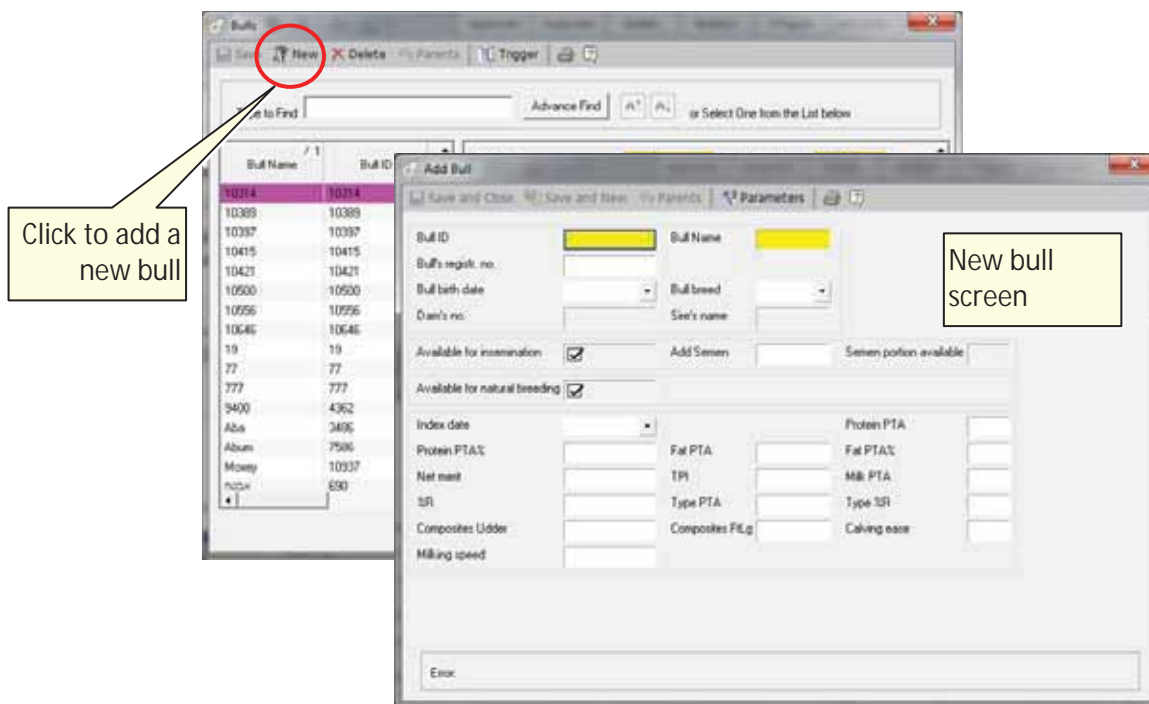
7.16 Report a new Bull

To report a new bull

1. In your AfiFarm application, from the **View** tab select **Go To**→**Animals**→**Bulls** OR in the **Folders List** select **Animals** → **Bulls**




2. The **Bulls** screen appears. Select **New** to enter a new bulls data.



3. Fill in the data in the relevant fields, according to the Bull's details (for additional information refer to AfiFarm UM).

7.17 Remove a Cow from the Herd

To report a cow removed from herd (due to death or other)

1. In your AfiFarm application, select the **Data Entry** screen (either from the shortcut navigation-tree, OR from the folder-list), OR from the Herd view screen or by right-clicking from any report screen).
2. In the **Data Entry** selection dialog, navigate to **Herd Movement**→**Exit** (browse through the folders or type **exit** in the find field), and click **Add**.
3. In the displayed **Select Animals** screen select the cow-numbers to be reported as **Exit** by either:
 - Scrolling through the **Animals List** and double-clicking the relevant ID(s), OR
 - Selecting the relevant cow IDs using the arrow buttons , OR
 - Entering the animal ID into the **Type animal number** field and clicking **Enter**.

The **Exit** cow screen appears:

AfiFarm-ID of cow to be removed

Checkmark to delete from database

Cow	Old ID	Registration no.	Exit date	Type of exit	Exit reason	Destination	Exit weight	Exit document	Exit price	Exit comment	Error
1472	1472	9868472	30/10/2012				0		0.00		
1473	1473	9868473	30/10/2012				0		0.00		

4. Fill in the following fields:
 - In the **Cow** field, enter the AfiFarm unique cow-ID of the cow to be removed
 - In the **Exit date** field enter the date the cow was removed from the herd.
5. Check-mark the **Delete from DB** field.
6. Click **Save**. The cow is listed as *removed from the herd*. However, the cow data is still available in the AfiFarm database.

8 Advanced Analysis Tools

For most animals, the animals to be bred and basic (quick-list) reports provide all the information required for making best breeding decisions. However, the system provides advanced tools for analyzing fertility of specific animals in the herd, by investigating their history of heat cycles and identifying fertility problems. These advanced tools and optimizations are described in this chapter.

8.1 Advanced Analysis of Heat Cycles

In most cases, the animals listed in the **To be Bred** reports should be sent for breeding. However, some listed animals require further investigation, to avoid false detection of heat and to eliminate other factors that may have caused an increase in activity. Viewing heat cycle history is the key to this analysis and can be seen in the following reports and graphs:

- **Activity report** – provides data of the last 1 – 50 days
- **10 days report** – provides the last 10-days of activity information
- **Lactation graph** – provides the full cycle from calving to dry-off.

Advanced heat cycle analysis is based on the following items:

- Specific cows estrus behavior duration, as determined from the cow's heat cycle history. For example, cows that show signs of heat for a short period of time should be bred as soon as signs of heat appear, while for cows that show signs of heat for a longer time period, it may be preferable to delay breeding.
- Specific cows estrus deviation percentage
- Stressful conditions (e.g. group change) that may cause an increase in activity.

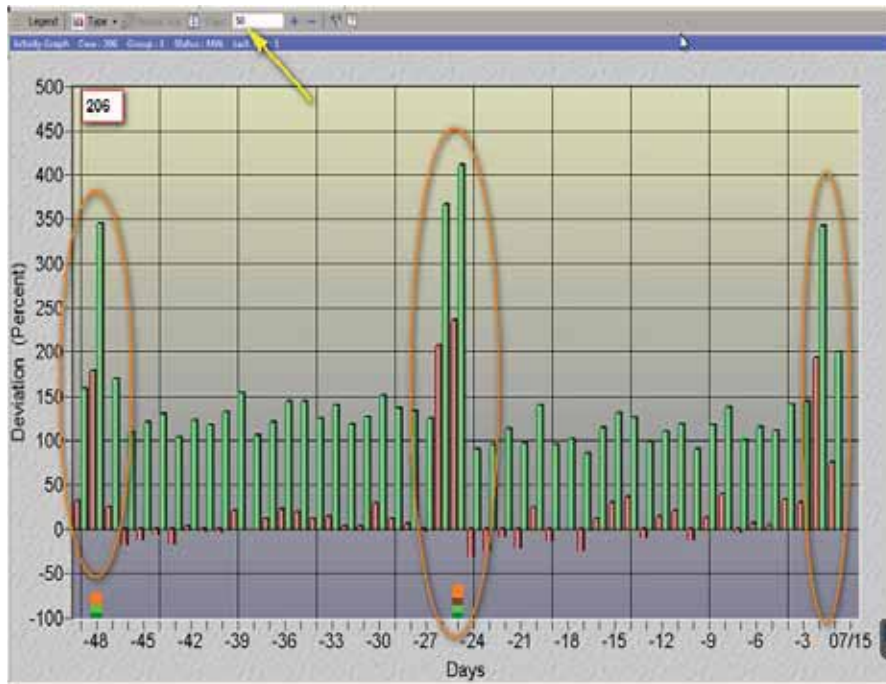
NOTE



When a cow was moved between groups, the increase in activity may not be due to estrus. Depending on your farm's policy, the farmer may choose to check this cow before sending it to the breeder.

To determine a cow's heat cycle factors

The cyclic behavior of a cow can be obtained by looking at a long time interval (e.g. last 50 days) of the activity graph or the cow lactation graph. As these graphs display activity deviations and reported events on a single graph, they indicate both: this specific cow's cyclic increased activity level, and the duration of heat signs.



Heat may be identified according to the visual cycle (activity deviation that appears within a normal 18-24 day cycle is probably heat), and according to the increase in activity (a high peak in activity is usually expected before ovulation).

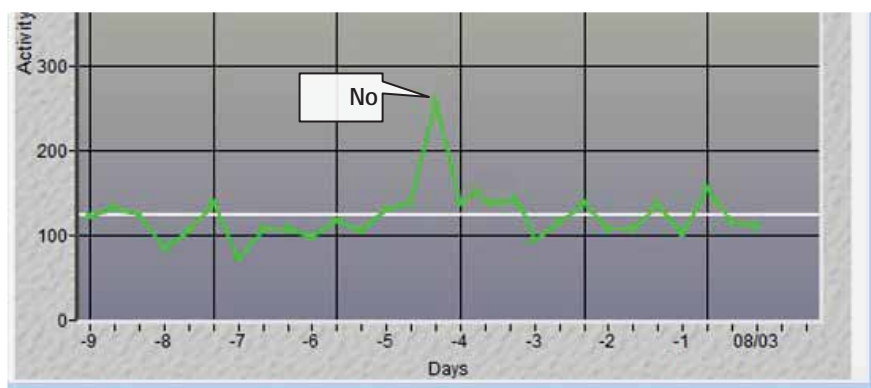
When analyzing cows' cycles, the following decisions can be taken, as demonstrated in the examples below.

- For cows showing a relatively **short heat duration**, with relative **low activity deviation**: the activity deviation must not be missed. When this sign of heat appears, these cows need to be bred immediately.
- For cows showing relatively **long heat duration**, it is recommended to check when is the highest peak of the activity deviation, and breed only then.

8.1.1 Enhanced Activity and Lactation Graph – Examples

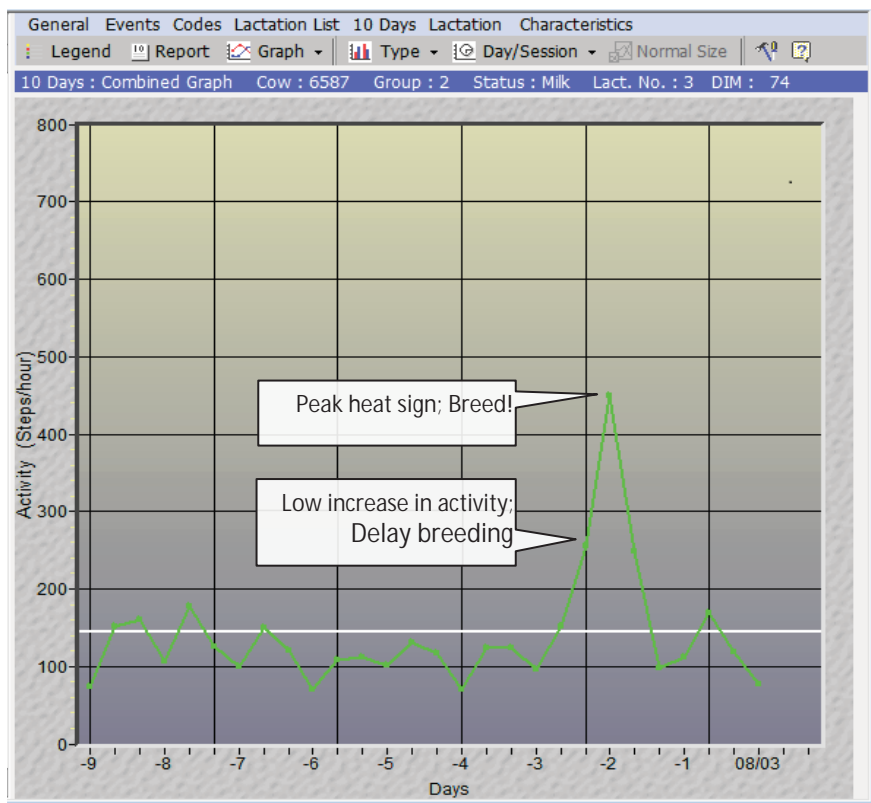
8.1.1.1 Example 1: Short Heat Cycle with Low Activity Increase

The following lactation graph shows a **Short Heat Duration**: Cow #6539 displayed a single, low increase in activity. This activity deviation is a sign of heat that must not be missed. When this sign of heat appeared, this cow had to be bred immediately.



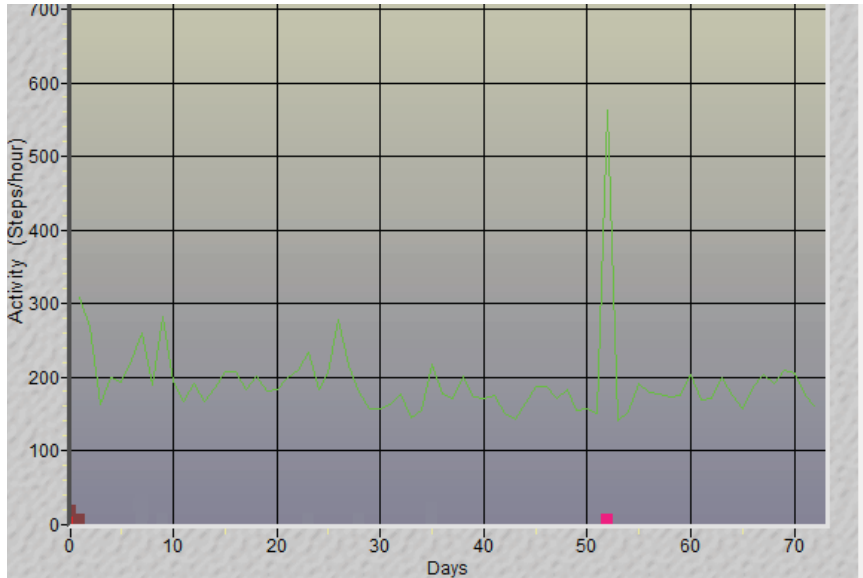
8.1.1.2 Example 2: Long Heat Cycle

The following lactation graph shows a **Long Heat Duration**: Cow #6587 initially displayed a low increase in activity. As time progressed, the activity deviation increased and reached a high peak. In this example, it would have been best to delay breeding this cow until its activity deviation reached its high peak.



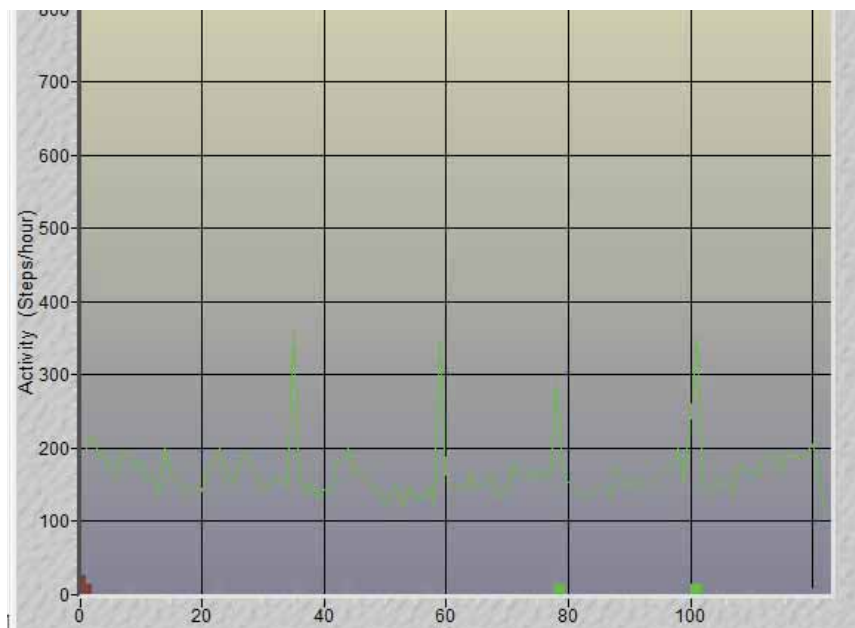
8.1.1.3 Example 3: Heat Deviation – High Peak

The following lactation graph shows a **High Peak**: this cow has increased its activity from an average of 150-200 steps/hour to 500-600 steps/hour, since its previous heat. This will be the expected activity deviation for this cow when in heat.



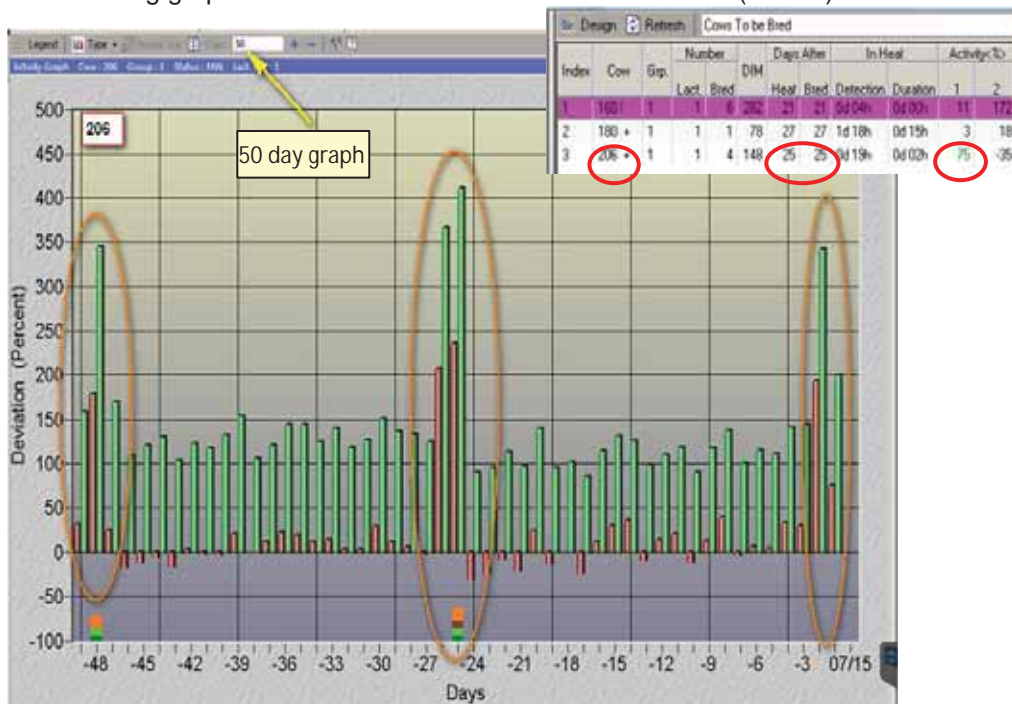
8.1.1.4 Example 4: Heat Deviation – Low Peaks

The following lactation graph displays a cow showing a low activity deviation when in heat. In this case, the cow must be bred when the first signs of the activity increase appear.



8.1.1.5 Example 5: Activity Report: History of Cyclic Behavior

The following graph shows the behavior of the third listed cow (ID 206).



As shown in the table, cow 206 is 25 days after Heat and also 25 days after Bred.

In this 50-day graph, you may see that the cow shows periodic cyclic behavior. The colored squares indicate reported events (heat, bred,...).

As shown in the table, cow 206 has a 75% deviation in the first session. The cow ID appears with a plus sign (+), indicating that the deviation detected was not reported with a corresponding bred or heat event. The graph also shows that the deviation was higher in the previous day (perhaps breeding was performed but not reported).

8.2 Identifying Fertility Problems

This chapter describes how to identify the following fertility problems:

- Abortions, see 8.2.1
- Missed-heat, see 8.2.2

8.2.1 Identify Abortions

Abortions have a great impact on the economical performance of a dairy farm. Late-term abortions often result in early culling of productive cows. The loss could be as high as \$4500 per cow if it is considered to be an open cow at the end of lactation.

An annual abortion rate of up to 3-4% is considered to be normal for most farms. Since common practice for pregnancy confirmation in most farms is performed close to the dry period, abortions may often go undetected until re-breeding is no longer economically feasible.

Most cows resume normal estrus behavior after abortion. AfiAct's ability to detect signs of heat in pregnant cows can alert the farmer to re-check the pregnancy in its early stages, allowing detection of cows that were confirmed pregnant but in actuality are currently open (not pregnant).

A cow that has been confirmed pregnant but shows an increase in activity high enough to be considered in heat (as defined in the estrus deviation parameters), is listed in the **Suspected Abortions** Report.

The Suspected Abortion Report lists cows that show an increase in activity after confirmed pregnancy, but *excludes* cows that were assigned the following events within the preceding 5 days:

- Cows that were moved to a new group.
- Cows that had their hooves trimmed.
- Cows during early stages of pregnancy that are within 5 days of the pregnancy check.
- Cows that are pregnant for 265 days or more. In this case, the event is considered to be early calving and not an abortion.

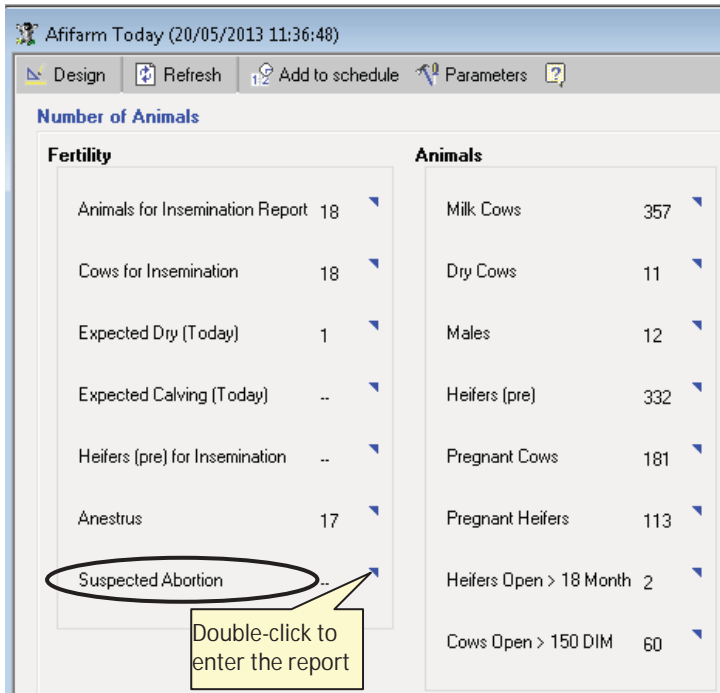
Note that in some situations, cows may demonstrate excessive activity due to environmental causes. In these cases, if a cow is found to be open, an economic decision should be made whether to rebreed or cull the cow.

The following sections describe how to detect abortions in AfiAct, and how to further investigate a cow suspected of abortion.

8.2.1.1 Accessing the Suspected Abortions Report

To access the Suspected Abortion Report

1. In your AfiFarm application, select **AfiFarm Today** from the standard navigation tree (or select the relevant report set from the **folder list** navigation tree) and choose **Suspected Abortion**.



2. The **Suspected Abortion** report opens, displaying a list of cows that are suspected to have aborted.

The screenshot shows the 'Suspected Abortion' report in the AfiFarm Today application. The report displays a table of cow data. The table has columns for Index, Cow, Grp., Gyn. status, Cur.lact. abortions, Lifetime abortions, DIM, Days preg, Days to dry off, Daily yield, Daily avg. yield, and three columns for Activity deviation (s. 1, s. 2, s. 3).

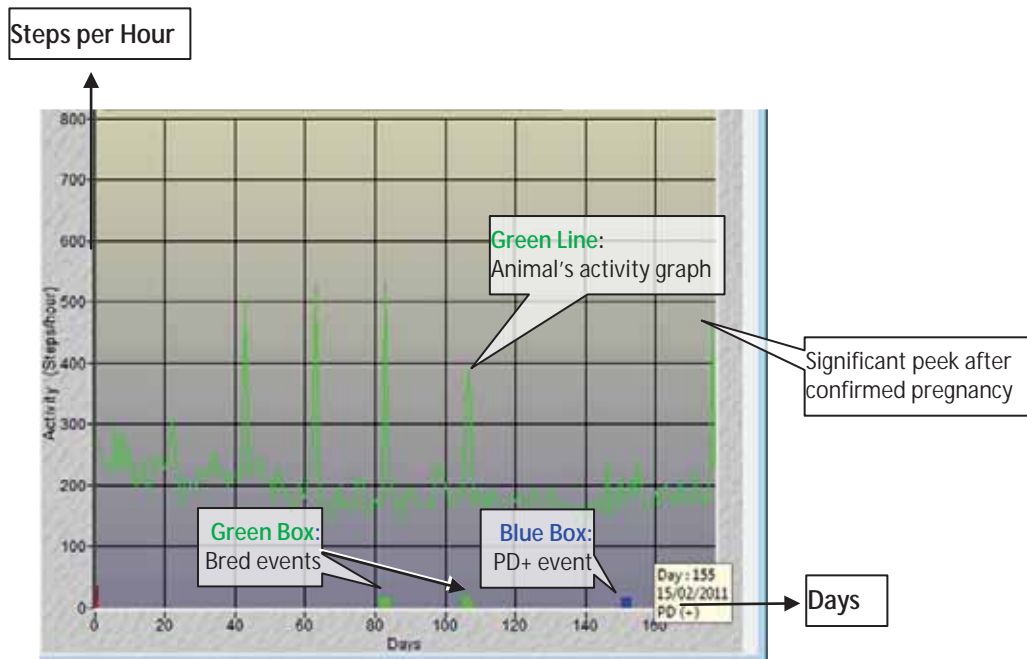
Index	Cow	Grp.	Gyn. status	Cur.lact. abortions	Lifetime abortions	DIM	Days preg	Days to dry off	Daily yield	Daily avg. yield	Activ. dev.< %> s. 1	Activ. dev.< %> s. 2	Activ. dev.< %> s. 3
1	6686	2	Pregnant	0	1	176	107	108					

In the above example, Cow #6686 is over 107 days into its pregnancy. If an abortion is confirmed, this cow may be worth re-breeding. But its activity behavior must be further investigated, as explained below.

To further investigate a cow suspected of abortion:

3. From the Suspected Abortion Report, double-click on the cow's row. A 10-Day graph of this cow's activity is displayed.
4. From the 10-Day graph menu, click Lactation. The lactation graph for the cow suspected of abortion appears.

8.2.1.2 Suspected Abortions Example



In the above example, Cow #6686 was bred when the 3rd and 4th heat events occurred (see green boxes ■), and pregnancy was confirmed 48 days after the second service, at 155 DIM (see blue box ■).

On the last day of this graph, a significant spike (increase) of activity was detected, indicating that the cow may have aborted.

In this case, the suggested procedure is to check the pregnancy. If the pregnancy check indicates that the cow is open (aborted), a **Confirmed Open** event should be entered into AfiAct. Then, the next time increased activity is detected, this cow will be listed in the **Cows to be Bred** report. If the farmer decides not to breed the cow again, it must be assigned a **DNB** (Do Not Breed – Not for Insemination) event. The DNB event will exclude the cow from the Cows to be Bred Report.

8.2.2 Identify Missed-Heat

The Missed-Heat (anestrus) Report lists the cows that fail to display heat symptoms, for both cases:

- Cows in their first stage of lactation
- Cows that failed to maintain a normal cycle during the main stage of lactation.

A cow is considered **anestrus** if no sign of heat is detected after the VWP. The reasons for anestrus vary from after-calving diseases and late transfer into positive energy balance after calving, to clinical ovarian problems. In most cases, these cows should receive veterinary treatment (usually hormones, to trigger ovarian activity) to resume proper estrus activity.

Long or double cycles can occur as a result of an actual physical reaction - for example, under stressful conditions such as hot weather, a group change, or any other environmental problem. A long cycle can also appear if actual estrus activity failed to be detected. Since long and double cycles affect the number of open days, identifying the problem and administering early treatment can minimize loss caused by late pregnancy.

NOTE



AfiAct works on the basis of the events reported to the system. Therefore, if the farmer does not report heat unless breeding was performed, cows whose first insemination is delayed beyond the VWP may appear in the Anestrus Report regardless of actual estrus activity.

For best missed-heat report results, it is recommended to first set the parameters according to your specific farm needs.

8.2.2.1 Setting Missed-heat Report Parameters

Missed-heat Report parameters determine which cows are listed in the report. The parameters can be customized to meet each farm's breeding policy.

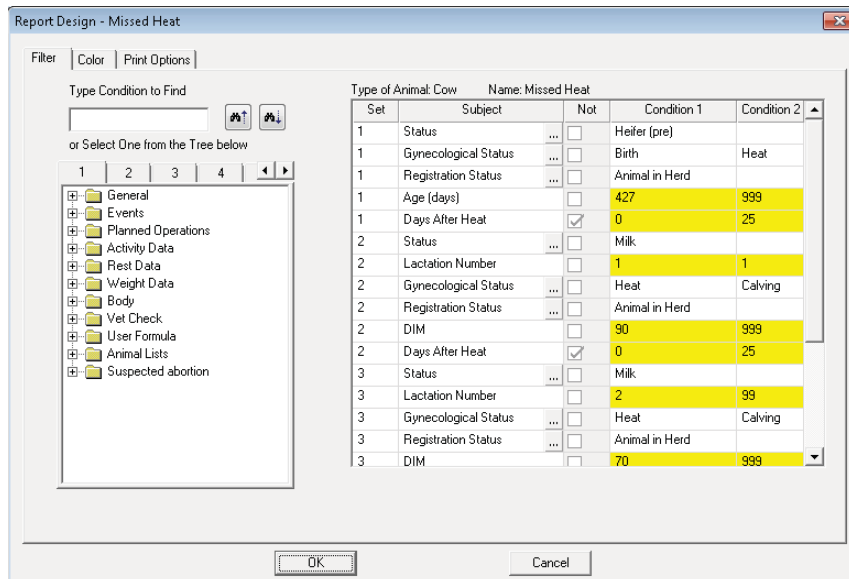
The following table details the parameters affecting the Missed-heat report.

Table 8-1. Missed-heat Report Parameters

Parameter Name	Default Value	Description
Heifers first breeding	427 days	VWP for heifers: If a heifer shows no record of heat by this time, it is listed in the Anestrus Report.
Cows on their first lactation	70 days after calving	VWP for cows in their 1 st lactation (the first breeding may be delayed). A cow from this population with no record of heat after 70 DIM is listed in the Anestrus Report.
Cows on their second lactation or more	52 days after calving	VWP for cows in their 2 nd lactation: Cows from this population with no record of heat after 52 DIM is listed in the Anestrus Report.
Cycle	25 days since the last heat	The length of a cow's normal cycle (after the VWP) – Cows/Heifers that fail to show signs of heat within the defined cycle will be listed in the Anestrus Report as an animal with missed heat.
Abortions	30 days after abortion	If a cow aborts its calf and 30 days or more pass and no signs of heat are detected, this cow is listed in the Anestrus Report.
PD Minus (-)		Cows found open in a pregnancy check will appear in the report. Note: When such a cow shows no signs of heat for at least 30 days, it should be checked for pregnancy

To update the missed-heat report parameters:

From within the report, click the **Design** button. The parameter-adjustment dialog is displayed, allowing you to update the report's parameters.



8.2.2.2 Accessing the Missed-Heat Report

To access the Missed Heat Report

1. In your AfiFarm application, select **AfiFarm Today** from the standard navigation tree (or select the relevant report set from the **folder list** navigation tree) and choose **Missed Heat**.

Number of Animals

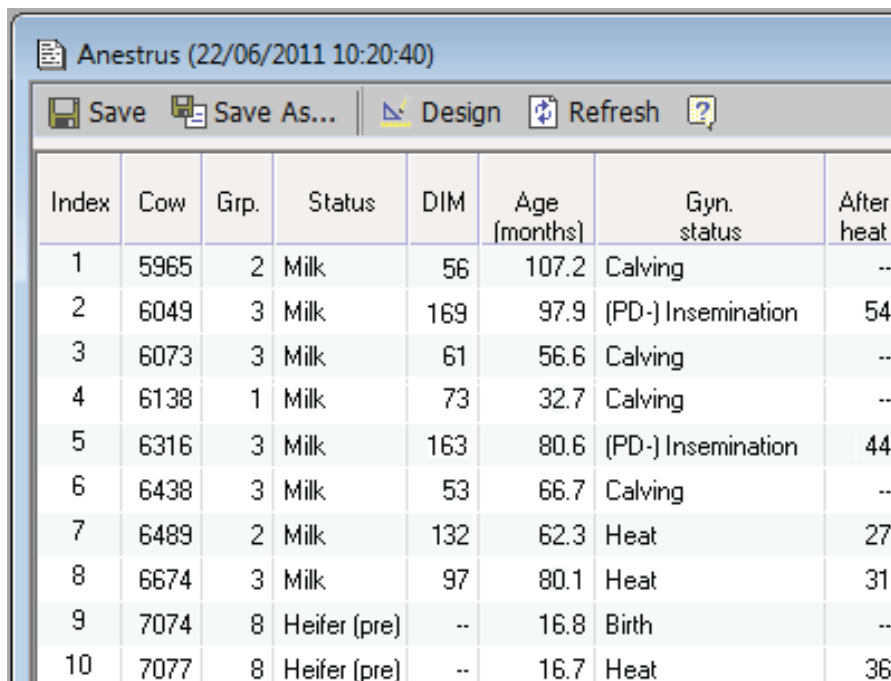
Fertility		Animals	
Animals for Insemination Report	18	Milk Cows	357
Cows for Insemination	18	Dry Cows	11
Expected Dry (Today)	1	Males	12
Expected Calving (Today)	--	Pregnant Cows	332
Heifers (pre) for Insemination	--	Pregnant Heifers	181
Anestrus	17	Heifers Open > 18 Month	2
Suspected Abortion	--	Cows Open > 150 DIM	60

2. The **Missed-Heat** report opens. This section explains how to use the information in the report to identify fertility issues.

Anestrus (22/06/2011 10:20:40)

Index	Cow	Grp.	Status	DIM	Age (months)	Gyn. status	After heat
1	5965	2	Milk	56	107.2	Calving	--
2	6049	3	Milk	169	97.9	(PD-) Insemination	54
3	6073	3	Milk	61	56.6	Calving	--
4	6138	1	Milk	73	32.7	Calving	--
5	6316	3	Milk	163	80.6	(PD-) Insemination	44
6	6438	3	Milk	53	66.7	Calving	--
7	6489	2	Milk	132	62.3	Heat	27
8	6674	3	Milk	97	80.1	Heat	31
9	7074	8	Heifer (pre)	--	16.8	Birth	--
10	7077	8	Heifer (pre)	--	16.7	Heat	36

8.2.2.3 Example I: Missed-heat Report Analysis



Index	Cow	Grp.	Status	DIM	Age (months)	Gyn. status	After heat
1	5965	2	Milk	56	107.2	Calving	--
2	6049	3	Milk	169	97.9	(PD-) Insemination	54
3	6073	3	Milk	61	56.6	Calving	--
4	6138	1	Milk	73	32.7	Calving	--
5	6316	3	Milk	163	80.6	(PD-) Insemination	44
6	6438	3	Milk	53	66.7	Calving	--
7	6489	2	Milk	132	62.3	Heat	27
8	6674	3	Milk	97	80.1	Heat	31
9	7074	8	Heifer (pre)	--	16.8	Birth	--
10	7077	8	Heifer (pre)	--	16.7	Heat	36

In the above Sample Anestrus Report, we learn the following:

- The cows that appear on Index/Line numbers 1, 3, 4, 6 (5965, 6073, 6138, 6438) are assigned the **Calving** status. These cows have shown no signs of heat since their calving and are considered anestrus.
- Cows on Index/Line numbers 2 and 5 (6049 and 6316) were discovered to be open at their last pregnancy check. The reason for failing to show signs of heat since the last breeding service must be investigated.
- Cows on Index/Line numbers 7 and 8 (6489 and 6674) show prolonged cycles (or missed heats) of 27 and 31 days since the last heat. These cows may be pregnant.
- Cows on Index/Line numbers 9 and 10 (7074 and 7077) are heifers. Heifer #7074 has shown no sign of heat since its birth (its age is 16.8months, around 504 days since its birth). Heifer #7077 showed signs of heat 36 days ago but no new sign has appeared since. This heifer should be brought to the veterinarian to be tested for pregnancy.

8.3 Advanced Reports

The system provides a variety of fertility, animal, and other system reports.

AfiAct provides four general Fertility Reports:

- General Fertility Report – An overview of the entire herd's fertility performance for a defined period of time. Use this report to compare the herd's fertility performance with fertility goals, and for assessing fertility improvements.
- Fertility Report (by Bull) – An overview of the fertility performance of specific bulls. Use this report to assess the fertility success of specific bulls. This report assists in ascertaining the effectiveness of each bull's semen.
- Fertility Report (by Breeder) – An overview of your farm's fertility performance according to breeder. Use this report to evaluate the success rate of each breeder.
- Pregnancy Rate Detection Report – An overview of the heat detection and pregnancy rates at your farm.

This chapter provides detailed information on selected reports.

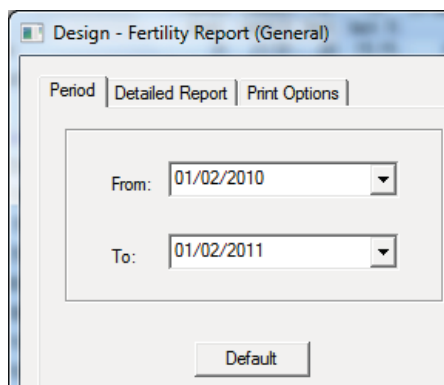
8.3.1 Customizing general Fertility Reports Time Period

The Default Time Frame for the Fertility Reports displayed data is the preceding year, ending one month (30 days) before the current date, and starting 13 months prior to the current date. Report results in this setting include information up until the current date. In addition, the report includes calculations based on fertility events that occurred during the 45 days after the last date in the report's time frame

The **time frame** may be customized; the maximum that can be defined is 12 months.

To customize the default time frame for the Fertility Report:

1. In your AfiFarm application, select the relevant report set from the **folder list** navigation tree and choose **Fertility Report (General)** OR **Fertility report (by bull)** or **Fertility report (by breeder)**.
2. Click **Design**. The Design window opens.



3. In the Period tab, fill in the following attributes:
 - In the **From** field, enter a start date for the time frame.
 - In the **To** field, enter an end date for the time frame.
4. Click OK.

The Fertility Report displays fertility information for the time period within these dates, including up to 45 days after the date defined in the **To** field.

NOTE

You may compare breeding performance for corresponding time periods, by redisplaying Fertility Report results for the different parallel or corresponding time periods.

8.3.2 General Fertility Report - Categories

The general fertility reports shows data sorted into categories. These categories are detailed below, and examples are provided in the sections that follow, for explaining how to use the data for further analysis.

The following figure shows an example of a Fertility Report (General).

	Heifers (pre)	Heifers (pre) %	1st lact.	1st lact. %	2+ lact.	2+ lact. %	All cows	All cows %	Total	Total %
Not Bred	31	23.31	20	15.15	83	40.49	103	30.56	134	28.51
Not bred by Decision	6	1.20	12	4.88	27	5.65	39	5.39	45	3.68
1st Service Distribution										
Bred (< 50 DIM)			--	--	--	--	--	--		
C.R. (< 50 DIM)				--		--		--		
Bred (50 - 70 DIM)			--	--	2	1.00	2	0.60		
C.R. (50 - 70 DIM)				--		--		--		
Bred (70 - 90 DIM)			41	30.83	35	17.50	76	22.82		
C.R. (70 - 90 DIM)				41.46		31.43		36.84		
Bred (90 - 110 DIM)			42	31.58	78	39.00	120	36.04		
C.R. (90 - 110 DIM)				42.86		37.18		39.17		
Bred (110 - 130 DIM)			28	21.05	57	28.50	85	25.53		
C.R. (110 - 130 DIM)				35.71		43.86		41.18		
Bred (130 - 150 DIM)			16	12.03	23	11.50	39	11.71		
C.R. (130 - 150 DIM)				50.00		43.48		46.15		
Bred (=> 150 DIM)			6	4.51	5	2.50	11	3.30		
C.R. (=> 150 DIM)				--		40.00		18.18		
Bred (age < 12 months)	--	--								

The report displays information according to the following categories:

Table 8-2. Fertility Report Categories

Category	Description	Used for...
Not Bred	No. of animals that have no breeding event within the report's time frame, and the number of animals with a late first breeding service. Includes: <ul style="list-style-type: none"> • Heifers with a late first breeding service (older than 16 months) • 1st lactation cows whose first breeding service is 130 days postpartum • Cows whose 1st breeding service is 110 days postpartum. 	evaluating data of animals without breeding events OR that were bred for the first time
Not Bred by Decision	No. of animals with a Do Not Breed event assigned during the report's time frame.	

Category	Description	Used for...
1 st Service Distribution	No. and conception rate (C.R.) of animals according to the time of 1 st breeding service after calving. This category is used for evaluating VWP (Voluntary waiting period).	
Normal Breedings and Conception Rates	No. animals that have been bred normally according to the number of times breeding service was performed, and the corresponding percentage of these animals that were confirmed pregnant as a result. All breedings that were assigned follow-up events are considered normal breeding services. Follow-up events include another Bred event, a heat event, a pregnancy check (PD+ or PD-), or a Do Not Breed event	Evaluating Quality of Heat Detection and Conceptions
Distribution of Breedings	Compares the no. and percentage of normal breedings to those breedings with no follow-up	
Heat Detection	Provides information about the animals' heat cycles divided according to cycle length.	
Sums and Averages		Evaluation of the fertility performance of the herd

8.3.2.1 Fertility Report Categories – more details & Examples

8.3.2.1.1 1st Service Distribution Section Example

	Heifers (pre)	Heifers (pre) %	1st lact.	1st lact. %	2+ lact.	2+ lact. %	All cows	All cows %	Total	Total %
Not Bred	35	79.55	--	--	1	0.72	1	0.59	36	16.90
Not bred by Decision	5	2.09	--	--	--	--	--	--	5	0.78
1st Service Distribution										
Bred (< 50 DIM)			5	25.00	20	14.71	25	16.03		
C.R. (< 50 DIM)				40.00		15.00		20.00		
Bred (50 - 70 DIM)			12	60.00	76	55.88	88	56.41		
C.R. (50 - 70 DIM)				50.00		31.58		34.09		
Bred (70 - 90 DIM)			3	15.00	30	22.06	33	21.15		
C.R. (70 - 90 DIM)				33.33		26.67		27.27		
Bred (90 - 110 DIM)			--	--	9	6.62	9	5.77		
C.R. (90 - 110 DIM)				--		33.33		33.33		
Bred (110 - 130 DIM)			--	--	1	0.74	1	0.64		
C.R. (110 - 130 DIM)				--		--		--		

In the above example figure, we learn the following:

- The VWP of the first lactation cows was short. 25% of these animals were bred before 50 days post-partum.
- Both the 1st lactation and older cows show a low C.R. (Conception Rate) after their first breeding service. When these animals were bred later, the C.R. improved.

In most cases, a low C.R. after the 1st breeding service indicates a problem in the length of the dry period or fresh cow program/nutrition, causing late entry into a post-partum positive energy balance. Though the reason for the low C.R. at this farm is not known, it is clear that the cows on this farm were not ready to be bred so early in lactation.

8.3.2.1.2 *Distribution of Breeding Services – More Details*

This category compares the number and percentage of normal breeding with the breeding with no follow-up.

- Normal breeding: No. of animals that were bred with follow-up events that were entered into AfiAct within 60 days after the breeding. For a list of follow-up events, see Normal Breedings and Conception Rates above.
- Breedings without follow-up: Animals that were bred but no follow-up events were entered into AfiAct within 60 days after the breeding.
- Double breeding services: The number and percentage of animals that were bred multiple times within four days around heat. Only the first breeding service is included in statistical analysis.

8.3.2.1.3 *Heat Detection – more details*

This category provides information about the animals' heat cycles divided according to cycle length.

- Distribution of cycles: The number and percentage of animals whose heat cycles correspond to the following cycles:
 - 5-17 days (short cycle)
 - 18-25 days (medium or normal cycle)
 - 26-35 days (long cycle)
 - 36-60 days (double cycle)
- Average days between Breeding services: The average number of days between breeding services within the natural cycles.
- Rejections by breeder: The number of "Rejection breeder" events.
- If the number of animals rejected by the breeder for lacking physical heat symptoms is high, heat detection sensitivity should be checked.
- Pregnancy checks with negative results: The number and percentage of cows found open at pregnancy check.

The percentages in this category are derived from Found Open (PD-) events from all cows checked for pregnancy (PD+ and PD-).

8.3.2.1.4 Breeding and Conception Rate Example

		Heifers (pre)	Heifers (pre) %	1st lact.	1st lact. %	2+ lact.	2+ lact. %	All cows	All cows %	Total	Total %
1st Service	C.R.	45	55.56	20	45.00	136	27.94	156	30.13	201	35.82
Second Service	C.R.	15	73.33	24	12.50	98	28.57	122	25.41	137	30.66
Third Service	C.R.	6	100.00	26	11.54	79	46.84	105	38.10	111	41.44
Fourth + more Service	C.R.	1	100.00	78	26.92	124	29.84	202	28.71	203	29.06
Total of Service	C.R.	67	62.69	48	22.30	437	28.83	585	27.18	652	30.83
Services Distribution											
Breeding With Follow Up		67	98.53	148	98.01	437	97.76	585	97.83	652	97.90
Service without follow-up		1	1.47	3	1.99	10	2.24	13	2.17	14	2.10
Total Breedings		68		151		447		598		666	
Double Service											
Double Service	--	--	--	1	0.66	7	1.54	8	1.32	8	1.19
Total Breedings (+double)		68		152		454		606		674	
Heat Detection											
Distribution of cycles:	5-17 days	--	--	5	4.24	17	5.90	22	5.42	22	5.29
	18-25 days	3	30.00	62	52.54	130	45.14	192	47.29	195	46.88
	26-35 days	--	--	20	16.95	52	18.06	72	17.73	72	17.31
	36-60 days	7	70.00	31	26.27	89	30.90	120	29.56	127	30.53
Average days between Breedings		38		28		29		29		29	
Rejections Breeder		--		--		--		--		--	
Preg Checks found Open		8	12.70	22	32.84	74	32.17	96	32.32	104	28.89

In the above Breeding and Conception Rate Example, we learn the following:

- The first service (breeding) C.R. (Conception Rate) is lower than expected. This requires investigating the cows' nutrition and the farm's dry period policy.
- In the second lactation and older cows, the third service C.R. is significantly higher than the first and second service.
- This requires evaluating the dry cows' protocol and feeding program.
- Heat detection of the heifers group is very poor. From the 70% of double cycles (36-60 days) we may deduce that for many cows, only one of two heats is detected.

At this farm, there is no automated heat detection for the heifers group, and their alternative heat detection program is providing very poor results.

- The percentage of double cycles (see Distribution of Cycles, 26-35 days, and 36-60 days) for both 1st and 2nd lactation cows is very high. This requires evaluating the heat detection system used at the farm, as well as the way AfiAct is being used.

If heats are detected properly and cows are bred on time, a genuine health problem that is causing early embryonic losses (for example, BVD) may be the cause of double cycles. If this is the case, a veterinarian must be consulted to analyze if heats are detected properly. Review your cows' fertility performance in the Lactation graphs. See chapters 4, 5 .

8.3.2.1.5 Sums and Averages – more details and Example

- Calving Interval: The time interval, in days, between two successive calvings.
- Total of Confirmed Pregnancies: The number and percentage of animals with an effective breeding service (pregnancy was confirmed). Percentage calculations include all confirmed pregnancies from all normal breeding services for the defined time frame. For information about normal breeding services, see Normal Breeding services and Conception Rates on page 59.
- Average Days Open: The average number of days from the end of the Voluntary Waiting Period until the effective breeding service (pregnancy) during the last lactation.

The Average Days Open value is most commonly used to describe a herd's overall level of reproductive performance, usually used as a reference to describe the average of all cows in the herd that are eligible for breeding.

The Average Days Open value for heifers is measured in months, calculated from birth until an effective breeding date.

- Average Days to First Service: The average number of days between the calving date and the date of the first breeding service. This value is the same as the actual Voluntary Waiting Period.
The Average Days to First Service for heifers is measured in months, calculated from birth until the first breeding service within the time frame of the report.
- Average Wasted Days: The average number of days between the last effective breeding and the first breeding service after calving. Since the Voluntary Waiting Period differs between farms and may be determined by the market environment, the Average Wasted Days represent the time lost due to reduced fertility.
- Open at More than 150 DIM: Cows eligible for breeding that are still open after 150 Days In Milk, including pregnant cows whose effective breeding service was 150 DIM or more, after calving.
- Average Breeding services per Cow: The average number of normal breedings services for eligible for breeding cows, whether pregnant or yet to be confirmed pregnant.
- Average Breeding services per Pregnancy: The average number of breeding per conception in the herd, calculated for all cows confirmed pregnant within the report's time frame.

Sums and Averages Example

	Heifers (pre)	Heifers (pre) %	1st lact.	1st lact. %	2+ lact.	2+ lact. %	All cows	All cows %	Total	Total %
Sums and Averages										
Calving Interval					457		457			
Total of confirmed pregnancies	42	80.77	33	80.49	126	82.35	159	81.96	201	81.71
Avg. days open	18.36		205		120		138			
Avg. days to first service	17.08		57		63		63			
Avg. Wasted Days	35		104		55		65		59	
Open more than 150 DIM			14	46.67	27	19.42	41	24.26		
Avg. Breedings per cow	1.29		3.61		2.86		3.02		2.65	
Avg. Breedings per pregnancy	1.57		3.55		2.73		2.90		2.62	

In the above Sums and Averages Example, we learn the following:

- The Calving Interval is very long (457 days). While this may be due to farm policy, with Voluntary Waiting Period set according to the local market situation, the long calving interval was probably caused by poor heat detection or conception.
- The Average Days Open:
 - The Average Days Open for heifers is very high (18.36 months), probably due to poor heat detection.
 - The Average Days Open for 1st lactation cows is also very high (205 days). The high Average Days Open for heifers and 1st lactation cows may be due to heifer growth issues
- The Average Breeding services per Cow is high (3.02 for all cows). This high value can be used to better understand the high number of open days.
- The cows on this farm conceive late. The cause for this late conception rate (probably due to late conversion into positive energy balance) should be explored and corrected. The consequence of cows that conceive late is a high number of days in low milk production, causing substantial economic loss to the farm.

8.3.3 Pregnancy Rate Detection Report

Pregnancy Rate Detection Report displays heat detection and pregnancy rates for 21-day periods (Normal expected cycle). Starting from the least to the most recent date, each line displays the rates for each 21-day time period throughout the report's time frame.

Pregnancy Rate Detection (08/03/2010 - 07/03/2011) (23/07/2011 00:08:31)							
Design Refresh Parameters ?							
Date	Heat eligible	Heat	Heat detection rate %	Pregnancy eligible	Pregnancy	Pregnancy rate %	Abortion
23/02/2010 - 15/03/2010	73	57	78	73	20	27	1
16/03/2010 - 05/04/2010	68	50	74	68	20	29	1
06/04/2010 - 26/04/2010	57	42	74	57	16	28	--
27/04/2010 - 17/05/2010	53	40	75	53	15	28	1
18/05/2010 - 07/06/2010	61	44	72	60	14	23	1
08/06/2010 - 28/06/2010	59	37	63	59	11	19	--
29/06/2010 - 19/07/2010	68	43	63	67	16	24	--
20/07/2010 - 09/08/2010	87	57	66	85	16	19	--
10/08/2010 - 30/08/2010	94	58	62	92	11	12	--
31/08/2010 - 20/09/2010	96	62	65	96	13	14	3
21/09/2010 - 11/10/2010	106	82	77	106	17	16	2
12/10/2010 - 01/11/2010	114	88	77	114	26	23	3
02/11/2010 - 22/11/2010	103	82	80	103	31	30	3
23/11/2010 - 13/12/2010	94	73	78	94	25	27	1
14/12/2010 - 03/01/2011	80	59	74	78	17	22	1
04/01/2011 - 24/01/2011	70	47	67	66	13	20	1
25/01/2011 - 14/02/2011	56	39	70	56	--	--	1
15/02/2011 - 07/03/2011	63	44	70	63	--	--	1
Sum	1402	1004	72	1390	281	20	20

Pregnancy Rate Detection Report Columns*Table 8-3. Pregnancy Rate Report Columns*

Column	Description
Dates	21-day period
Heat Eligible	The number of cows that have completed the VWP and were not tagged with a DNB command.
Heat	The number of heat events, regardless of whether or not the heat was followed by a breeding service. (In the General Fertility Report, Distribution of Cycles is calculated only for heat followed by a breeding service.)
Heat Detection Rate %	The percentage of heat events, regardless of whether or not the heat was followed by a breeding service
Pregnancy Eligible	The number of open cows that completed the VWP that are eligible for breeding. Cows that are culled during the 21-day period are excluded from the Pregnancy Eligible category
Pregnancy	The number of pregnant cows whose effective breeding service occurred during the 21 day period
Pregnancy Rate %	The percentage of pregnant cows whose effective breeding service occurred during the 21 day period
Abortions	The number of abortions that occurred during the 21-day period

To access the Pregnancy Rate Report:

1. In your AfiFarm application, select the relevant report set from the **folder list** navigation tree and choose **Fertility Reports**.
2. Double-click **Pregnancy Rate Detection Report**. The Pregnancy Rate Detection Report appears.

8.3.3.1 Pregnancy Rate Detection Report Example

In the following Pregnancy Rate Detection report, during the colder months (October through December), good pregnancy rates are apparent. Conversely, during the hotter months (July through October), a dramatic drop in the pregnancy rate can be seen, during which rates drop below 20% and reach as low as 12-16% during heat peak stress. This drop is very common at most farms (even in cooler areas) and can be corrected by implementing cooling devices, like fans and sprinklers, in the pens.

Pregnancy Rate Detection (08/03/2010 - 07/03/2011) (23/07/2011 00:08:31)							
Design Refresh Parameters ?							
Date	Heat eligible	Heat	Heat detection rate %	Pregnancy eligible	Pregnancy	Pregnancy rate %	Abortion
23/02/2010 - 15/03/2010	73	57	78	73	20	27	1
16/03/2010 - 05/04/2010	68	50	74	68	20	29	1
06/04/2010 - 26/04/2010	57	42	74	57	16	28	--
27/04/2010 - 17/05/2010	53	40	75	53	15	28	1
18/05/2010 - 07/06/2010	61	44	72	60	14	23	1
08/06/2010 - 28/06/2010	59	37	63	59	11	19	--
29/06/2010 - 19/07/2010	68	43	63	67	16	24	--
20/07/2010 - 09/08/2010	87	57	66	85	16	19	--
10/08/2010 - 30/08/2010	94	58	62	92	11	12	--
31/08/2010 - 20/09/2010	96	62	65	96	13	14	3
21/09/2010 - 11/10/2010	106	82	77	106	17	16	2
12/10/2010 - 01/11/2010	114	88	77	114	26	23	3
02/11/2010 - 22/11/2010	103	82	80	103	31	30	3
23/11/2010 - 13/12/2010	94	73	78	94	25	27	1
14/12/2010 - 03/01/2011	80	59	74	78	17	22	1
04/01/2011 - 24/01/2011	70	47	67	66	13	20	1
25/01/2011 - 14/02/2011	56	39	70	56	--	--	1
15/02/2011 - 07/03/2011	63	44	70	63	--	--	1
Sum	1402	1004	72	1390	281	20	20

8.3.4 Expected Dry and Calving Reports

The timing for drying off a cow is determined by farm policy. Even in farms that dry off cows solely according to the number of days the cow is pregnant, the number of days of pregnancy before drying off a cow is based on a dry period policy. Since the recommended dry period is 50-60 days, the default number of days in pregnancy before drying off a cow is 215 days.

Some farms include the cow's physical condition (estimated BCS, Body Condition Score) and milk production rate in determining, or even delaying, the dry-off date. Regardless of your farm's drying-off policy, when a cow is 215 days pregnant, it should be either dried off or checked before drying off.

AfiAct II lists the cows that are expected to be dried off or calve according to the number of days that they are pregnant. This tool is based on dry period definitions in AfiAct, and may alert the farmer to allow preparation for calving.

To display the Expected Dry and Expected Calving Reports:

1. In your AfiFarm application, select **AfiFarm Today** from the standard navigation tree (or select the relevant report set from the **folder list** navigation tree) and choose **Fertility Reports**.
2. Click the blue triangle to the right of the topic you want to view. The relevant report opens, displaying a list of cows that are already in dry/calving pens, and the cows that are expected to dry-off or calve within the next three days.

Index	Cow	Grp.	Lact. no.	DIM	Dry off, exp. date	Days to dry off
1	6813	4	1	262	20/06/2011	-1
2	6416	2	4	184	21/06/2011	0
3	6559	2	3	217	21/06/2011	0
4	6685	1	2	247	21/06/2011	0
5	6481	7	3	264	24/06/2011	3
6	6702	1	2	218	24/06/2011	3
7	6766	3	1	354	24/06/2011	3
8	6822	4	1	290	24/06/2011	3
Avg.	--	--	--	254	--	1

In the above example, from the Days to Dry Off column, we learn the following:

- Cow #6813 should have been dried off yesterday.
- Cow #6416, #6559, and #6685 are expected to dry off today.
- Cow #6481, #6702, #6766, #6822 are expected to dry off in three days from now.

Expected Dry/Expected Calving Calendars

Additional tools for assisting in your farm's operation are the Expected Dry and Expected Calving calendars. These calendars display the numbers of cows that are expected to dry off/calve on specific days during the coming year. These reports help plan milk production and provide a practical aid in designating drying off dates.

To access the Expected Dry or Expected Calving calendar:

1. In your AfiFarm application, select **AfiFarm Today** from the standard navigation tree (or select the relevant report set from the **folder list** navigation tree) and choose **Fertility Reports**. A list of Fertility reports appears.
2. Double-click the **Expected Dry** or **Expected Calving** calendar. The selected calendar appears. The number of animals that are expected to be dry/calving per day is displayed.

Month	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
April	17	1	1	--	2	--	--	2	--	1	1	--	--	--	3	2	--	1	--	--	--	--	--	2	--	--	1	--	--	--	--							
May	31	--	2	--	2	--	2	--	--	2	1	--	3	1	1	1	1	1	--	--	1	3	1	2	2	--	3	--	1	1	1							
June	39	2	--	3	1	5	1	3	--	1	1	3	1	--	1	--	4	--	1	1	3	--	--	4	--	2	2	--	--	--	--							
July	30	5	1	--	2	--	4	2	1	1	1	1	1	--	2	2	--	3	--	--	--	--	--	--	1	--	--	--	--	1	2							
August	22	2	2	3	--	1	1	3	1	--	--	4	2	1	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
February	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
March	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sum	139.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Index	Cow	Grp.	Lact. no.	DIM	Dry off. exp. date	Days to div off
1	6481	7	3	399	25/06/2011	4
2	6702	1	2	353	25/06/2011	4
3	6766	3	1	489	25/06/2011	4
4	6822	4	1	425	25/06/2011	4
Avg.	--	--	--	416	--	4

3. Check the **Show Details** box. Then, in the upper (calendar) area, click a number for a specific date. Details about the cows that are expected dry/calving for that day are displayed in the bottom half of the window.
4. To display information about a cow that is scheduled to dry off/calve on a specific date, in the bottom half of the window, double-click a specific animal. A 10-Day graph for the selected cow appears.

8.4 AfiAct II Best Practices

This section describes considerations and recommendations for managing your farm in AfiAct and includes the following topics:

- Importance of reporting fertility events, see 8.4.1
- Financial considerations, see 8.4.2
- Excessive activity considerations and best practices, see 8.4.3

8.4.1 Importance of Reporting Fertility Events

Fertility events provide crucial information about each cow and the herd. The more information you have about your cows' fertility, the better your analysis and decision-making will be. When entered and analyzed regularly, event information can streamline processes at the farm.

Below are tips and guidelines to entering events into AfiAct:

- Review your cows' activity daily.
- Enter all farm activity as events into AfiAct! Recorded farm activity will enable AfiAct to provide accurate and detailed reports about your farm. Events include fertility, veterinary treatments and diagnosis, group change, and more.
- Heat events should be entered regularly!
Each time you determine that excessive activity is due to heat (estrus), this should be entered into AfiAct as an event. When done regularly, AfiAct shows valuable information about your cows' estrus cycles and general health over time.
- When heat events are entered regularly, activity cycles can be easily identified and tracked. Shorter and more frequent heat cycles can be identified. If this becomes apparent, this may indicate a medical problem. When heat events are entered regularly, early detection and treatment are ensured!
If heat events are not entered regularly, tracking a cow's status may become time-consuming and lack accuracy. It may be difficult to assess whether a cow is anestrus, when to inseminate, and even the cow's general health.
- Use the heat (estrus) events as your base for determining when to inseminate.
- Insemination events must be entered on time! Entering insemination events is critically important to tracking the progress of your cow.
- Each time a cow is inseminated, it is recommended to enter the name of the inseminator and the bull's ID into AfiAct. This information will assist in future performance evaluations.
- Pregnancy events must be entered into AfiAct! A pregnant event will remove a cow from the Breeding and Cows for Insemination Reports. Instead, when this cow shows increased activity, it will be included in the Suspected Heat Report.

- A Rejection by Inseminator event occurs when the farmer recommends that a cow be inseminated, but the inseminator rejects the recommendation. When this occurs, a Rejection by Inseminator event must be entered into AfiAct. This is important information for the farmer and can facilitate in preventing mistakes in the future.
- If a cow shows signs of heat during its cycle, and a Rejection by Inseminator event for this cow was entered during the previous cycle, it is possible that during the previous cycle the inseminator made a mistake.
- After a Rejection by Inseminator event is entered, the next time the cow shows signs of heat during its cycle, if the inseminator comes twice a day to perform inseminations. Consider inseminating at different times of day.
- Check if the inseminator associated with the Rejections by Inseminator event has a high rate of Rejection by Inseminator events with cows that have clear heat cycles.

8.4.2 Financial Considerations

Below are financial considerations for breeding the cows at the farm:

- The optimization of the lactation interval depends on production income/cost vs. yield persistency, and is most influenced by the VWP (Voluntary Waiting Period) together with pregnancy rates. When adjustments need to be made, the main parameter to adjust is the VWP.

Many farms start breeding first lactation cows later (at 70 DIM) because their production persistency throughout the lactation is usually good. However, dairies with low pregnancy rates start breeding earlier.

- Cows that produce large quantities of milk: Some farmers delay the first insemination of high-yield cows beyond the regular VWP, especially if these cows are known to conceive easily.
- Cows that indicate difficulty becoming pregnant (four or more inseminations were performed): The farmer must consider whether to continue breeding these cows, knowing that toward the end of their lactation period, they will no longer be profitable.
- The limit to the number of a cow's wasted days is an important consideration in optimizing the farm's management. Wasted days refer to the time period allotted to a cow for its rest period up until the time when it can be inseminated.

8.4.3 Excessive Activity Considerations and Best Practices

Below are activity considerations and best practices in managing your animals on the farm:

- When AfiAct shows increased activity in one animal, check the activity of the entire herd. The increased activity may have nothing to do with estrus.
- If a cow moved from one group to another, was this move initiated by the farmer, or has the cow moved to another group on its own? This can affect a cow's behavior.
- The increased activity was detected in Session #1 (estrus occurred during the previous night - Session #2 or #3 - depending on your AfiAct configuration) and the inseminator comes during the early morning hours only:
 - Cow on its second lactation or more: Early morning may be premature for insemination. Consider waiting another day.
 - Cow on its first lactation: Ready for insemination.
- The increased activity was detected in Session #1 (estrus occurred during the previous night - Session #2 or #3 - depending on your AfiAct configuration) and the inseminator comes in the middle of the day only:
 - Cow on its second lactation or more: Ready for insemination.
 - Cow on its first lactation: Ready for insemination.
- When the inseminator comes twice a day:
 - Cows that showed increased activity in Session #1: Consider inseminating in the second half of the day (toward the end of the day).
 - Cows that showed increased activity in Session #2 or #3, depending on your AfiAct configuration: Consider inseminating in the morning.
- Increased activity is detected when it exceeds the average activity of the last ten similar sessions, according to the Activity Deviation thresholds (defined in the Estrus Deviation Report parameters).
- The recommended order for reviewing cow activity is as follows:
 - Review the Cows/Heifers for Insemination Report.
 - Further investigation: Review the Estrus Graphs.
- Always use the Lactation Graph for viewing heat (estrus) events over time. Increased activity may be due to a change that affected the entire herd.