USER GUIDE

Easy Foal

Foaling detection

Easy Foal)))

Congratulations, you have just purchased EasyFoal, the non-invasive and easy to use foaling detection system.

Due to its sensor positioned on the tail, EasyFoal measures the mare's characteristic behavioural sequences just before foaling. EasyFoal alerts you by SMS and voice call when the first signs of foaling appear.

The steps described in this guide will allow you to install your EasyFoal system independently. If necessary, you can contact your supplier's customer service department at any time.

Contents

Presentation of the equipment

Your EasyFoal kit comprises the following items

THE COLLECTOR

The collector is the element that relays the information from the sensor to the breeder's phone. It communicates with the sensors by LoRa 868Mhz radio wave. The range of the radio antenna is about 1000m around the collector. This area can be reduced if there are major obstacles (storage building, metal cladding, wood...). The collector can communicate with an unlimited number of collectors. Its parameter setting is done using SMS commands which are detailed in this guide.

Your collector has a telephone number that you can use to access and control it. This number is written on the box. It can be 10 or 14 digits long. Do not hesitate to write it down on the back of this guide or save it in your phone's contacts to find it easily.

There are two versions of the collector.

INDOOR
non-waterproof and mains powered.

OUTDOOR
waterproof case and powered by rechargeable battery.
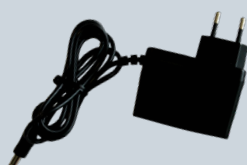
THE SENSOR

The sensor uses an accelerometer to accurately measure the mare's movements. It has a direction of use indicated by an arrow. The electronic board is embedded in a special resin which protects it from oxidation and damage. The sensor requires no maintenance. It is waterproof (IP 65), but we recommend not immersing it in water.
The sensor is powered by a non-rechargeable lithium battery. At the end of its life, it will send you a low battery warning. It is therefore recommended that you return it to the manufacturer.

The sensor can be identified by a serial number that you will use to set up the system.

POWER CORD

The power cord allows you to power or recharge your EasyFoal collector. It must be used in a dry place. It is specially designed to reduce the impact of power surges on the collector. It has an extension cord for easy installation. It must be plugged directly into an electrical outlet and not into a multi-socket outlet.

ADHESIVE TAPE

Each sensor is delivered with two rolls of adhesive tape. This adhesive tape was carefully selected to keep the sensor in the right position for several days, while preserving the mare's well-being. We recommend using only the adhesive tape supplied with the sensor.
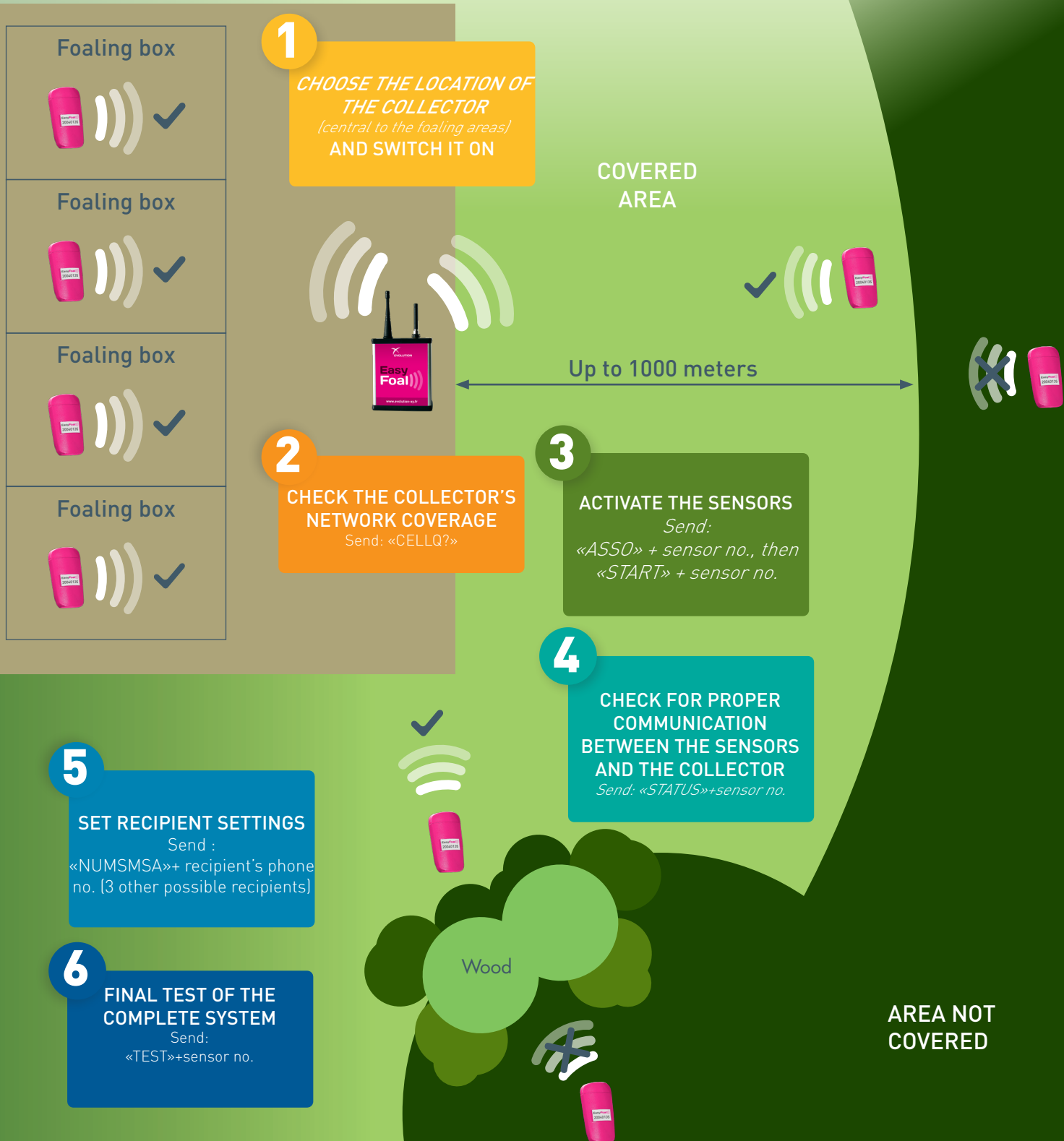
This tape is also available from your supplier.

NOTES

NOTES

First installation guide

The EasyFoal system is simple to set up and will only take a few minutes.

All tests and checks are carried out by sending an SMS from your mobile phone to the EasyFoal collector.
(Phone number displayed on the collector tag (TN) and to be noted on the back of the guide.)

✓ **Send an SMS with a direct command to your COLLECTOR to control it.**
✓ **Send an SMS with a command + number of one of your SENSORS to control the sensor.**

Foaling box ✓

Foaling box ✓

Foaling box ✓

Foaling box ✓

1 *CHOOSE THE LOCATION OF THE COLLECTOR (central to the foaling areas)* **AND SWITCH IT ON**

COVERED AREA

Up to 1000 meters

2 **CHECK THE COLLECTOR'S NETWORK COVERAGE** Send: «CELLQ?»

3 **ACTIVATE THE SENSORS** *Send: «ASSO» + sensor no., then «START» + sensor no.*

4 **CHECK FOR PROPER COMMUNICATION BETWEEN THE SENSORS AND THE COLLECTOR** *Send: «STATUS»+sensor no.*

5 **SET RECIPIENT SETTINGS** Send : «NUMSMSA»+ recipient's phone no. (3 other possible recipients)

6 **FINAL TEST OF THE COMPLETE SYSTEM** Send: «TEST»+sensor no.

Wood

AREA NOT COVERED

To get started, follow the instructions below step by step

1 CHOOSE THE LOCATION OF THE COLLECTOR
(central to the foaling areas)
AND SWITCH IT ON

2 CHECK THE NETWORK COVERAGE OF THE COLLECTOR
Send : «CELLQ?»

3 ACTIVATE THE SENSORS
Send : « ASSO» + sensor no., then «START» + sensor no.

4 CHECK FOR PROPER COMMUNICATION BETWEEN THE SENSORS AND THE COLLECTOR
Send : «STATUS» +sensor no.

5 SET RECIPIENT SETTINGS
Send : «NUMSMSA»+ recipient's phone no. (3 other possible recipients)

6 FINAL TEST OF THE COMPLET SYSTEM
Send : «TEST» + sensor no.

1 CHOOSE THE LOCATION OF THE COLLECTOR AND SWITCH IT ON

POSITIONING THE COLLECTOR

Identify the most appropriate location to meet the following conditions:

✔ At a height above 2m,
✔ In an open environment to facilitate communication with the sensors,
✔ Do not place it against a metal wall or near a transformer or inverter.

For the indoor version :
✔ Near an electrical outlet,
✔ Protected from the rain.

Generally, the collector is positioned in livestock buildings or stalls, close to an opening. It can also be positioned in a stone building. However, this will reduce the outdoor range.

SWITCHING ON THE COLLECTOR

Indoor version :
Connect the collector to the power cord.

When switching on, the LED lights up after a few seconds. It is strongly recommended not to connect the power cord to a multi-socket outlet to avoid any disturbance.

Outdoor version :
Unscrew the lid that is under the collector and slide the switch to the «ON» position. The LED next to the lid should light up after a few seconds.

When the collector is switched on, the LED starts flashing once per second. This means that the collector is searching for the GSM network. When the LED starts flashing once every 3 seconds, it means that the collector has found a GSM signal.

2 CHECK THE NETWORK COVERAGE OF THE COLLECTOR

NETWORK COVERAGE

Alerts are sent to your phone depending on the collector's network coverage.
To test the reception level of the GSM, signal, send the command « **CELLQ?** » by SMS to the collector's telephone number.
Your collector will give you a value that will allow you to check the quality of the GSM signal:

<6	**6 à 11**	**>11**
Reception level **very insufficient**	Reception level **weak**	Reception level **correct**

If the reception level is insufficient, move your collector to test the signal reception at another location. Should you face difficulties, please contact your supplier's customer service.

③ ACTIVATING THE SENSORS

CONNECTING ADDITIONAL SENSORS

When you receive an additional EasyFoal collector, it is not connected to your collector, so it cannot communicate.
To connect your new sensor to the collector, place the sensor a few meters away from the collector and send the ASSO order followed by the serial number of your sensor (e.g.: ASSO20040135) to the phone number of your collector.

The collector will confirm the connection by responding "Command performed".

STARTING THE SENSORS

①

Once your sensor is connected to your collector, you must start it.
This activation is only necessary the first time you use your sensor.

②

To activate your sensor, send the command START followed by the serial number of your sensor (e.g.: START20040135) to the phone number of your collector.

③

The collector will answer:
"sensor 20040135 started".

Repeat the same operation with each of your EasyFoal sensors.

④ CHECK FOR PROPER COMMUNICATION BETWEEN THE SENSORS AND THE COLLECTOR

VERIFICATION OF THE COVERAGE AREA

In order to ensure that the system is working properly in your farm, you should check that the different areas where your mares are likely to foal are covered by the system.

Take a sensor and position yourself in the different foaling areas (boxes, paddocks, meadows...). In each of these places, send the command "STATUS" followed by the serial number of your sensor (ex: STATUS20040135) to the phone number of your collector.

Wait for the response from your collector before changing location.

If the collector answers "sensor started" or "sensor in standby",
this means that your location is captured by the collector.

If the collector answers "collector stopped",
this means that your location is being picked up by the collector but the sensor activation did not work. Therefore, send the command "START" again.

If the collector answers "sensor unreachable",
this means that your location is not captured by the collector. If this area is a mandatory monitoring zone, move your collector (check the GSM signal quality again using the «CELLQ?» command). "). If it is not mandatory, then do not put your mares equipped with a collector in this zone.

Repeat the operation for all areas where your mares are likely to foal to ensure that the sensors are communicating with the collector. In each zone, position yourself at the furthest point from the collector.

5 SET RECIPIENT SETTINGS

RECIPIENT SETTINGS

The collector can register 2 recipients to send SMS messages and 2 recipients to make calls. To configure the recipients, send the following commands by replacing X with the phone numbers of the desired recipients:

SMS :	CALLS :
NUMSMSAxxxxxxxxxx Recipient n° 1	**NUMTELA**xxxxxxxxxx Recipient n° 1
NUMSMSBxxxxxxxxxx Recipient n° 2	**NUMTELB**xxxxxxxxxx Recipient n° 2

If your mobile phone does not have sufficient network coverage, you can enter a landline number for voice calls on one of the two call recipients.

The collector will send the message «You are an alert recipient» as a confirmation to the different alert recipients.

In case of an error, send the command back with the phone number of the new recipient.

6 FINAL TEST OF THE COMPLET SYSTEM

SYSTEM COMMUNICATION TEST

To check all the settings you have just performed, send the "TEST" command followed by the serial number of your sensor (e.g.: TEST20040135) to the phone number of your collector.

You will receive a command confirmation message "Command completed, please wait for the alarm".

After a few minutes, the recipients of the alerts will receive SMS and call alerts based on the previously defined settings to simulate a foaling and to check the operation of the system as a whole.

If, after 10 minutes of waiting, the recipients of the alerts have not received any SMS messages and calls, please check the level of reception of the GSM signal using the "CELLQ?" command, then check the recipients' phone numbers before restarting the test.

Once the alerts have been received by the recipients, carry out the test for all your sensors.

YOUR EASYFOAL SYSTEM IS OPERATIONAL!

Fixing the sensor

1 Clean the mare's tail with absorbent paper so that it is clean and dry.

2 Unroll a first layer of adhesive tape around the tail and at the level of the anus and vulva (2 to 3 turns are enough). Be careful not to tighten it to avoid a tourniquet.

3 Position the sensor on the adhesive at the top of the vulva with the arrow visible and pointing upwards in line with the tail (do not position the sensor at the bottom of the vulva).

4 Attach the sensor with a second layer of adhesive tape loosely.

5 Tear the tape with your hand so that the tip is positioned under the tail or on the sides.

6 Apply the adhesive tape with your hand.

MONITORING

The fixing system allows the sensor to remain in place for up to 15 days on average. However, the position of the sensor and the state of the tape must be checked regularly.
This is because some mares may scratch themselves.
If the sensor has gone down or sideways, it is recommended to reposition the sensor using a new bandage.

RECEIVING ALERTS

On average, EasyFoal warns 10 to 20 minutes before foaling, so it is advisable to quickly go to the premises to check that the foaling is going well. déroulement de la mise bas.

The sensor can be placed immediately on another mare after foaling.

Storing and testing the sensors

STORING THE SENSORS

When your sensor is not in use, it is advisable to store it upright and stationary in the dedicated foam storage holder. The sensor will go into standby mode to save battery power. It is important to install the storage media flat and protected from movement.

The next time the sensor is used, it will automatically switch out of sleep mode when it is in motion.

REUSING A SENSOR

When a sensor is used again the next day, it automatically restarts as soon as the mare starts to move. The use of a sensor does not require any manipulation. It can therefore be removed and re-placed immediately after foaling on another mare. The use of a sensor does not require any initialisation time. It is therefore able to detect a foaling within minutes of installation.

Be careful, if you move around with the sensor in your pocket, it is possible that it will generate a false alarm.

CHANGE OF RECIPIENTS

If you wish to change the phone numbers of the alert recipients, simply resend the following commands with the phone numbers of the new recipients instead of the x:

SMS :
NUMSMSAxxxxxxxxxx
Recipient n° 1
NUMSMSBxxxxxxxxxx
Recipient n° 2

CALLS :
NUMTELAxxxxxxxxxx
Recipient n° 1
NUMTELBxxxxxxxxxx
Recipient n° 2

To delete a phone number, replace the phone number with 0000000000 (e.g.: NUMSMSA0000000000)

To know which phone number is saved in the collector, send the command:
NUMSMSA?
ou NUMSMSB?
ou NUMTELA?
ou NUMTELB?

The collector will send you the corresponding saved telephone number.

ADDING A NEW SENSOR

See page 6 "Connection of additional sensors" and "Starting the sensors"

SENSOR TEST

To check that a sensor is functioning, you need to:

1 **Send the command "ASSO"**
followed by the serial number of the sensor and a question mark (e.g.: ASSO20040135?).
The answer is the serial number of your collector (shown on the collector).

2 **Send the command "STATUT"**
followed by the sensor's serial number (e.g.: STATUT20040135).
The response must be "sensor started" or "sensor in standby".

If the response is "Sensor unreachable",
move closer to the collector and send the command STATUT again. If the sensor is again unreachable, contact your supplier's customer service.

If the response is "Sensor stopped",
Send the command "START" followed by the sensor's serial number. The response to this command must be "command performed".

3 **Send the command "TEST"**
followed by the sensor's serial number (e.g.: TEST20040135).
If the sensor is working, recipients must receive a test alert within 10 minutes of the command being sent.

IF THE RECIPIENTS DO NOT RECEIVE ALERTS: please check the quality of reception of the GSM signal using the "CELLQ?" then repeat the TEST command. Should you face difficulties, please contact your supplier's customer service.

Uninstalling and reinstalling the collector between foaling seasons

SHUTTING DOWN THE SYSTEM AT THE END OF THE SEASON

When your foaling season is over, it is advisable to unplug your collector and store it in a dry and clean place. It is also advisable to store your collectors in the dedicated foam holder in an upright and stationary position. For Outdoor collectors, please switch off the collector as follows:

1 Unscrew the lid of the collector

2 Turn on the switch button on OFF

3 Close the lid, ensuring that there is a seal for a perfectly air-tight closure.

REINSTALLING THE SYSTEM AT THE START OF THE SEASON

When reinstalling the EasyFoal system for a new foaling season, position your collector at the same spot it was during the previous season.

Once the equipment is switched on, check the following settings:

✔ **THE QUALITY OF THE SIGNAL** using the command "CELLQ?"

✔ **SAVED PHONE NUMBERS** using the command:
NUMSMSA? ; NUMSMSB? ; NUMTELA? ; NUMTELB?

✔ **THE STATUS OF YOUR SENSORS** using the command "STATUT",
followed by the sensor's serial number (e.g.: STATUT20040135). Your sensor must be started or in standby mode.

✔ **CARRY OUT A TEST** using the command "TEST"
followed by the sensor's serial number (e.g.: TEST20040135) to check the overall functioning of the system.

✔ **TEST ALL YOUR SENSORS** (see previous page "Sensor test")

RECHARGING THE OUTDOOR COLLECTOR

When the battery reaches an insufficient charging level, the collector sends you a "low battery" alert by SMS, in which case it must be recharged.

If you would like to know the battery charge level of the Outdoor collector, send the command «Vbat? ". The collector will give you a value between 0 and 10

| BETWEEN 9 AND 10 Battery full |
| BETWEEN 3 AND 8 Low battery level |
| BETWEEN 0 AND 3 Battery to be recharged urgently |

To recharge your collector, here are the steps to follow (Please note that the collector remains functional while charging.) **:**

1 Unscrew the lid of the collector

2 Plug in the power chord. The internal red LED lights up when charging. It goes off when the battery is charged.

3 The full charging time is **about 8 hours.**

4 Unplug the cord and close **the lid** while ensuring that there is a seal for a perfectly air-tight closure.

Restarting your system after a down period

1

PLACE THE COLLECTOR IN THE SAME SPOT AS IT WAS BEFORE

2

CHECK THE NETWORK COVERAGE OF THE COLLECTOR
"CELLQ?"

Expected response:
A higher number than 11 for a better signal quality.

3

CHECK THE NUMBERS OF THE RECIPIENTS SAVED
NUMSMSA?
NUMSMSB?
NUMTELA?
NUMTELB?

Expected response:
Phone numbers of the respective recipients

4

COMPLETE SYSTEM : TEST
«TEST» + SENSOR N°

Expected response:
«Command performed, please wait for the alarm» + alarm within a few minutes at the different phone numbers of the recipients.

Please note

REMINDER OF PERFORMANCES

EasyFoal measures and analyses the mare's behavioural sequences in the minutes prior to foaling.

The sensor is equipped with a 3D accelerometer capable of detecting several characteristic behaviours such as contractions, colic, standing/lying position, etc... The algorithms embedded in the sensor have been the subject of several hundred measurements and tests aimed at accurately detecting foaling. The results of these tests show that EasyFoal detects 91% of foals.

The remaining 9% of foals are, for half of them, very fast births, detected within minutes of the foal's birth. The other half corresponds to rare atypical behaviour of some mares during foaling which does not allow foaling to be detected.

The rate of false alarms has been established at 10% (alarms that do not result in foaling).

EasyFoal is a tool to help detect foaling.

We inform all users that EasyFoal can in no way be held responsible for incidents, accidents or loss of animals.

RECOMMENDATIONS IN CASE OF UNDETECTED FOALING

A foaling has taken place but you have not received any text messages or voice calls. This may be due to various causes:

The away the foaling took place:
1- The foaling only lasted a few minutes: the warning signs before foaling were not significant enough to trigger an alert.
2- The mare did not express any particular signs: this can possibly occur when foals are already dead and do not engage voluntarily. Due to the fact that the algorithms are focused on specific foaling behaviour, they did not allow an alarm to be sent.

GSM communication problem:
1- The foaling took place outside the range of the system: too far away, so the sensor could not communicate with the collector.
2- There were interruptions in the GSM network where the breeder's telephone was located at the time of foaling: the message was sent by the collector but was not received at the right time.

Improper use of the system:
1- The collector was not placed in the right direction and could not measure the specific behaviour of the foaling,
2- No numbers have been configured for sending alarms,
3- The numbers set for sending alarms were not the right ones.

System malfunction:
1- The sensor does not work:
  a- This is the first time it is used: the sensor may not have been started. In this case, simply take the corresponding sensor and send the "STATUT" command followed by its serial number. If it is stopped, then please start it.
  b- The sensor may not have been connected to the collector. In this case, simply send the «ASSO» command followed by the sensor's serial number.
  c- This is not its first use: send the "STATUT" command followed by its serial number. If it is unreachable, please contact your supplier's customer service.
2- The indicator light on the collector no longer lights up or is red: disconnect, wait a few seconds, then reconnect. If it still does not work, contact your supplier's customer service.

AFTER-SALES SERVICE

The collector and EasyFoal sensor are covered by a 3-year warranty as from the date of delivery.

In any case, the following are excluded from the warranty:

✔ Damage due to overvoltage caused by lightning, EDF or any generator.

✔ Obvious defects, that is, visible defects in appearance not reported by the customer or end user at the time of delivery or collection of the products.

✔ Defects or deterioration caused by normal wear and tear, by negligence, by use other than that for which the products were designed, by misuse or by failure to comply with the user guide and installation guide.

✔ Modified products.

Please contact your supplier's customer service department for any after-sales returns.

SUMMARY OF SMS ORDERS

Collector's phone number

Checking the reception level of the collector when installing it:

Send "CELLQ?"
<6: Insufficient
6-11: Weak
>11: Adequate

Setting the recipient number for alarm SMS:

Send "NUMSMSA" followed by the desired phone number

Add a second recipient:

Same procedure with "NUMSMSB"

Setting the recipient number for voice calls:

Send "NUMTELA"
followed by the desired phone number

Add a second recipient:

Same procedure with "NUMTELB"

Connect a new sensor:

Send "ASSO" followed by the serial number of the relevant sensor

Start a sensor the 1st time it is used:

Send "START" followed by the serial number of the corresponding sensor

Delete an alarm recipient number:

Send "NUMSMSA" (or B) followed by ten 0
Send "NUMTELA" (or B) followed by ten 0

Check the state of a sensor:

Send "STATUT" followed by the serial number of the corresponding sensor

Check that a sensor is functioning:

Send the command "ASSO" followed by the serial number of the sensor and a question mark (e.g.: ASSO20040135?). The response is the serial number of your collector (shown on the collector).

Send the command 'Test' followed by the sensor number to carry out a test. If the sensor is working, recipients will receive a test alarm within 10 minutes of the command being sent.

TO CONTACT YOUR DISTRIBUTOR