

Sow Watcher

Ver. 1.01

User's Manual

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INTRODUCTION - KNOWLEDGE WITH THE PROGRAM

Sow Watcher Ver. 1.00 is a sophisticated sow management program. It is aimed at mixed production units (breeding + fattening), but it is also able to cover most of the needs of pure breed multiplication units (units that produce the piglets produced for breeding animals and do not end up in the slaughterhouse). Unlike previous versions, Sow Watcher can support multiple units.

As far as breeding reproduction is concerned, recordable data are numerous, and are supported to the fullest possible. The program draws up a number of detailed lists of livestock management and reproduction (pregnancy diagnosis, returns, expectant deliveries, new farrowing, weaning, female removal, Boar replacements, and replacement history, import of boars, and use). In addition, lists are drawn up concerning the individual control of sow and boar performance.

In terms of fattening, livestock are divided into three categories depending on the stage of fattening (Growers, Pre-fattening and Fattening), and their age is recorded in weeks. The data are entered on a daily basis and refer to the number and weight of incoming and outgoing piglets, by stage and age, the losses and the amounts of food administered. For each stage, but also for the whole fattening, indicators such as average daily live weight gain, diet rate, etc. are estimated.

For all reproductive breeding animals, detailed health and medical care data can be kept. The analytical lists drawn up for the purpose relate to vaccinations, treatments (medication), the history of vaccinations and therapies, etc.

The program supports a customer records base. For suppliers, when the identification of the animals is registered, the user has the possibility to declare the supplier from whom he purchased the animal. Then he can analyze the yields of these animals per supplier so that he decides who or which of his suppliers give him the best breeding animals. In the case of customers, when the user supplies to other breeding units, he must declare the customer who buys each animal so that in the future he will avoid supplying the same customer with relatives. For this reason, the program establishes a detailed breakdown of sales of breeding animals.

The observance of the financial data is mainly for the monitoring of the economic result of the farm and it is not official. Data entry is brief and categorized. Revenue is an independent main category, with the costs being divided into eleven main categories (feed - bedding, rents - premiums, construction - equipment, labor, medical care, reproduction management, loans, fuels, materials, livestock and other έξοδα). Each main category consists of two or more subcategories, as appropriate. The revenue and expense categories can be parameterized by the user.

The statistical processing of the elements of reproduction is the fullest possible. In total, 79 statistics are calculated, either over time or as a function of the livestock cycle. These sizes can be estimated either for the whole or part of the breeding. Farmed animals may be divided into subgroups on the basis of categorization, breed and / or supplier criteria and the yields of those animals meeting the criteria set by the user shall be estimated. In this way, the breeder can answer many management questions that arise in practice. The result of statistical processing can be attributed graphically (two- or three-dimensional charts). Also, the user can perform statistical processing of suckling losses by cause, age and cycle, as well as reproduction indicators.

MODIFYING THE APPLICATION

This application is highly customizable. This feature enables the user to fully adapt it to its needs in order to use it as efficiently as possible. Parameters are divided into two broad categories: 1) General parameters and 2) Farm parameters.

The first category concerns those parameters that are common to all holdings registered by the user. The second category concerns parameters for each farm, separately.

General Parameters

The general parameters in turn are divided into five broad categories: 1) Breeding annual parameters, 2) management parameters, 3) contacts, 4) Economic Parameters, and 5) other parameters.

Animal Parameters

Record of animal breeds

The records of the breeds indicate the breeds / crossings to which the farmed animals belong. Whenever a user introduces a new animal, either female or male, he or she must indicate his breed so that the program knows the type and form of management desired by the breeder for that animal. The parameterization of the "Breeds" feature allows the breeder to breed animals of different breeds in their unit and to apply different reproductive management to each breed without having to purchase as many computer programs as any farmed breeds. The number of breeds may be unlimited. For each race or hybrids, the following data is entered:

- The name of the breed / crossing (eg Landrace)
- The age of entry of male animals into breeding in days
- The age of entry of female animals into breeding in days
- The duration of gestation in days
- The minimum notice period for new inseminations or service after weaning in days
- The desired replacement age for males in months
- The desired replacement age for females in months
- The maximum allowable number of consecutive returns for each female
- The maximum allowed number of births for each female
- The maximum allowable number of miscarriages for each female

The age of entry of the breeding animals is used by the program to draw up the lists of animals which, having reached the minimum age of use, have not yet entered the breeding process. The duration of pregnancy is used when compiling lists with expected deliveries. The minimum notice period for new litters after weaning is used when compiling lists that include the females that need to be rehaped. On the basis of today's practice, the sow is sown 5 - 11 days after the last weaning. Therefore, the value of this parameter should be between 0 and 5 days (usually 1 or 2) in order for the producer to be notified promptly of the impending asset. The desired replacement age (males + females), the maximum permissible number of consecutive returns (females), the maximum allowed number of females and the maximum allowable number of female females are used to display the animals to be removed. For females, when there are no other reasons (reduced fertility, illness, etc.), their replacement depends on their age, the number of farrows, the number of consecutive returns and the number of miscarriages. The program checks for all these elements and when an animal meets one or more of the removal criteria, it displays it in the corresponding list.

To insert a new breed (or hybrids), the user must click, with the mouse, in the box with the "+" symbol (figure 1). Then, after registering the new breed, the user must select the frame with the floppy disk

image. If the user regrets during the addition process and does not wish to register the new breed, he should select the box with the "X" cancellation icon. When a new breed is introduced, the program will not accept a name that has already been given. For example, there can be no two breeds called "Landrace". In the same form the user can rename a race that has already been set, just by giving the new name and pressing save. In order to delete a breed from the record of breeds, there should be no registered animals for it.

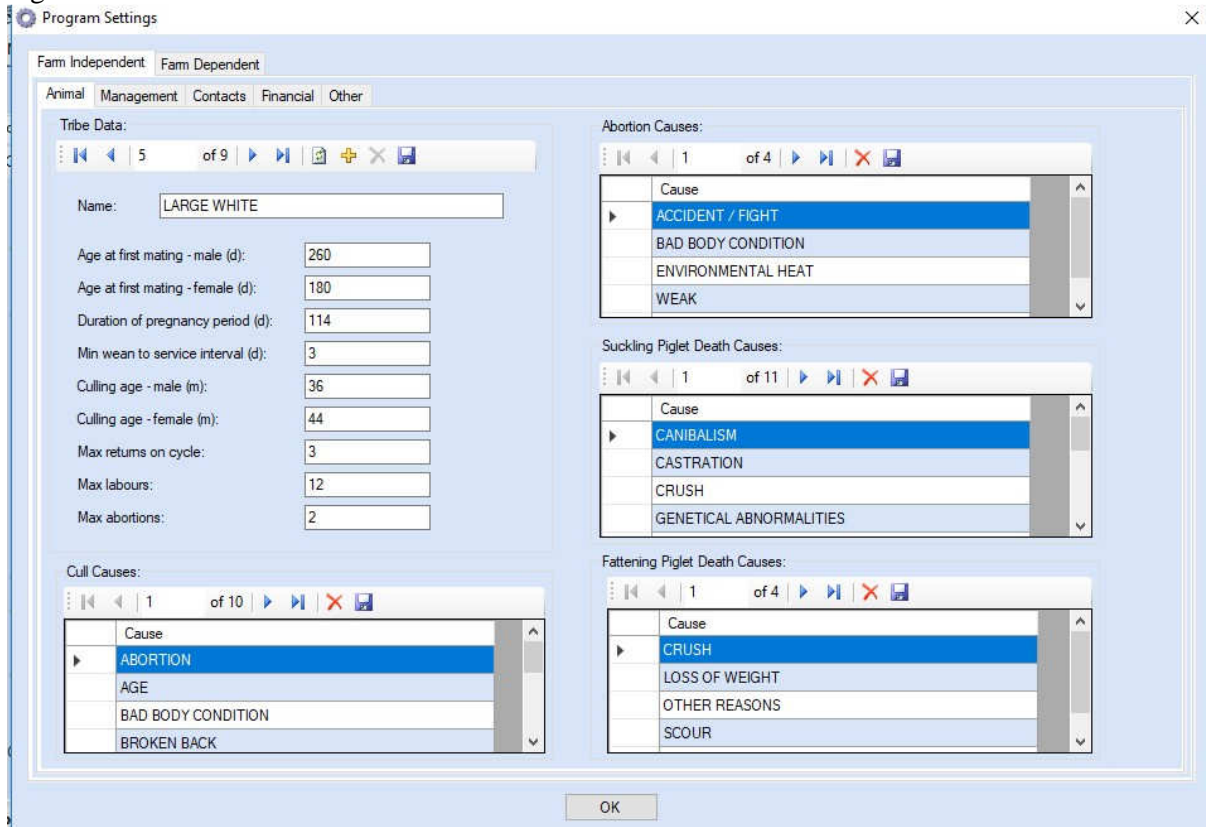


Figure 1. Parameters of Animal Breeds

At this point it should be mentioned that the navigation and processing of the records in the various files is done via the navigation bar, which is displayed at the top of the corresponding parameter group. The functions referenced by the bar icons are generally obvious and we do not believe that they will create a problem with user manipulation.

Note: When the <Ctrl> + Z keys are pressed while editing a record, all changes made to the cell are canceled.

Causes

The same category of parameters also includes the causes of removal of breeding animals, the causes of miscarriages, the causes of suckling piglets losses and the causes of fatal piglets deaths. All of them are entered into the cells of the corresponding tables (Figure 1).

Management parameters

The management parameters include data on the validity of the sows' reproductive properties (diagnostics), artificial insemination, fertilization methods and the records of medicinal products.

In the diagnostics, the user registers the limits of checking the correctness of the records. For example, pregnancy may range from 109 to 120 days. Consequently, registering a farrow with this pregnancy is acceptable. If, however, due to an error or other reason this interval is outside the limits, then the program will display a notification message to the user, without however preventing the entry of the item. Correction of the wrong registration (if it is indeed incorrect) is the responsibility of the user.

For artificial insemination, the dose volume and the number of live cells per dose are recorded. Dose volume is a primary sorting criterion for this file, and can not be set for the same volume value more than once. In fact, if the volume value has been used in the boar sperm archive, then this value can neither be deleted nor changed from this section of the program.

In the case of medicinal products, its name, waiting period (MM dd) and whether it is allopathic or not (if the medicinal product is homeopathic then the corresponding "box" must be blank, otherwise the user should be the "check"). Completion of all three fields is mandatory, otherwise the program will refuse to save the record. Deletions are allowed whether the drug has been used in therapies or not. In the first case, the corresponding treatments from the animal therapies are also deleted, so special attention is needed.

Finally, with regard to fertilization methods, the user can set as many as he wants, except that the first two codes are occupied. Code 1 refers to natural mating and code 2 to artificial insemination (AI). The description of these two codes can be defined by the user in whatever language he wants and in whatever way he wants, but code 1 will always be perceived by the application as "natural mating" and code 2 as "artificial insemination".

Contact parameters

The contacts are recorded as customers or suppliers. The forms of processing of customer and supplier data are analogous to those of breeds and have the same functionality (Figure 2). The user can add, delete or modify customer and vendor information in exactly the same way as described for the breeds. A difference from previous versions is the introduction of a mandatory field of business type (pig farm, slaughterhouse, other).

The screenshot shows the 'Program Settings' dialog box with the 'Contacts' tab selected. The dialog is divided into two main sections: 'Customers' and 'Suppliers'. Each section contains a list of fields for data entry, including Enterprise ID, Official ID, Enterprise Context, Enterprise Name, Surname, Name, Country, City, Street, Street Number, Postal Code, Phone1, Phone2, Cell Phone, FAX, Tax ID, IDNumber, TAX Service, and e Mail. The 'Customers' section is currently active, showing 'Enterprise ID: 1' and 'Enterprise Context: Pig Farm'. The 'Suppliers' section shows 'Enterprise ID: 2' and 'Enterprise Context: Else'. The dialog also features a 'GoTo:' field with a dropdown arrow and a list of records (0 of 0) with navigation icons. An 'OK' button is located at the bottom center of the dialog.

Figure 2. Contact Parameters

Economic Parameters

In this section of the program, the revenue and expenditure categories are shown (Figure 3).

The user can customize the revenue categories according to their needs. Each revenue category includes two fields, a code and a description. The code must be a positive integer, unique for each category. It is an internal part of the program and is used when generating reports. The description is used when presenting the results of the processing instead of the code in order to make the results easily understandable by the user. A revenue category can not be deleted if revenue has been declared for it.

As the user can parameterize the revenue categories, the same can be done for his own expenses. The only difference is that, because cost sources are much more than revenue sources, costs are divided into main categories and subcategories.

Each main category includes a unique code and a description. The number of main categories can be unlimited. Each main category includes at least one or more subcategories. And these in turn include a code that is unique within the main category, and a description.

The user can add, modify, or delete both the primary and secondary categories of expense. For deletions, one main category can not be deleted if subcategories have been specified for it. Correspondingly, a subcategory can not be deleted when code expires.

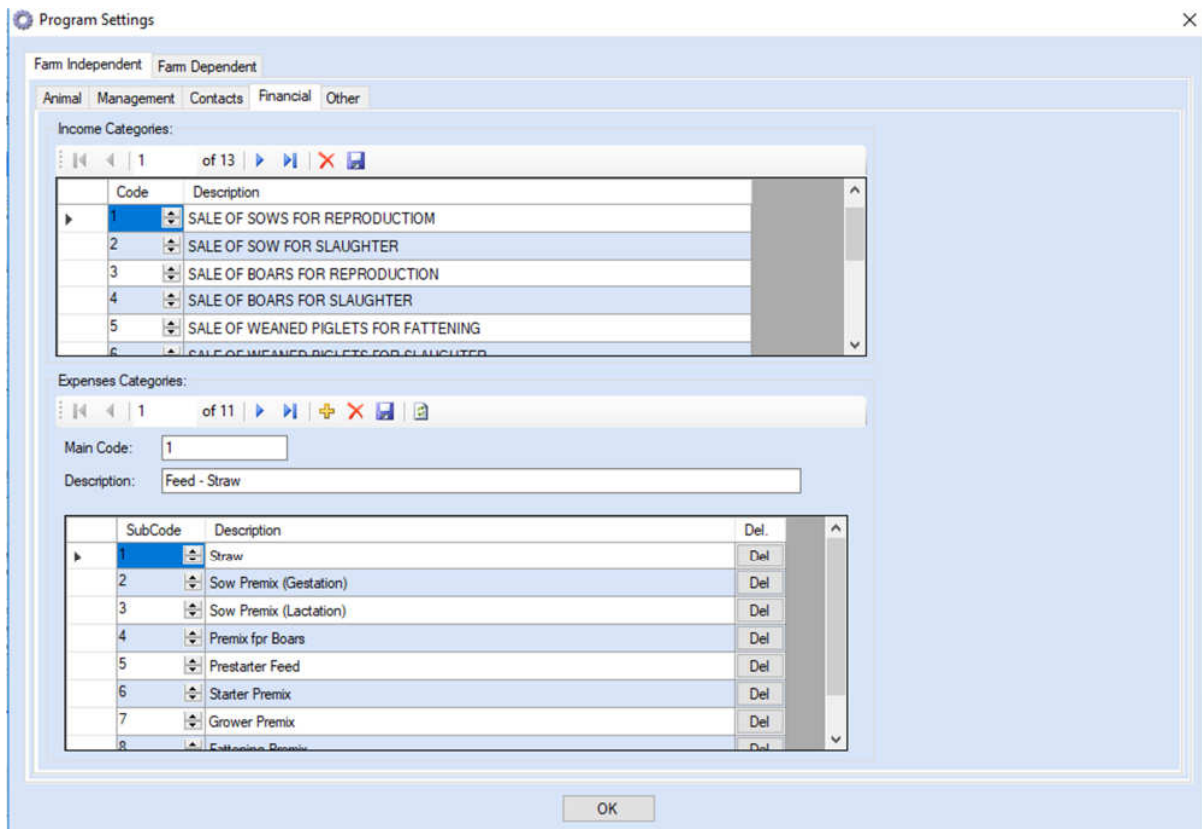


Figure 3. Category of Income - Expenditure

Other parameters

In "other parameters" the user can indicate the order of occurrence of the statistics in the unit performance reports as well as the countries of origin of the breeding animals (Figure 4). For each country, enter the code and its description. The number of countries that can be imported is unlimited.

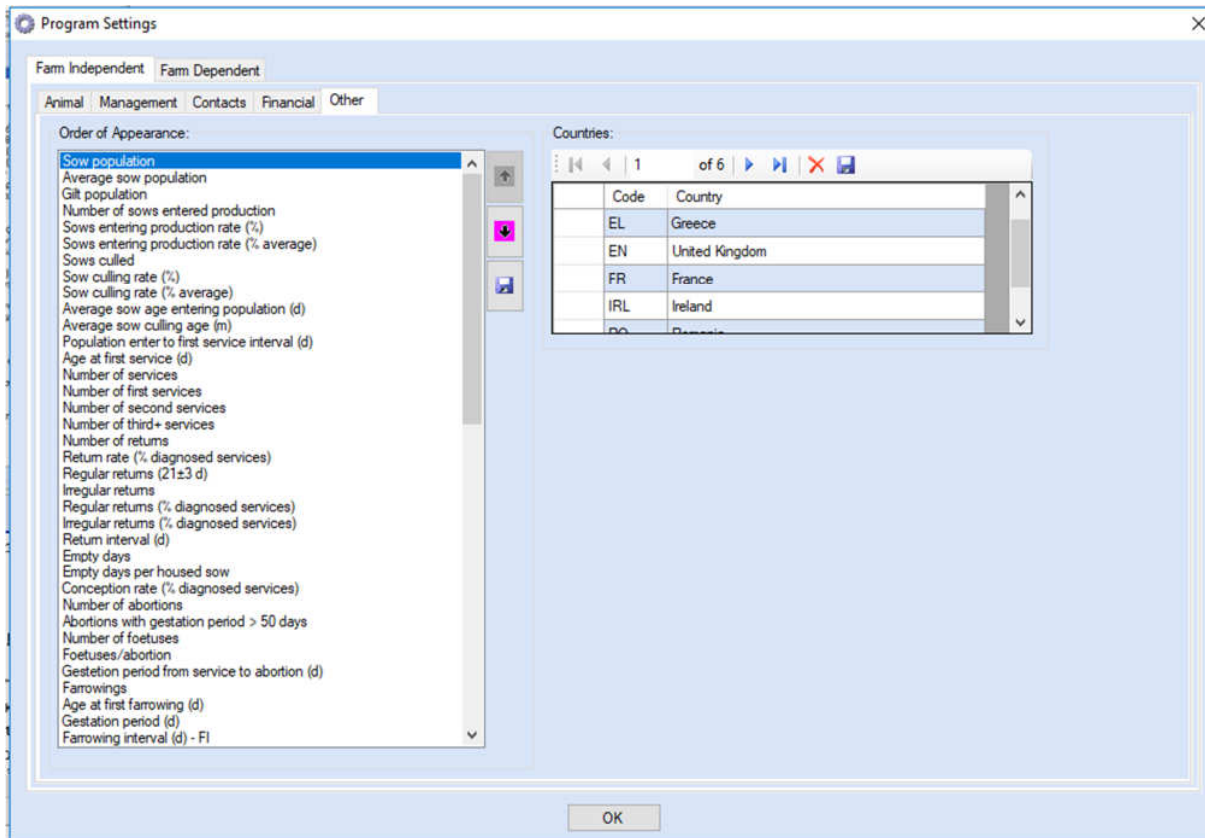


Figure 4. Other Parameters

Farm Parameters

In addition to general application-specific parameters, which are common to all holdings registered by the user, there are also the parameters specific to each individual farm . (Figure 5). These parameters apply to inseminators, vaccines, building facilities, females and male groups.

The fact that these parameters are specific to each farm is obvious. Medicines have not been registered in this category, because the data entered for them is of a general nature. Instead, the data introduced for vaccines are about the vaccine program that each company is doing, and for this reason they must be registered on each farm from the beginning.

The form of definition and treatment of vaccines is similar to that of the breeds. In a vaccine, its name, age of first administration (in days), re-administration time after first administration (if re-administered, the value of this field is zero), the frequency of administration separately for males and females (in days), the "FROM - TO" cycles for which the program will display the sows for vaccination in the corresponding reports, the normal intra - cycle administration (pre - natal, postpartum, after weaning, after miscarriage) and finally the time administration (e.g., 30 days before the expected farrowing).

The vaccination criteria for sows are the periodicity of administration, the reproduction stage and the number of the reproductive cycle. Because of these criteria often overlap, particular attention should be paid to supplementing the vaccine data in order to avoid the possibility of an animal being proposed for vaccination that should not be carried out. If the unit only uses the periodicity criterion, the user should not declare a value in the field of the delivery step. In this way we state in the program that the active award criteria must be the periodicity and the number of the cycle. If the unit uses the breeding stage, then in the field of the periodicity of the females it should enter the zero value (0). If the user wishes to use both of these criteria, he should carefully read the corresponding vaccinations reports and verify the program's proposals for each animal separately.

As for the gilts and boars, the criterion of the reproductive stage is not taken into account, but only

the age of first administration, re-administration and periodicity. In fact, the criteria for the age of first administration and re-administration are not taken into account in sows, because initially all sows are gilts and therefore have passed the stage of first administration.

Program Settings

Fam Independent Fam Dependent

Artificial Insemination Technicians:

TCode	Technician's Name
*	

Buildings:

Building	Chamber	Positions
*		

Vaccines Data:

Fam ID:

Vaccine Name:

Age of first application (d):

Repeat after interval (d):

Periodicity - d (Sows):

Periodicity - d (Boars):

From cycle:

To cycle:

Production stage of application:

Application interval (d):

Female Groups:

Group
GP MIRA LARGE WHITE
MIRA

Male Groups:

Group
DUROC
GP LARGE WHITE
GP MIRA LANDRACE
MAXIMUS

OK

Figure 5. Farm Parameters

DEFINITION AND MODIFICATION OF FARMS

Sow Watcher is capable of adding and processing multiple farms. The selection of the farm that will be active at any time is done through the corresponding drop down list in the main window of the application.

Next to the list there is the add-on button for a new farm. As soon as the user clicks on the mouse, the Add Farming window appears (Figure 6). The farm code is determined by the application and can not be changed by the user. Obligatory a farm must have a description, which must be unique to distinguish it from the rest. The field code, although optional, should be completed as it is the official state code of the farm. Finally, the user can also state the country of exploitation. By storing (F5) the farm is registered in the database and is now ready to accept animals. Before the user enters data about livestock, it is good to fill in those parameters for the new farm

Figure 6. *Addition of Farm*

Next to the add button, there is the button for processing the farm data. Once it has been clicked on the mouse, a new window opens from which the user can edit the active farm's assets (Figure 7). The user can enter new values on all data, except for the farm code, which is an "internal element" of the application.

There are two tables in the window of Figure 7. The first concerns the setting of objectives for farm statistics and the second concerns the definition of the sow statistics objectives. The user can set the minimum and maximum limits for each of the parameters in the corresponding table. Also, you should state if the maximum is considered the optimum for the parameter.

At this point, it should be clarified that depending on the statistical size considered, at other times it is better to be at the lower (or lower) and at the upper limit (or higher) at other times. For example, in the midst of deliveries, it is best to catch the lower limit, while in the sows per sow and the year it is higher.

Edit farm data X

Farm ID: Farm Description:

Official ID: Farm Country:

FarmID	Order	Code	Description	LBound	UBound	MaxBest
1	1	1	Sow population	0	9999	<input type="checkbox"/>
1	2	74	Average sow population	0	0	<input type="checkbox"/>
1	3	2	Gilt population	0	0	<input type="checkbox"/>
1	4	3	Number of sows entered production	0	0	<input type="checkbox"/>
1	5	4	Sows entering production rate (%)	0	0	<input type="checkbox"/>
1	6	75	Sows entering production rate (% average)	0	0	<input type="checkbox"/>
1	7	5	Sows culled	0	0	<input type="checkbox"/>
1	8	6	Sow culling rate (%)	0	0	<input type="checkbox"/>
1	9	76	Sow culling rate (% average)	0	0	<input type="checkbox"/>
1	10	7	Average sow age entering population (d)	0	0	<input type="checkbox"/>
1	11	8	Average sow culling age (m)	0	0	<input type="checkbox"/>

FarmID	Code	Description	LBound	UBound	MaxBest
1	1	Bom alive per labour	11	20	<input checked="" type="checkbox"/>
1	2	Bom dead per labour	0	2	<input type="checkbox"/>
1	3	Weaned per labour	10.5	13	<input checked="" type="checkbox"/>
1	4	Weaning to 1st service interval (d)	4	9	<input type="checkbox"/>
1	5	Weaning to fertile service interval (d)	5	10	<input type="checkbox"/>
1	6	Labour to labour interval (d)	147	155	<input type="checkbox"/>

Figure 7. Modification of Farm Data

Finally, the user has the possibility to delete the active farm and to renew the list of holdings. **Deletion** is an **irreversible** process and all the elements of the farm and the farmed herd declared for it are deleted.

BREEDING ANIMALS

Breeding animals are sows, boars and gilts (Figure 8). Gilts are recognized as females that have not yet been inseminated. The user can register veterinary interventions (vaccinations, treatments) for all breeding animals and keep their history.

Figure 8. Initial platform of Software for Sows, Boars, and Gilts.

Breeding Cards

Add breeding animals

Adding a animal is done by selecting "Add New". After this action, the new animal's input window is displayed (Figure 9).

Required fields are the animal code, breed / hybrid, date of entry to the holding, acquisition (birth - bought), date of birth and date of introduction to the respective population (boar, sows, roots).

The animal code is an internal element that uniquely identifies the animal on the holding. No other animal in the unit can have the same code as another for the same population (eg sows). On the contrary, a sow may have the same code as a gilts or boars, because these animals belong to different populations. But when the time comes to move the rook to the sow population, its code should change so that the new sow is marked with a unique code. Needless to say, the same code can be given to animals of the same population as long as they belong to different farms.

In addition to this code, there are two other codes that characterize a breeding animal, but their completion is optional. One is the state code of the animal and it is the state code obtained by the gilt or sow or boar on the holding under the codification system of the Ministry of Agriculture. The second code is the state code that the animal had in the rearing of the supplier from whom it was purchased. This second code is designated as 'State Code (π)'. If the animal is not purchased, but the way it is

acquired is 'Birth', then the second state code is not filled in. The date of introduction to the farm and the date of introduction into the population are two different things. The first indicates the date the animal was introduced to the holding and is the same as the date of birth. As the date of birth does not change, regardless of whether the animal is transferred to another population, so does the date of entry to the holding change. However, the one that changes is the date of introduction into the population. This date indicates the time from which the animal is counted to the population statistics of the respective population (piglets, boars, roots). Naturally, this date changes, depending on when the animal is introduced into the respective breeding population. Between dates is the relationship:

Date Birth <= Date Int. (cm) <= Date. Int. (s)

The screenshot shows a software window titled "Add Sows" with a close button (X) in the top right corner. The window contains a form with the following fields and values:

- Farm ID: 1
- Code ID: (empty)
- In Farm Official ID: (empty)
- Official ID from Supplier: (empty)
- Tattoo: (empty)
- Tribe: LANDRACE (dropdown menu)
- Supplier: (empty dropdown menu)
- In Farm Entry Date: 11/20/2018 (calendar icon)
- Acquire Method: Purchased (dropdown menu)
- Supplier Health Cert.No: (empty)
- Transportation Info: (empty)
- Country of Birth: (empty dropdown menu)
- Country of Origin: (empty dropdown menu)
- Third Country Labeling: (empty)
- Colour: (empty)
- Birth Date: 11/20/2018 (calendar icon)
- Population Entry Date: 11/20/2018 (calendar icon)
- Certificate ID: (empty)
- Father Code ID: (empty)
- Mother Code ID: (empty)
- Building: (empty dropdown menu)
- Chamber: (empty dropdown menu)
- Position: (empty)
- Group: (empty dropdown menu)
- Comment: (empty text area)

At the bottom right of the form, there are three buttons: "(F5) Save", "Clear", and "Back".

Εικόνα 9. Window for Sow addition in Software

When the user completes the animal data entry process, the Save button must be pressed at all time to save the data to the base.

Edit breeding Card

In order for the user to process the details of an animal's breeding card, he should first look for it and find it. The search is done very easily by filling in the animal's code in the field with the description "Code (F2)", then pressing the <Enter> key or selecting "Refresh" from the task bar (Figure 8). If the animal is on the farm, then its data will appear in the corresponding fields.

When an animal is found, the data on the breeding card can be processed or deleted from the population. Even if the user wants to rename it, it simply has to fill in his new password in the corresponding field (NO in the search field) and save the new name.

When an animal leaves the holding, it is good not to delete it, but to complete the date when it is removed, along with some cause. This keeps all of its card with the corresponding data, which have a significant historical value for the business because they contribute to the unit's performance analysis. Based on this analysis, it is possible to draw valuable conclusions about the type of management

and to discover errors that need to be corrected by the producer (or to confirm the good image of the business). Generally, deletions of breeding animals, although supported by the program, should be avoided, except in those cases where an animal has not been used anywhere (simply introduced with intent to be used). Do not forget that breeding animals are fixed investment and subject to depreciation. Therefore, once they are used (or registered in the accounting books) it is not wise to delete them. In addition, deleting boar can also lead to other problems that have to do with the proper estimation of the boars's statistics.

In addition to the date of removal, which is completed when an animal is removed from the holding, there is also the date of cessation. The cessation date is completed if the animal does not want to appear on the breeding lists, but the animal remains on the unit's premises. This is the last step before the animal is removed. When it is finally removed, the date of removal is completed.

Reproduction Cards

Only boars and sows have breeding cards. In the boars, the breeding card refers to spermatozoa, while in the sows on the stalls, possible miscarriages, farrows, suckling and weaning. Editing cards is done by selecting "Sow Reproduction Record" from the Edit menu.

For spermatozoa, the mandatory fields to be completed are sperm count, semen volume, semen concentration, dead and abnormal sperm counts and dose volume. These data are used to calculate the number of doses, but also the amount of dilution for that sperm. All other fields refer to qualitative features and it is good to be filled in by the user.

The sow reproduction card is processed in part. The form displayed always shows the last activity and data entered for it (Figure 10). Moving to other paths can be done by moving arrows.

Adding a new insemination is done by selecting "Add". The program will not accept the addition of a service if the sow's normal stage does not allow it. Necessary conditions for the successful addition of a barley are: 1) the result of the current service is negative, 2) the sow has been eliminated, 3) the sow has been weaned.

As already mentioned, the reproduction card is completed in part. Initially, the date of service, the boars that have taken part (optional), the inseminators (optional), the fertilization method and, after some time, the result of the service are stated. If the result is positive, then there are two possibilities: the sow or will abort or farrow. If it aborts, the abortion date, the number of embryos and some cause are stated. If born, the date of farrow, the number of live births, dead born, weak, mummies, positive adoptions and negative adoptions are stated. Note that the weak are part of the live and mummified part of the dead. That is, the multitude of the living include the weak and the multitudes of the dead mummified.

Εικόνα 10. Sow Reproduction Record

Continuation of Farrowing is suckling. Losses at suckling is recorded in a separate table. Although the recording of these losses is not mandatory, it is good to keep this record for proper observation of the farrow group. If the producer wishes to record these data, the date (later or equal to the date of the birth), the cause of the loss and the number of piglets should be reported for each observed loss. It is possible to register losses on the same date, provided the cause is different. Deleting a record of the table is done by selecting ("colouring") the series you want to delete, and then pressing the key.

The reproductive process started with a litter that resulted in farrowing and suckling is completed by weaning. At the end of the procedure, the weaning date (which is postpartum and equal to or later than the last recorded suckling loss) is completed and the number of weaned piglets. If everything has gone well, provided that a record of suckling losses has been kept, weaned piglets should be equal to the piglets that had this farrow group after the registration and last loss of suckling. If this is not the case, the missing piglets are characterized by the program as lost. In this way, the pig farmer can monitor very effectively, whether and to what extent the pigs are "lost" through the unit. As it is known, lost piglets is a major problem in pig farms for various reasons.

In this version of the program the user has the ability to record the body condition of the sow for three stages of the reproduction cycle: 1) the physical condition in the pigs; 2) the physical condition at 30 days after the pigs; and 3) physical condition 80 days after discharge. Of course, steps 2 and 3 are only worthwhile if the pregnancy test is positive. The scale is five-digit with the number 1 indicating a weak animal and the number 5 indicating an excessively obese animal. The ideal body condition is about 3.

The program allows you to delete services but always deletes the latest service first. If for some reason the user wishes to delete the number 8 service on a 10-parity sow, he will have to delete 10 and 9.

Then he will have to enter the deleted items again. As in the case of breeding animals, it is advisable not to delete services and better to be corrected before each breeding cycle is closed and the next one starts.

Health Card

The hygiene card includes vaccinations and treatments. For vaccinations, the vaccine, the vaccination date and a comment (optional) are stated. Respectively, for the treatments the medication is stated, the date of administration, the diagnosis (optional), the date of re-use (optional) and a comment. If the re-allocation date is later than the current date, then the animal appears in the corresponding treatment lists

Individual reports

All available card of an animal can be viewed as a report and printed or extracted in an excel or pdf file. More specifically, the following apply:

From the "Print" menu with the "Breed card" option, you can see the rearing card of the reference animal. This report can be printed by the user or stored in a file.

As far as the breeding card is concerned, in the case of sows, the report displays includes all the services and their results. As for boar, the situation is a little more complex. For boar, the user can view the sperm that have been done for some time or the paths that have taken place.

With regard to spermatozoa, in addition to historical records, the doses calculated for each sperm count and the volume of dilution are shown. In terms of services, all the movements in which this sow has taken place and their ending are shown.

The hygiene card may also appear in the form of a reference. This report includes all the vaccinations and the treatments the animal has accepted until that time. In addition, sows also present their current reproductive status because the administration of a vaccine also depends on the reproductive stage in which the female is present. Finally, in individual reports there is one more that concerns the animal's genealogy. This reference is in the form of a pedigree tree. In this, all the ancestors of the animal appear to the generation of pre-grandparents. All animals are represented by their code.

BREEDING ANIMAL MOVEMENTS

Movements are nothing more than a special feature of the program for fast data input, with the exception of fattening for which there is no alternative process. As far as breeding animals are concerned, all entries entered through the movements can be entered directly into the cards, but when we have to process many animals this way is particularly painful and tedious. It should be pointed out at this point that the incorrect entry of a move for an animal can be corrected only by its corresponding cards.

If from the central screen "Moves> Reproduction" is enabled from the app's main screen, then a sub-menu is displayed that includes the options: "Infections," "Gestational Diagnosis," "Body Condition", "labours", "suckling ", " Weaning ", " Elimination ". In this chapter we will also deal with the movements of vaccination and the movement of breeding animals. The motions of fattening will occupy us in the next chapter.

Breeding movements - Services

With regard to the services, the data entered is the date on which the sow codes, the boar codes, the inseminators and the fertilization method were carried out (entered once). In addition, in the same table it is possible to introduce the result of the gestation test, as well as the body conditions of the sow during the process (figure 11).

Of all these fields, only sows are compulsory. The sows that can be gained are those for which the result of the gestation diagnosis for the last piglet is negative (-), has been eliminated or weaned. Sows for which the pregnancy test is pending are considered to be pregnant and therefore the introduction of the new service will fail. Adding entries is always in the last blank row of the table.

After completing the table, all that the user has to do is press the "Save" button to register the sufferings on the tabs of the respective sows. For the success or failure of the entry, the user is informed by the icons appearing in the first three columns of the table for each sow. If the storage of the items has failed, clicking on the corresponding icon shows a detailed text explaining the reasons for the failure.

Breeding movements - Gestational diagnoses

In the diagnostic table the sow codes and the result of the gestation diagnostic test for the last pigs are entered. The default value for the result is positive (the pig is pregnant). Card updates are made in the same way as described for the occupants.

Breeding movements – Body Condition of sows

In the same way as described for the occupants, the data on the physical condition of the sows for the last poultry is also recorded. The data entered by the user refers to the sow code, the "score" of his physical condition and the interval since the last pigs

Info	Sinfo	Sow ID	Male 1ID	Technician	Method	Male 2ID	Technician	Method	Result	BCS
Info	Sinfo	1	11		AI	111		AI		

Εικόνα 11. *Breeding Movement – Insemination / Service*

Breeding Movements -Farrowing

The sows have been entered in the birth chart, which gave birth to the sows. The data filled in is the date of births, live births, deceased, weak, mummies, positive adoptions, negative adoptions and a comment. For each sow, the details of the last piglet are updated.

Breeding Movement - Suckling Losses

In the table of suckling losses, the sowing codes of the sows who lost piglets during the lactation stage are entered in the current cycle. The data to be filled in is the date of the loss, the number of piglets and the cause of death. If a sow has lost piglets for two or more reasons, then the code is entered two or more times, along with the corresponding number of piglets lost for the corresponding cause.

Breeding Movement - Weaning

In the weaning table, the sowing codes that have begun on that date and for the current cycle are entered. The data to be filled in is the date of weaning, the number of piglets and a comment.

Breeding Movement – Miscarriages / Abortions

In the abortion list, the sowing codes are deleted. The data to be completed are the date of the miscarriages, the number of embryos, the approximate cause of the miscarriage and a comment and always concern the last litter of the animals.

Vaccinations

Mass import of vaccinations can be done for all breeds of breeding animals (sows, boars and roosters).

As in the case of breeding movements, the user here completes a table with the codes of the animals vaccinated, after determining their species, the vaccine, and the date of the vaccination. Then with "Save" the vaccinations are entered into the corresponding animal health records.

Movement of breeding animals

Reproduction Movement is a new ability to quickly change data that was not available in earlier versions. In the form displayed, the user must choose the building where the animals end up, the type of animals (sows, gilts, boar) and then fill in the animals' codes, their chambers and their final positions. Then, with "Save", the breeding tabs are updated with the new animal positions.

Once the above procedure for a building has been completed, then another, and so on, can be selected. Each change of building causes deletion of existing table entries.

FATTENING PIGS MOVEMENT

Inventory

Keeping a record of fattening pigs requires population inventory from time to time. Indeed, the whole process of observation begins with an inventory, the first inventory, which is mandatory to be carried out before any other move. The census data is processed in a special form which appears after activating the corresponding menu selection of the fattening movements (Figure 12).

Date	Stage	Prod. week	Alive pigs
2/22/2018	Starter	33	3000
1/12/2018	Grower	30	3221
12/15/2017	Finisher	27	3121
*			

Figure 12. Movement Fattening - Inventory

As already mentioned, in order to operate the system, it is first necessary to have an inventory, the FIRST inventory. The data to be kept is the date of the inventory, the stage of the fattening piglets (Grower, Pre-fattening and fattening) and age (in weeks). Age is registered in absolute figures and

not relative. That is, assuming that the first development lasts for six weeks, then a pig that is in the first week of inventory is NOT to be registered with age 1 but with age 7.

As soon as the pig farmer decides to put into operation the fat monitoring system, the first inventory should be done before any other moves. That is, after any transfers or removal of piglets have been completed, the inventory will be done and the data will be registered with the current date. All subsequent moves will be recorded one day after the first inventory.

For the next inventory, if on the day they are performed AND movements (piggy movements, recording of mortality) then they should take place AFTER any moves. That is, ALL moves will be registered with that date, then the count will be entered and the result will be entered into the system with the same date that the moves were registered. This is because the movements introduced at the same date as entered and a census are counted in the immediately preceding inventory.

Unlike previous versions, the time of an inventory is not defined. In that edition the inventory had to be done at the end of the month, mandatory. Now this is not the case and the producer is free to decide on the time of its conduct. Indeed, if he wants, he does not have to count every month, but every two months or at any other time of his liking. Of course, population records are good every month, but if piglets are not lost and the rearing system works reliably, then there is no reason to experience this discomfort every month. However, the quarter should be considered as the maximum time between two censuses. If this quarter is four months or longer, there is a risk that a pig may enter fattening and lead to the slaughterhouse without being counted once. Therefore, the interval between two censuses should be such that all fattened piglets are counted once, at least.

Stage change

The change of stage concerns the movement of piglets into the fatteners. When a pig comes in for the first time in the population, then weaning takes place in the first stage of development. The age of weaning piglets is zero (0) weeks. The age of admission to Grower is mandatory for 1 week.

Movements within the various stages are permissible, as long as age is changed. As mentioned in the census paragraph, age is absolute and not relevant (see previous paragraph). Also, backward movements are also allowed. That is, if a pig is left behind in the growth rate and we want to move it to a previous age and / or stage, that's what we can do.

During the movements the breeder can enter the total weight of the moving piglets. This is not mandatory when the piglets change their age at the same stage. It is, however, obligatory when piglets change stage (eg first development > preening, etc.).

A piglet can come out of the system in three ways. Either as a loss (see next paragraph) or be taken to the slaughterhouse or selected as a breeding animal. If it comes out without being recorded, it is counted as lost. In this way, the application calculates the lost piglets and can give the producer the opportunity to cope with such problems and situations. As it has been mentioned in the case of suckling, lost piglets are one of the many problems that pig farmer are facing.

A simple methodology for introducing misfire moves is to write down in a decreasing order. That is, first the piglets going to the slaughterhouse will be registered, then the piglets moving from the last week of fattening to the last and so on, and finally the piglets that have been weaned since the weaning. Thus, the user has the ability to monitor and control whether the number of piglets coming out of an early stage (or age) and advancing to the next is less than or at least equal to the total number of piglets in that original stage.

Recording losses

Date	Stage	Prod. week	DeadNumber	Cause
------	-------	------------	------------	-------

Figure 13. Platform for fattening mortality entry

Fattening Feeding Entry

Date	Stage	Food (Kg)
------	-------	-----------

Figure 14. Platform for fattening mortality entry

REVENUE - EXPENSES

The enterprise's revenue and expense records are not official and qualitative. That is, no detailed invoice and receipts are entered but sums paid or received for similar movements (eg bedding costs, income from the sale of overpayments, etc.).

Revenue is reported as income category, date, net amount and VAT (%). The same is true of costs, except that, due to their more categorical categorization, their importation is based on their main category and subcategory (Figure 13). Generally, and in the case of revenue-costs, the registration and processing of the records are made as is known.

Expenses

1 of 11

Main Code: 1

Description: Feed - Straw

	Code	SubCategory	Date	Net Amount	VAT(%)
✓	1	Sow Premix (Lactation)			
*					

OK

Figure 15. Platform for expense record and modifications

REPORTS

The reports presented by the program are more than 90 and can be divided into seven categories: 1) Reproduction, 2) Management of the population, 3) Hygiene, 4) Individual yields, 5) Fattening, 6) Financial control and 7) A more detailed description of the reports for each category will be made in the paragraphs below.

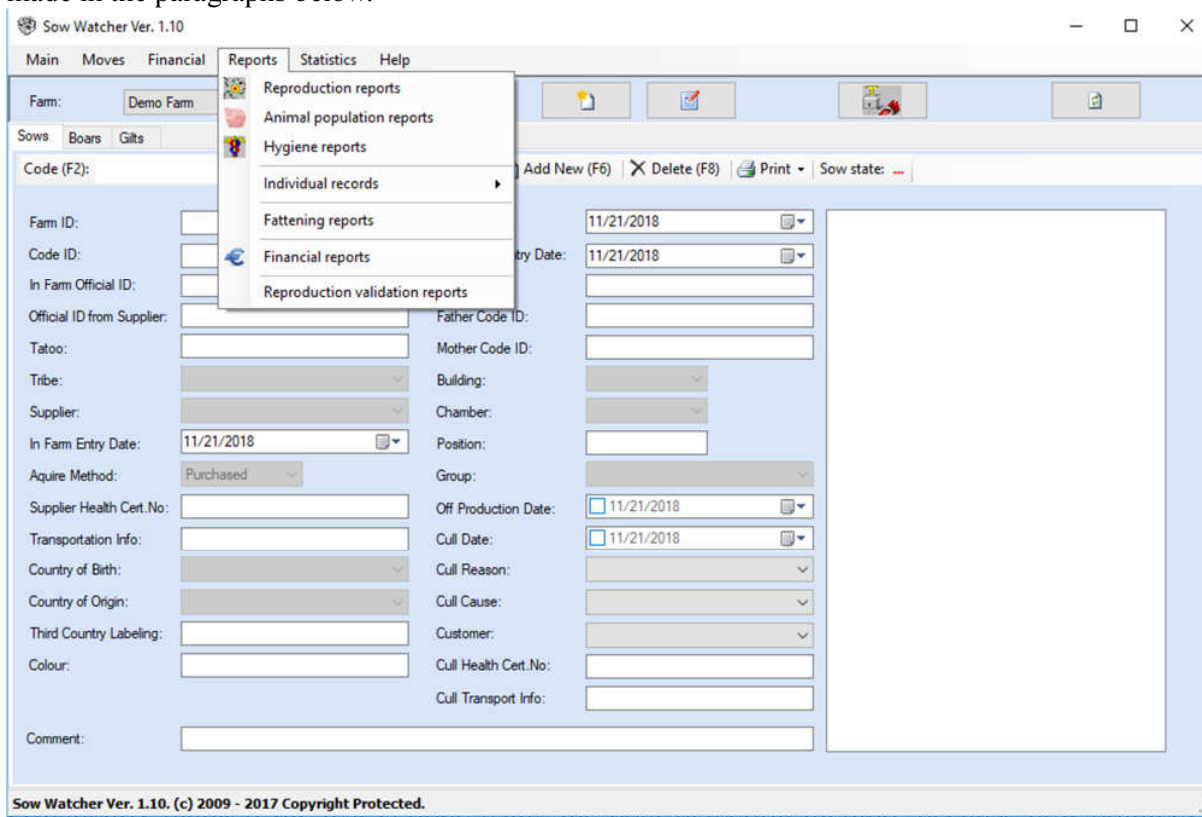


Figure 16. Platform for reports

Reproduction management Reports

Reproduction management reports are divided into four groups: general, playlist, task lists, and searches

The general lists include the following references: 1) current sow condition, 2) current status of gilts, 3) current boar situation and 4) inactive sows (= sows on which the date of removal from production has been determined but for a reason still remain on premises). All four of these reports show all the animals of the respective category with their current status.

Playlists are compiled only for the sows and concern the scheduling of tasks to be done due to their reproductive management. More specifically, these references concern:

1) Sows to be checked

These are sows that have been served, but the result of the last service has not yet been diagnosed and should therefore be checked

2) Returns

These are sows in which the pregnancy diagnosis test for the latter was negative. Usually, this report is permanently blank if the test is done using the boar detection method, because new service are usually follow (in fact the boar detects a new estrus /circle). If the company controls sows by a method that is independent of the oestrus, then this reference will include those sows returned.

3) Expected farrow

In this report the sows are grazed. Also, the probable date of birth is determined. The user can restrict the list entries by asking for only those sows that are gestating for a certain period of time.

4) Weaning

A reference similar to the above is only for sows that are in suckling stage. Here too, it is possible to restrict entries by asking for the appearance of those sows who are breastfeeding for a certain period of time.

5) New inseminations / service

This list includes the sows to be re-served That is, those who have returned, eliminated or weaned and have the minimum notice period for a new service after weaning.

6) Distribution of sows in gestation

At first glance, this is not a management report. It has been included in the administration because it can contribute to the effective management of reproductive management problems. More specifically, if for some reason a lot of female replacement occurs, then there is a great risk that a large percentage of births will coincide over time. If the producer is able to predict a few weeks before the upcoming "surge" of labor, he can even shrink breastfeeding into the preterm labor groups to release birth cells.

7) Distribution of sows in farrow/ maternity

Reporting of similar utility and value to the above, only for sows that suckle

Work lists print forms to be filled in by the staff of the unit and are related to the paths, births, suckling and weaning.

Code ID	S	R	A	L	W	LB	DB	Adp	LS	Wnd	Gest	SucP	W1S	WFS	LL	ED	EDpC	LpY	BApY	WpY	
A1244	3	1	0	1	1	19.000	0.000	-8.000	13.000	12.000	116.000	27.000	5.000					3.715	32.581	29.577	
A0162	8	0	0	7	7	18.000	0.857	-4.429	13.571	11.571	116.000	27.143	4.000	3.429	147.167	28	3.500	2.482	44.881	28.724	
A1133	3	2	0	1	1	18.000	0.000	-2.000	16.000	14.000	114.000	26.000	4.000					1.616	29.091	22.626	
A1214	2	0	0	1	1	18.000	0.000	-4.000	14.000	10.000	116.000	25.000	5.000					2.502	45.031	25.017	
A1250	2	0	0	1	1	18.000	3.000	-4.000	14.000	0.000	113.000	19.000	4.000					2.686	48.342	0.000	
A1283	2	0	0	1	1	18.000	0.000	-4.000	14.000	13.000	116.000	24.000	5.000					2.519	45.341	32.747	
A1297	2	0	0	1	1	18.000	0.000	-5.000	13.000	13.000	116.000	24.000	5.000					2.519	45.341	32.747	
A425	5	0	0	4	4	17.500	0.250	-3.750	13.750	10.750	115.750	26.000	9.500	8.500	153.667	38	7.600	2.415	42.260	25.960	
B042	6	1	0	4	4	17.250	0.250	-2.000	15.250	11.000	116.000	27.750	3.500	23.250	174.667	97	19.400	2.111	37.503	23.915	
A211	6	0	0	5	5	17.200	0.600	-1.800	15.400	12.200	116.400	26.400	3.800	3.000	146.000	19	3.167	2.491	42.853	30.396	
A114	7	0	0	6	6	17.167	0.333	-4.000	13.167	12.167	116.167	26.667	4.500	3.667	147.000	27	3.857	2.479	42.557	30.182	
A106	7	0	0	6	6	17.000	0.667	-3.833	13.167	12.667	115.833	27.333	11.600	10.333	125.800	66	9.429	2.369	40.276	30.010	
A1113	3	0	0	2	2	17.000	0.000	-1.000	16.000	12.000	115.500	28.000	4.500	2.000	147.000	9	3.000	2.468	41.954	29.615	
A1119	3	1	0	1	1	17.000	0.000	-1.000	16.000	13.000	115.000	28.000	4.000			109	54.500	1.449	24.640	18.242	
A1184	2	1	0	1	1	17.000	1.000	-2.000	15.000	14.000	115.000	28.000				82	82.000	1.581	26.850	22.138	
A1188	3	1	0	1	1	17.000	0.000	5.000	22.000	12.000	116.000	24.000	4.000				83	41.500	1.638	27.844	19.655
A1206	2	1	0	1	1	17.000	0.000	-4.000	13.000	13.000	115.000	28.000				83	83.000	1.574	26.764	20.487	
A1230	2	0	0	1	1	17.000	0.000	-4.000	13.000	13.000	116.000	22.000	8.000				8	4.000	2.502	42.529	32.522
A1237	2	0	0	1	1	17.000	0.000	0.000	17.000	12.000	115.000	28.000	5.000				5	2.500	2.468	41.954	29.615
A1242	2	0	0	1	1	17.000	0.000	-2.000	15.000	12.000	116.000	29.000	5.000				5	2.500	2.435	41.395	29.220
A1367	2	0	0	1	1	17.000	2.000	3.000	20.000	11.000	114.000	30.000	5.000				5	2.500	2.451	41.673	26.965
A175	6	0	0	5	5	17.000	0.200	-3.400	13.600	12.200	116.800	25.400	4.000	3.200	146.000	20	3.333	2.498	42.471	30.479	
B1001	1	0	0	1	1	17.000	1.000	-4.000	13.000	12.000	115.000	27.000				0	0.000	2.468	41.954	29.615	
B1099	2	0	0	1	1	17.000	0.000	4.000	21.000	14.000	116.000	28.000	4.000				4	2.000	2.468	41.954	34.551
A212	6	0	0	5	5	16.600	1.400	-2.200	14.400	10.600	115.800	27.600	3.800	3.000	147.000	19	3.167	2.481	41.190	26.302	
A0081	8	1	0	6	6	16.500	3.000	-2.167	14.333	11.000	116.000	24.167	4.667	4.000	144.400	104	14.857	2.319	38.264	25.510	
A1188	3	0	0	2	2	16.500	1.500	-3.500	13.000	11.500	115.000	28.000	4.000	2.000	149.000	8	2.667	2.485	40.997	28.574	
A0780	6	0	0	7	7	16.429	1.000	-2.286	14.143	12.143	115.429	27.571	4.000	3.429	146.833	28	3.500	2.485	40.820	30.171	
A251	6	0	0	5	5	16.400	0.200	-3.400	13.000	11.800	115.200	27.200	4.400	3.400	146.500	22	3.667	2.488	40.804	29.359	
B089	4	0	0	3	3	16.333	1.333	-3.333	13.000	10.333	115.667	27.333	4.333	2.667	146.500	13	3.250	2.479	40.492	25.617	
A0415	8	0	0	7	7	16.286	1.143	-2.857	13.429	12.000	114.857	26.000	4.143	3.571	147.167	29	3.625	2.485	40.465	29.816	

Figure 17. Active Sows individual performance Statistics

Search queries show records that meet specific criteria. More specifically:

- Active sows that are open days (open sows are considered as the sows for which the result is unknown or negative, or have been eliminated / weaned and have not been re-served).
- Active sows that farrowed n - times.

- Active sows that have aborted n- times.
- Active sows with n - returns.
- Active sows with n - returns in the current cycle.
- Sows served FROM - TO.
- Sows that were first inseminated FROM - TO.
- Sows that aborted From - TO.
- Sows born from - to.
- Sows Weaned FROM - TO.
- Individual statistics of active sows
- Loss of piglets aged 0-3 days FROM - TO.
- Loss of piglets aged 4-6 days FROM - TO.
- Loss of piglets aged 7-18 days from - to.
- Loss of piglets > 18 months old. FROM TO.
- Loss of piglets per sows from - to.
- Lost piglets unaccounted for at weaning per sows from - to.

Reports of population management

These reports have to do with the management of livestock in the business. Depending on their content, others refer to the introduction of animals into the active breeding herd (because the breeding criteria are met based on their breed), others to the removal of animals from the breeding population, others present historical data of distant animals (either altogether or for a specific time space), others display the animals of a particular supplier or the animals sold to a particular buyer.

Hygiene reports

Reports of veterinary interventions show the animals to be vaccinated on the basis of the vaccination criteria laid down and the treatments based on the date of re-administration of the medicinal products. The user should choose the vaccine or drug, the animal category (sows, boars, gilts) and the application period (for vaccines). In addition, other lists show historical evidence of vaccinations and treatments for the farm population.

Individual reports

These reports allow the user to view and print the individual tabs of many animals together. The user should select the animal category and the type of card. Then you will have to give the animal codes whose tabs they want to show. As far as sows are concerned, they can be selected based on their reproductive status. Animals that meet the criteria enter the list of selected animals and thus speed up the import process.

Fattening Reports

Fattening reports relate to the history of movements and the management of fattening.

The history is nothing more than the detailed display of the entries made for census, piglet movements at various stages, losses and feeding.

The management reports inform the user about the composition of the current population of fattening piglets, for their composition at a specific date, for the losses of piglets by age and cause, and for lost piglets (those that were introduced at some stage never came out of it with some recorded traffic, but they no longer exist in the population).

Financial reports

Financial reports provide the business's financial result for a user-defined period. The presentation of the economic result can be done in three ways: either in absolute figures, per sow, or per slaughtered piglet.

*Check validity of records. The record validity checks report shows the result of checking the records in the sow reproduction file. Checks are performed based on the values stated in the application's diagnostic parameters (see corresponding paragraph). If some of the recordings are outside the accepted spaces then they are listed. The user can print the error lists (if any) and fix them.

STATISTICS

Business statistics cover four main sections: suckling losses, fattening results, breeding indexes and analytical statistics. Each section serves different needs and provides specialized information on the situation of the pig farm.

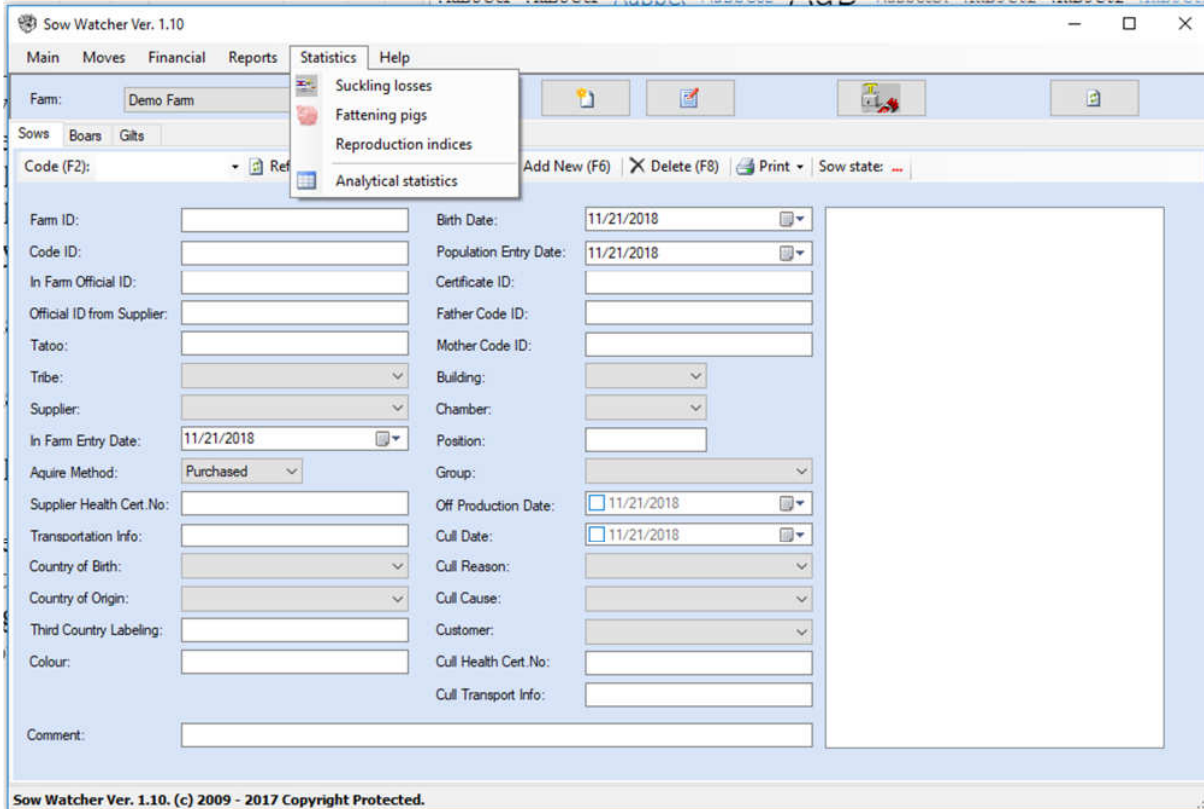


Figure 18. Platform for Statistics

Suckling losses

This statistic report shows aggregate data on losses by three factors: age, cause, and cycle. These three factors are examined at two, in all their combinations.

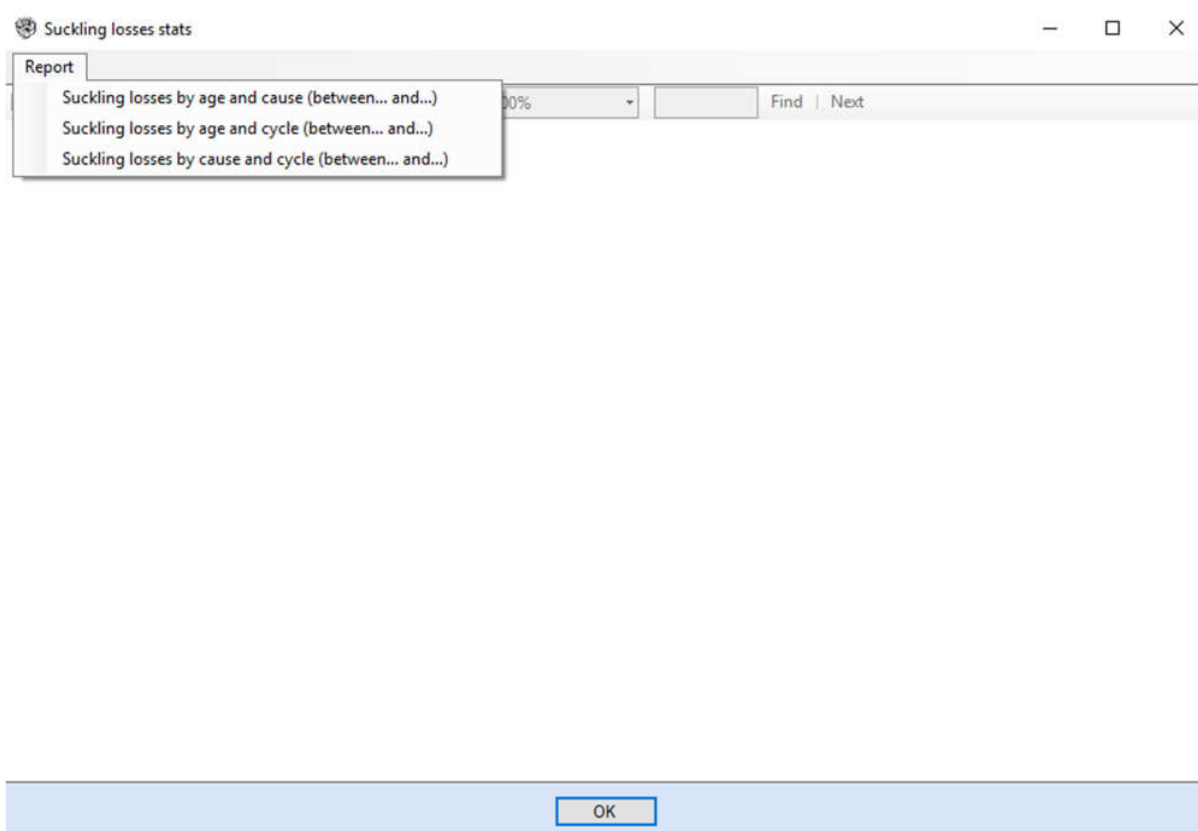


Figure 19. Platform for Suckling losses

Results of fattening

The results of the fattening show aggregate data for each stage of fattening as well as overall, in terms of the number of incoming and outgoing piglets at each stage, their weight, number of slaughtered piglets, losses, average rearing duration (in days), average live import and export weights at each stage, average daily live weight gain, feed conversion rate, average daily food consumption and mortality.

Reproduction indicators

Reproduction indicators relate to the statistical parameters of the sows, except that they are examined at unit level. The analysis is based on two factors, the race and the circle. The population under study are the active sows.

In particular, the parameters considered are live births per farrow, born dead per farrow, adoption per farrow, birth rate, suckling per farrow, weaned per farrowed, mean gestation duration, mean suckling duration, average weaning interval - first weaning, average weaning interval - fertile pregnancy and average delivery interval.

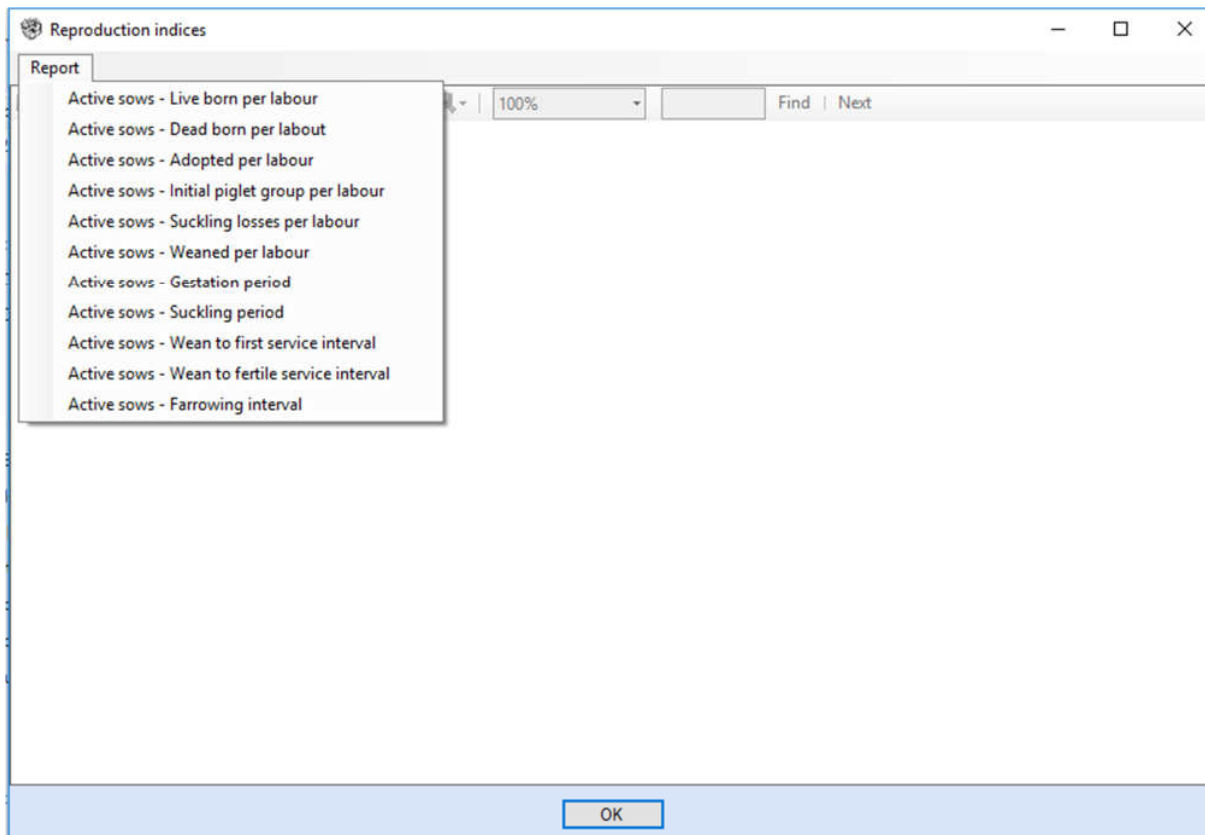


Figure 20. Platform for Reproduction indices

Analytical statistics

Analytical statistics include two references: a summary report and a detailed report of the state of the holding.

Summary report

The summary report shows the image of the unit for a specified time period, defined by the user. It is a brief and thorough report that helps the user evaluate the management results. The processing time range can be from days to years. The statistical parameters that we estimate are:

- Number of sows
- Average sow population
- Number of gilts
- Number of sows that entered production
- Number of sows removed
- Number of service (diagnosed + not)
- Number of first services (diagnosed + not)
- Number of second services (diagnosed + not)
- Number of Third service + (diagnosed + not)
- Total returns
- Number of miscarriages/abortions
- Number of embryos

- Number of farrows/labours
- Born alive
- Born weak
- Born dead
- Mummies
- Adopted (+)
- Adopted (-)
- Number of weanings
- Weaned piglets
- Suckling losses
- Weaned piglets balance

Analytical report

With analytic statistics, the user can fully analyze the desired animal's unit yields at the desired depth. The time range of the analysis can be unlimited, but the minimum time step is one month. This step can even be cumulative. If, for example, a performance analysis is required from January 2017 to December 2017 with a three-month increment and a cumulative step, then the intervals to be considered are 1/2017 - 3/2017, 1/2017 - 6/2017, 1 / 2017 - 9/2017 and 1/2017 - 12/2017. The possibilities of analysis, however, do not stop there. Cycle analysis for a particular breed or supplier can be performed, but also a combination of all these factors. The statistical parameters that we estimate are:

- Number of sows
- Number of gilts
- Number of sows that entered production
- Sow input rate (%)
- Number of sows removed
- Sow removal rate (%)
- Average sow age (days)
- Average sow removal age (months)
- Average gilt input - 1st service (dd)
- Average first-insemination age (dd)
- Number of inserminatios (diagnosed + not)
- Number of first services (diagnosed + not)
- Number of second service (diagnosed + not)
- Number of third inseminations and more (diagnosed + not)
- Total returns
- Returns (% of diagnosed served)
- Total Normal Returns (21 ± 3 days)
- Total abnormal returns
- Normal returns (% of diagnosed bins)
- Abnormal returns (% of diagnosed bins)
- Average return time (dd)
- Total empty days (days)
- Empty days / sow
- Percentage of conception (% of diagnosed bladders)
- Number of miscarriages
- Number of embryos
- Number of embryos / abortions
- Average duration of gestation till aborted (days)
- Number of farrows
- Average first farrow age (dd)

- Average gestation duration (dd)
- Mean farrow period (dd)
- Farrowings / sows farrowed (+ first sows)
- Farrowing / sow / year (from FI)
- Born live
- Weak Born
- Born dead
- Mummies
- Live born / farrowed sow
- Dead-born / farrowed sow
- Live born / sow / year (from FI)
- Dead-born / sow /year (from FI)
- Live born / farrow
- Dead-born / farrow
- Weak (% of live born)
- Dead (% of farrow)
- Mummies (% of farrow)
- Mummies (% of born dead)
- Adopted (+)
- Adopted (-)
- Adopted / farrow
- Average farrow litter (after adoptions)
- Percentage of small litter (≤ 8 suckler piglets)
- Number of weanings
- Number of corrected weaning
- Weaned piglets
- Weaned piglets per corrected weaning
- Suckling losses
- Corrected suckling losses
- Suckling loss / sow
- Weaned / Farrowed Sow
- Weaned / Farrow
- Weaned / Sow /Year (by FI)
- Weaned (% of starting initial group)
- Suckling losses (% of the starting labor group)
- Weaned piglets balance
- Average Suckling duration (dd)
- Average weaning interval - 1st service (in days)
- Weaning average - conception (in days)
- Last weaning – removal from farm interval (dd)
- Farrowing Rate (%)
- Number of abortions with a pregnancy duration > 50 days
- Percentage of small litters (≤ 8 yo, dead + live)
- Average sow population
- Sow input rate (% of average population)
- Sow replacement rate (% of average population)
- Body Condition of Sow at Service
- Body Condition of Sow at 30 days after service
- Body Condition of Sow at 80 days after service

After the end of the process, the result can be plotted in graphs of two or three dimensions.

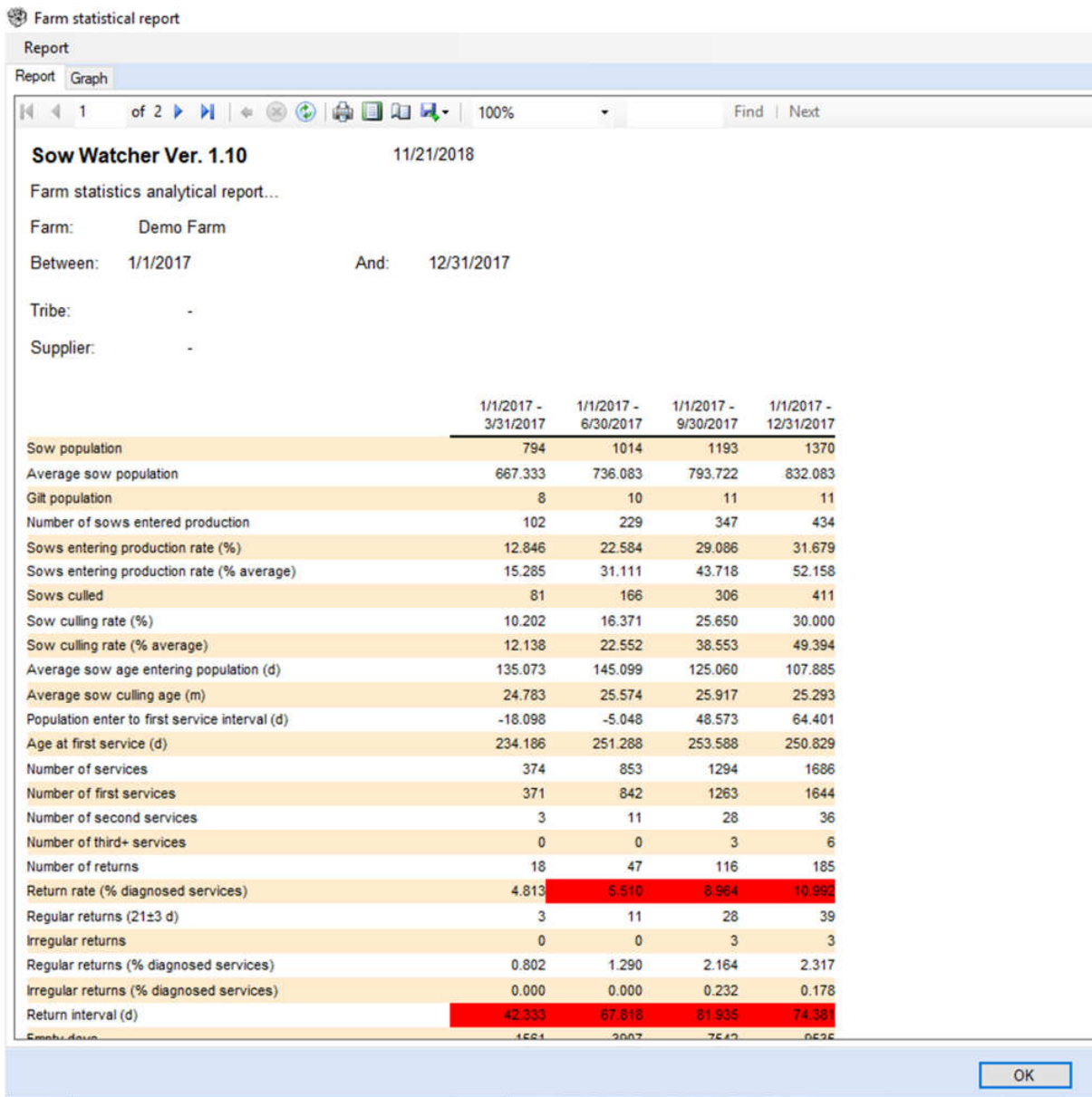


Figure 21. Farm Statistics Analytic Report

Note: The methodology for estimating the statistical parameters in this version has been revised and for some of them the calculation method has changed. For this reason, there may be variations in the estimates made by this program in relation to the previous ones, but also in other commercially available programs. It is a fact that the zootechnical societies of the different countries define and calculate differently several statistical parameters.

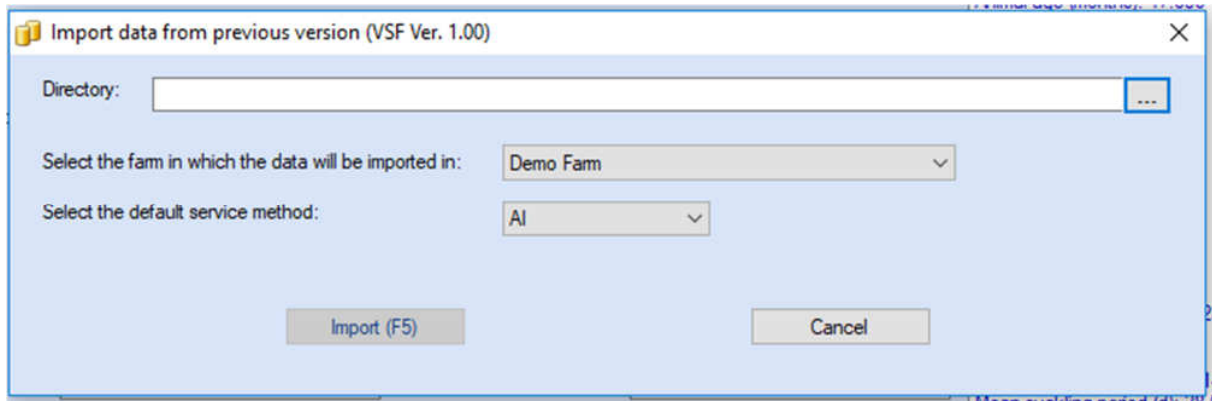
SPECIAL FUNCTIONS - DATABASE

Importing data from Visual Sow Farm (VSF)

With this feature, the user can import his data from the previous version of the program (Visual Sow Farm) into Sow Watcher Ver. 1.01. The process is very simple. You should have previously exported his data to an Access © (.mdb) file. How to do this is mentioned in the Visual Sow Farm User's Guide. Then, in the window that will appear (figure 14), you should select the folder where the VSF2003.mdb

file is located, the farm where the data will be entered, and the default fertilization method for the occupants. After completing these actions simply press the "Insert (F5)" button. After a short period of time, if there is no problem, its data will be transferred to the new version.

Caution: Transparent piglets and financial data are not transferred.



Εικόνα 22. Παράθυρο εισαγωγής δεδομένων από προηγούμενη έκδοση

Back Up

Using the "Backup DB" option, the user creates a backup of the database. Everything is done very simply, as the only parameter to be defined is the storage part of this copy (drive and folder). If there is an earlier backup in the given folder then it will be deleted and its location will occupy the new one.

The backup file is an extension of the application and it is forbidden for the user to share it with third parties. Keeps it in a safe place if, due to a malfunction or other cause, the current database file becomes inoperable. Based on the nature of the breeding activity, the recommended frequency of backup is every week.

Restore

Restore is the opposite of backup. If for some reason the user feels that they need to restore the database from the backup, they should activate this option. However, he must know that he will lose all the changes or additions made to the database from the time of the backup until the base is restored. Performing the restore is as simple as backup. Just the user chooses the folder where the backup is stored and the whole process is automatically done.

Database Settings

By selecting the database settings, database maintenance and control operations are performed. Although back up and restore procedures are database maintenance procedures, it was assumed that for security reasons they should be triggered by different menu options in the program. These procedures refer to the Database Integrity Check, the Base Strip and the Connection String definition.

Integrity control is done when the base, as we usually call it, "strikes". This malfunction may be due to either the base or the disk. With integrity control, we can get a report on whether the base has suffered some form of wear. If the problem is confirmed, the most sure way to repair the failure is restore. But if the album is to blame, we must be seriously concerned about its replacement.

By breaking down, we decrease the size of the base and "normalize" the records so that access speeds increase. In fact, observable improvement in performance will only be achieved when the size of the base increases too much.

Finally, the Connection String is the part that we MUST NEVER touch, unless we MUST do it. The

only case we need to do is when we want to change the physical directory on which the base is installed or the SQL Server instance or both. Such a process should not be done by the simple user, but only by the special administrator. Although the original connection string is not encrypted, it will automatically be encrypted when it is stored for any reason.

Note: The application is designed to be run by a user, locally, in SQL Server Express ©, without credentials. However, no one can prevent someone from running it in a network environment. If this is decided, besides the maintenance of the base should be done by the competent technician, some other parameters should be considered. The app does not create user accounts (as reportedly designed to run by a single user). This means that in a network environment, all users will have access to all of its components. Each user will be able to view and modify the data of other users, units, animal data, financial data, etc. Certainly, in a corporate environment, nobody desires such a loss that a user's uncontrolled access to the work of others may cause. Additionally, there is no synchronization process (other than back up and restore) for off-line work (laptop case). All these restrictions should seriously concern the one who decides to set up a shared base on the network.

Validation checks

Validation checks are the last line of defense to identify animals (sows, boars, gilts) with problematic entries. Animals passing the test appear in a blue list. The rest in another list of red characters. The problem animals are better deleted. Their data, of course, should be reinvented by manually. This test is only performed if an animal's tabs are not accessible by application when the animal is searched for by its code. It is also good to do this when data is transferred from the previous version of the program to the current one.