USER GUIDE

VERSION 3

October 2006

READ BEFORE STARTING THE SYSTEM

Much of the Ewe Byte Sheep Management System is self-explanatory. However, before you begin entering any information, the following sections of the user guide will provide start-up instructions and an overview of the system, to make the entry of your information as smooth as possible:

Information, Sales & Software support for 1 year from purchase date:

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EWE BYTE WINDOWS VERSION 3

Features of this Windows version:
* Simple to use software installer
* Screen help featuring keyword search and table of contents
* Point and click selectors for many options, data entry boxes, etc.
* Automatic diary update for events due

Comprehensive User Guide includes:
* How to use Ewe Byte to enhance your flock's productivity
* Graphics for added clarity
* *How do I?* section with step-by step instructions
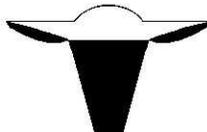
Data entry improvements make entering your flock easier:
* Animal record and EPD transfers to and from Ontario SFIP database, animal transfers to and from CLRC, EBV transfers from Lambplan
* Virtually all information about an animal can be entered from one screen
* Data items can be entered in any order; unneeded items can be skipped using a mouse
* Single animal or group entry for pen and subgroup, disposals, cull marks, market and selection marks for lambs
* Ultrasound carcass data can be entered with weight data
* Some items can be entered directly from electronic readers

Flexibility allows you to better meet your individual needs:
* Gestation length is defined by breed - you set the length for your breeds
* You can reassign lambs into different appropriate contemporary groups
* In reports, increased options for selecting animals, their order & groupings
* Change font, grid lines, column order & size on screen reports
* Search for animals on screen reports
* Move easily up, down and across report screens using mouse
* When printing reports choose columns, printer, fonts, page orientation, etc.
* Short lists of animals can be selected for printing from longer lists on screen reports

Reports are available:
* Level of inbreeding; calculates "relatedness" of home-grown rams to ewes before breeding
* Weigh dates: screen or printer report of groups due to be weighed, weigh dates
* Lambing season; proportion of lambs born each month over selected period
* Overall productivity summary includes several graphs
* Breeding groups summary
* Lambing problems summary
* Disposals summary
* Cull marked sheep summary
* Government reports for Scrapie Inventory and Record Movement

Version 3 For Windows 95, 98, ME, 2000, XP

USER GUIDE

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INTRODUCTION:

The **Ewe Byte Sheep Management System** was created under the initiative of veterinarians from the University of Guelph, with expertise in sheep flock health, reproduction and productivity. The original development team included veterinarians, computer specialists and personnel from the Ontario Ministry of Agriculture, Food and Rural Affairs who were all sheep producers with various styles of flock management and production goals. Profits from sales of Ewe Byte are reinvested into software development and used to benefit small ruminant research at the University of Guelph.

This program is designed to be used by individual producers to track the production and health records of their own flock. Ewe Byte allows a sheep farmer to record productivity, health and breeding information on a home farm computer in a Windows environment (version up to and including Windows XP®). Ewe Byte will also run on a Mac using a Windows simulation program, such as **Virtual PC by Connectix.** It requires at least 20 megabytes of RAM. (More memory is required for larger files.) The computer must have a hard drive with 26 megabytes of available disk space. A printer is necessary to get the most out of the system. Ewe Byte allows a user with a minimum of previous computer experience to record flock data and generate customised reports. It produces action lists, inventories, pedigree, productivity, health and breeding reports to aid in the management of the flock.

The system corresponds to the Canadian Livestock Records and National Identification programs on such attributes as breed codes and sheep identification, and to the Ontario Sheep Flock Program with respect to calculation of adjusted lamb weights and indexes and style of reports. Ewe Byte records and reports on lamb weight and lamb productivity information.

Ewe Byte also provides analysis of breeding performance of rams and ewes. It also allows identification of health problems, treatments, preventive care procedures and other user defined information such as milk weights, wool data and adult sheep weights.

In conjunction with national or regional programs that produce Estimated Progeny Difference (EPD) values or Estimated Breeding Values (EBV), it allows comparison of reproductive potential to animals outside the flock. However, the primary purpose of Ewe Byte is to make comparisons among animals within a single flock, and to help a farmer to compare the management practices within the flock to lamb production and health results.

One of the goals of the Ewe Byte program is to encourage sound flock management practices. Thus, the record keeping and reporting capabilities of Ewe Byte have a lot of good management built into them.

INSTALLING THE SYSTEM ONTO YOUR COMPUTER

If you are upgrading from V2, take a full Ewe Byte backup. End Ewe Byte and using Windows Explorer rename the Ewe Byte directory (folder), e.g. from Ewe Byte to Ewe Byte_V2

Place the installation disk in CD drive (e.g. D:). From the *Run* command on the *Start Menu* type **D:WEBAPP**. This operation will ask you where you want the program installed, and in which program group you wish to have the Ewe Byte program icon placed. If you accept the suggested default names, the installation program will create two new directories C:\EWE BYTE and C:\EWE BYTE \DATA on your hard drive and a new program group, EWE BYTE, in your windows program manager.

Changing the data directory: If you change the names of the directories when installing the system, then as soon as you begin using Ewe Byte, before entering any data, you must let the program know where to search for information. From the Utilities menu select Customise system and then Change directory. Enter the full path of your data directory, as well as the directories in which you wish to store report files and Backups, if desired.

If you are upgrading from V2, restore from the full Ewe Byte backup. Use Windows Explorer to copy all the files from backup folder above to new Ewe Byte directory. Start Ewe Byte and From the Utilities menu select Reindex databases

One directory (from now on called the Program directory) e.g., C:\EWE BYTE contains the program files and the utility databases. These files contain information such as the weight adjustment factors for calculating lamb weights, breed codes and year letters.   The files in this directory never change, or only change infrequently during the program's operation. If they become damaged, they may be restored using the original software on the diskette supplied with the program.

The other directory (the Data directory) contains the database files that store information specific to your flock. If you are maintaining completely separate flocks that will never interact (for example, if you record two farm operations on the same computer) you may later create separate data directories for the additional flocks.

If you wish to have a second data directory, using Windows *Explorer*, then select the Data directory created above. From the *Edit* menu choose *Select all* and then *Close*. This should highlight all the file names in the DATA directory. From the Edit menu choose *Copy* and then copy these file to your new second directory e.g., C:\EWE BYTE\DATA2. You may change to an alternate data directory any time from within Ewe Byte by selecting *Customise system* and then *Change directory* from the *Utilities* menu.

The system uses the current computer date to give you prompts for certain date entries. It also uses this date to determine whether other entries are valid (for example, you cannot record a lamb as born on tomorrow's date). Make sure that the system date recorded by your computer is correct. To change the date, from choose the *Start Menu* from the Windows Desktop then choose *Control Panel*, and finally *Date and Time*.

Begin running Ewe Byte by double clicking on the Ewe Byte Program Icon. Always end a Ewe Byte session by choosing *Exit Ewe Byte* from the *Utilities* menu. If no Icon, use *Windows Explorer*, locate Ewe Byte folder. Right-click on *Ewe Byte.Exe* file, select *send to*, then *Desktop (create Shortcut)*.
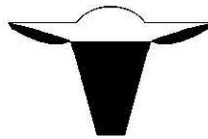
GETTING THE MOST OUT OF EWE BYTE

Record keeping is only a means to an end. You record data to gain information. This information must be timely and in a form that is useful to you.   Late information, as well as too much or too little information or wrong information can all cause problems when you try to make decisions about which animals to keep or cull. There are advantages to keeping your own records, doing your own data entry and producing information that is available immediately and can be customized to your specifications.

In Ewe Byte, ideally, you enter data *when it is current*. You enter ram and ewe records when you purchase the animals and lambs as they are born. The IDs and other data that you have entered are available to you whenever you need them. If the data does not change, you *never need to type it again*. When you vaccinate or worm the sheep, you enter only once, the dates and procedures given to a group, and then pick the group from a list of appropriate candidates. Whenever an animal has a health problem, the problem, selected from a list of possible health problems, can be noted on that animal's record, for recall at a later date.

When you plan breeding groups, sires are selected from a list of rams in the flock, or available for AI on the given breeding dates, the ewes are selected from lists of live ewes presented according to your criteria (age, breed, subgroup, pen, etc.) Five months later, from these breeding records, the program is able to assign sires and breeds to the resulting lambs. From the birth dates of lambs, appropriate weigh dates are calculated. When you weigh lambs, the computer provides you with a list of possible lambs to be weighed so you need only enter the date and weight. From breed, dam, gender, and birth date information for that lamb, Ewe Byte will calculate adjusted weights and indexes.

The key to usefulness of any record keeping system is first to set long term targets and short-term goals for productivity. The data recorded and the information produced is used to help you meet the goals that you set for your operation.

SETTING GOALS:

Record keeping allows you to set production goals in order to guide and monitor improvement in flock performance. Production targets are generally in the form of meat to market per year, number of lambs weaned per ewe, etc. These can be determined from regional production averages, best flock performances, typical performance of that breed, known management system productivity information and your own past performance.
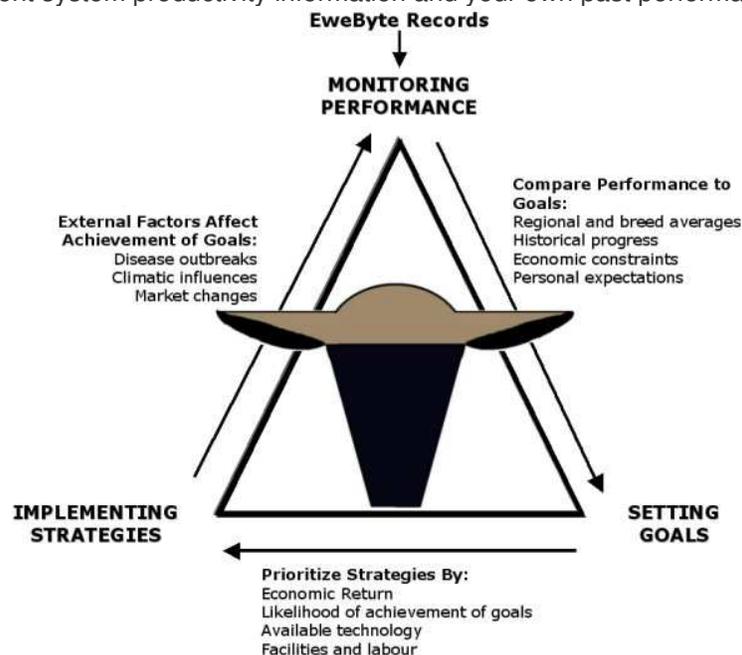
Your production targets will vary depending on various factors including: the breed of sheep you keep; the market you are aiming for; available physical facilities; the limitations of your knowledge, experience, manpower and time to devote to flock, etc.

You can make progress towards achieving long range targets by setting specific goals that can be achieved within 1 to 2 years, developing a strategy to achieve these goals, implementing those strategies, monitoring your progress towards each goal and then reviewing whether or not it has been achieved and if not - why not. You can then set a new goal to move productivity closer to the long-range target, e.g. sufficient flock size and productivity so that you do not need off-farm income. Good records are the key to monitoring your progress towards each goal.

In general, most farmers want to increase revenue and decrease costs. However, increasing revenue or decreasing costs are too general as targets to try to achieve in one step, so they need to be broken down into smaller targets as well as measurable goals that form the steps toward the target. The following is an example of some more specific goals and strategies to achieve those goals that could be used in a sheep operation.

Economic Target: Increase yield (revenue – variable costs) to $ 100.00 per ewe:
 G*oal*:   Increase kg (lbs) of lamb marketed per ewe per year to 65 kg. This is not specific enough to allow you to achieve your goal (or target). So you need to set goals that are more specific to certain areas.
Reproductive Goals:
    Pregnancy rates of > 95%
    Lambs born per ewe exposed to the ram of 1.8
    Strategies to achieve these goals might include breed selection towards more prolific breeds, improved nutrition during flushing, breeding soundness evaluation of rams to ensure that ram : ewe ratio is optimal. Improving genetics can be done through better selection of replacement ewes – again through good records.
Lamb Survival Goals:
    Stillbirth rate of < 5%
    Lamb mortality rate of < 5%
    Strategies to achieve these goals might include improved lambing management and lambing time diseases, better protocols for weak lamb treatment, improved housing for lambing to reduce mis-mothering, appropriate vaccination and de-worming programs, etc.
Lamb Growth Rate Goals:
    Average Daily Gain of > 0.35 kg
    Strategies to achieve this goal might include control of coccidiosis and pneumonia, selection of ewes that are better milkers, selection of rams with better growth characteristics.
Income Goals:
    Lamb market prices > $1.10 / lb.
    Cost of production of < $0.65 /lb
    Strategies to achieve this goal might include improving efficiency of gain (reducing days to market) through genetic selection, disease control, marketing of optimal weight lambs to correct markets, marketing year round.
There are other measures of productivity and other strategies to help achieve this target.

Once the targets and goals have been determined, the data you will need to record and the information you will need to retrieve from the system will become apparent. For example, if you want to maximize the weight of lamb marketed per ewe, to determine how much lamb each ewe is producing, you will need to record the ewes in your flock, the lambs produced and raised, their weights, etc.

The following sections give a description of the facility provided by Ewe Byte for recording information about your flock, and for assessing your progress towards the goals you set.

TYPES OF DATA STORED

Ewe Byte is designed to allow you to keep track of important data about your flock. It allows you to record identifiers of each sheep, breed and crossbred information as well as sire and dam. It permits recording of breedings, weights, lambing problems, health and preventive care data. Each piece of information can be tied to an individual animal, but it can also be used to show how that animal's productivity relates to similar animals in the flock, and how the performance of the entire flock, or subgroups within the flock compare for the same or different time periods.

The types of data stored in Ewe Byte fall into five groups: animal identification, productivity, health, reproduction, and flock management.

ANIMAL IDENTIFICATION
    ID, tags, tattoo, name, registration number
    Descriptions - wool colour, polled, descriptive comments
    Birth, acquisition and disposal dates
    Relationships - parents, foster dam, embryo donor dam
    Breed, crossbred information
    Vendor, Buyer, Canadian Sheep Identification Program ID /Scrapie ID/Electronic ID

PRODUCTIVITY
     Lamb births, dates
     Lamb weights, dates, carcass data
     Disposals: fates, dates
HEALTH
     Preventive care (e.g. worming) procedures and dates
     Individual animal disease, dates and descriptions
     Tests, assesment results, dates and descriptions
     Lambing problems
     Adult animal weights, dates
REPRODUCTION
     Breedings and breeding period
     Hormone management,
     Artificial insemination, embryo transfer
     Pregnancy diagnosis
FLOCK MANAGEMENT
     Management subgroups & pens, tag colours
     Cull marks, selection marks
     User defined events: description, date, value

TYPES OF INFORMATION PRODUCED

The main purpose of record keeping is to produce information that will help you manage your flock. Based on the data you have entered, reports give you pictures of your flock from many different perspectives. They are useful for making breeding and culling decisions, for reviewing your flock management practices, for checking on the completeness and accuracy of what has been recorded as well as for providing you with lists of animals for flock management groups. Reports are either lists, which show individual animals identified by ID numbers or they are summaries, which provide averages, totals or other calculated statistics about the flock or group.

Reports available in Ewe Byte fall into three major categories: *Barn sheets or action lists* are lists of animals for specific action. *Productivity and problems lists* are used to discover most and least productive animals for breeding and culling decisions. *Flock summaries* are useful for flock management decisions and for comparison of recent flock performance to goals and to previous performance.

ACTION LISTS & BARN SHEETS
Flock inventories- Use for checking tags, scoring body condition, worming, disease status programs (Maedi Visna, Scrapie) etc.
Lamb lists - for weighing
Preventive care lists- list animals in a group to be treated
Breeding group lists - for setting up groups, pregnancy checking etc.
Ewes due to lamb
Ewes raising lambs
Sheep marked to cull
Lambs marked to select for breeding stock or market

Lists of animals for barn sheets or action lists are tools for managing either groups or individual sheep. For example, from the information in breeding records, Ewe Byte will produce lists of ewes due to lamb within a selected period. You can limit these lists to a certain breed, subgroup or pen. This allows you to group these ewes for specialized feeding, for pregnancy checking, or just for closer watching near the due date.

Ewe Byte uses dates when lambs were born to predict optimal 50 and 100 day weigh dates for each contemporary group of lambs. You can then create lists of lambs to record the weights and other comments as you handle the lambs.

General flock inventory lists can be used as check lists for writing missing tags, body condition scores, selecting animals for bleeding etc.

PRODUCTIVITY & PROBLEM LISTS
Lamb reports - list adjusted weights and indexes to show best gaining lambs
Ewe productivity lists - lambs/lambing and /year,
indexes, weight raised/year, etc

Non-lambing ewes
Health & lambing problem lists
Level of inbreeding - predicts closeness of relationship of a single ram with selected ewes
Ram & Ewe histories - productivity, health,
reproduction
Descendants lists - to track dam or sire lines
 pedigrees

Lists used in decision making include many forms of analyzed information. If you are trying to determine which are your most productive ewes, it is important to look at what productivity goals you are trying to achieve. From the lambing and weight data that you entered, Ewe Byte can display lists of ewes with productivity statistics conforming to your goals. You can list your current ewes, or a subgroup of them, along with their lambs per lambing, average ewe indexes, and other productivity measures. If you want to maximize lambs per lambing, you can order the ewes from highest to lowest ranking on average number of lambs per lambing, If you want to maximize lamb weight per year, order by ewe index or by lambs per year. You can also group them by age, breed, etc. if that would help you determine which ewes should be culled and which should continue in your breeding program.

Do you know which ewes lamb most frequently, or which ewes lambed first as yearlings? Which ewes have the highest number raised, as opposed to the highest number "dropped." Have certain ewes given you frequent lambing problems, or frequent health problems? Has an older ewe dropped in productivity? These questions can be answered by various productivity and problems reports.

By discovering your most productive ewes you are doing a first step in determining which lambs will make the best replacements. You can create lists of lambs in order by their adjusted 100 day weight, adjusted daily gain or indexes. These lists help you to see at a glance which animals show the best genetic potential for producing high gaining offspring.

Sire assessments are also important. Do you know whether a particular sire impregnates most of the ewes presented to him in the first opportunity? How does the rate of pregnancy compare from one ram to the next? Does he breed well when other rams are present? Are there certain ewes that should not be bred to a particular sire as the resulting lambs would be too closely inbred? Do some rams do better than others at impregnating sponged ewes? Are the outcomes better for certain AI sires? All of these questions can be answered in reports produced from data entered at the time breeding or lambing occurred.

FLOCK SUMMARIES
Flock composition - lambs, rams, bred, open & nursing ewes
Productivity summary - weight produced/ewe/year, survival rates, ram to ewe ratio
Annual Flock Productivity Summary Report – this report can be used for the **Ontario Sheep Health Program** requirements
Lambing summary - flock or subgroup productivity
Reproduction summary- analysis of productivity by breeding exposures
Breeding group summaries- positive preg checks, lambing rates, lambing dates
Lambing season summary - number and percentage of lambs per month of the year
Culling summary- number culled/marked to cull
Lambing problem summary- summary of problems and outcomes
Disposal analysis- disposals of animals by type of disposal and type of animal
Weigh date predictions for contemporary groups

Summaries of flock data can give you another picture of how well your management conforms to the goals you are setting for yourself, or how changes in management practices have influenced productivity or health of the flock. From a flock productivity summary, you can compare lambing, survival and meat production rates for the immediate past year with the previous one, the past 5 years and your entire flock history, if it is longer than 5 years. You can see trends of aging of your flock, and its effect on productivity.

A reproduction summary begins with the introduction of a ram as the main event. It answers questions such as: on average, for every exposure to the ram, how many test pregnant, how many lambs are produced, how many survive, how many kilograms of lamb are weaned, etc.?   This can make obvious another source of inefficiency, or of problems in your operation.

Ewe Byte will summarize lambing problem data, to give you a quick look at how many lambs had problem births how many survived those problems over a selected period of time. You can also summarise cull marked sheep, to see how many ewes were marked for possible culling for each possible reason, how many were culled, and how

many remain in the flock. You can summarize disposals by type of animal (ram, ewe, wether, lamb, adult) and type of disposal (sold, died, etc.). For each of these measurements you can compare different subgroups or time periods and use the comparisons along with your knowledge of flock management to determine what practices are useful in achieving your goals, or to determine what changes are needed.

ADJUSTED WEIGHTS AND INDEXES

The basis of many of the productivity measures available in Ewe Byte is the system of adjusted weights and indexes as used by the **Ontario Sheep Flock Improvement Program** / **GenOvis.** The adjusted weights are designed to discover the genetic growth potential of lambs with varied age, sex, age of dam and "raised as".

The lambs are weighed (within fifteen days either way) at fifty and one hundred days. These weights are then adjusted using factors derived from a million weighings to give the equivalent weight of a 50 (or 100) day old single ram lamb raised by a four-year-old ewe. In addition to the adjusted 50 and 100 day weights, a measure of the gain between fifty and one hundred days is calculated as the adjusted daily gain (ADG). The calculations are based on kilograms, and the weights are stored in kilograms but the actual and adjusted weights may be reported in kilograms or pounds.

The adjusted weights allow you to look at the records of a pair of ram lambs that are significantly different on some measure (e.g. age). You can then assess their relative genetic growth potential in a way that would not be obvious from standing in the barn looking at the two lambs. Adjusted weights also allow you to compare the relative productivity of a ewe raising twin rams to a ewe raising female triplets, or to compare the genetic potential of a lamb raised by a yearling dam to one raised by a mature mother.

When lambings are recorded in the system, Ewe Byte assigns a contemporary and management group to each lamb. A contemporary group is composed of all lambs of the same breed born within a thirty-day period. A management group is composed of all lambs of any breed born within a thirty-day period. The performance of these lambs, raised in the same way, can be then genetically compared.

When there are sufficient animals weighed in a contemporary group (5 dams and 8 lambs), indexes that compare the performance of the members of a single group are calculated for the dams and for the lambs. The mean value of all indexes in a contemporary group is always 100 and a normal distribution of performance is assumed. Only a small portion of the flock should be in the high or low end, e.g. only 2% of the ewes will have an index of 140 or greater.

Indexes are only meant to permit comparison of animals within a single group. It is not meaningful to compare indexes between groups. The rearing conditions for the different groups (e.g. climate, nutrition, genetics) vary and it is difficult to predict that a lamb that index low under certain conditions, would not perform the same under different conditions.

Distribution of Indexes Used in the Ontario Sheep Flock Improvement Program
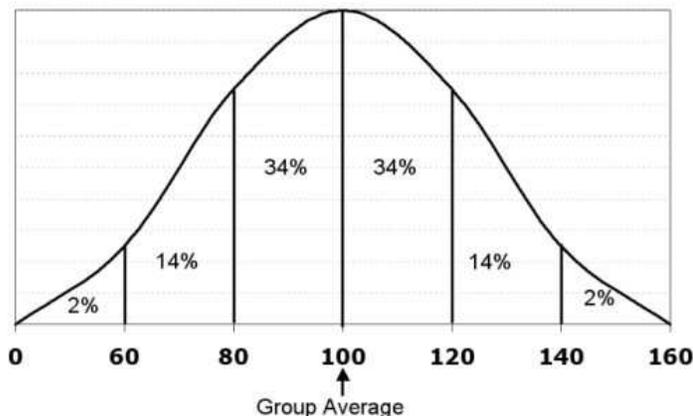
There are several indexes available. The Ewe Index is based on the total (adjusted) weight of lambs she has raised to 50 days, i.e. her ability to give birth to and raise lambs to weaning. The Predicted Producing Value of the

ewe (PPV) is based on her lifetime productivity to date. The more lambs she has raised, the more accurate the index. The 100 Day Index refers to the lamb's ability to gain weight to 100 days. The multi-trait index (MTI) is also based on a lamb's ability to gain weight but it also gets credit if raised as a twin or triplet. The method of calculating the adjusted weights, indexes and PPV are shown in the Appendix.

STRUCTURE OF EWE BYTE

Depending on your needs and time to manage records, you do not need to use all parts of the system to get meaningful information. Pedigrees and basic production analysis can be achieved by recording your foundation breeding animals and their lambings. Adding breeding group records permits prediction of lambing dates and analysis of breeding performance of rams. Lamb weights add further to the analysis of the productivity of your rams and ewes. Health records, user defined records and preventive care records each add to the picture you can gain of your flock performance, and the factors that contribute to good or poor performance of individuals or groups of animals.

The system is divided into several sections, represented by the menu across the top of the screen: **Utilities** – which allows you to customise the Ewe Byte system to your individual flock and computer set-up; **Record Data** – for entering and editing a broad range of individual and flock level information; **Create Reports** – for flock summaries and individual animal reports; **Print Reports**; **Edit Codes** – to customize your system more; **Diary** – to set up reminders for flock health and management practices; and **Help** – a very extensive and detailed help, not only for running the program, but also to help with interpreting reports.

MENU STRUCTURE

UTILITIES
    Update events due
    Edit codes:
          Breed codes
          Health codes
          Fate codes
          User defined codes
          Preventive care codes
          Cull codes
          Selection codes
          Lambing problem codes
          Name Address codes
          CSIP / Scrapie tags
          Dairy Module codes (dairy module only)
    Customise system:
          Identify farm
          Set default values
          Change directory
    Reindex databases
    Backup & restore data:
          Backup data files
          Restore data files
    Browse files
    Transfer data:
          Export CLRC record
          Import CLRC record
          Import SFIP record
          Export SFIP record
          Import Lambplan data
          Import Equivalence records
          Export Equivalence records
    Exit Ewe Byte
RECORD DATA
    Lambs:
          New lamb
          Edit lamb records
    Rams & ewes:
          New sheep

Edit sheep records
Summarise productivity
Breeding groups:
New group
Edit group
Preventive care groups:
New group
Edit group
Weight records
Pen & subgroup
Dispose of group
Cull-mark ewe group
Select breeding & market stock
Contemporary groups
Management groups
CSIP/Scrapie tags
Dairy records (dairy module only)

CREATE REPORTS
Action lists & inventories:
Flock inventory list
Lamb list
Market lamb list
Breeding groups
Due to lamb
Ewes with lambs
Preventive care lists
Cull-marked sheep
Breeding Up Percentages
CSIP/Scrapie Movement
SFCP Inventory
Individual sheep histories:
Ewe history
Ram history
Pedigree chart
Descendants chart
Productivity & problems:
Ewe productivity lists
Level of inbreeding
Lambing problem list
Non-lambing ewes
Health report
User defined records
Disposals list
Flock summaries:
Overall productivity
Annual Flock Productivity (Ontario Sheep Health Program)
Lamb production
Reproduction
Flock composition
Weigh dates
Breeding groups (Ontario Sheep Health Program)
Lambing season

PRINT REPORT
DIARY
HELP
Contents
Search for help on…
About Ewe Byte

Features of the Utilities Menu: *Customising* includes entering your farm name and address (for report headers) and specifying the default settings for such items as weaning age, breeding period and flock ID.   These defaults values are used to suggest the most likely entries for some data items, to save you keystrokes. It is also used to create reminders for weaning, worming, etc. It allows you to set the recording and displaying of weights in either pounds or kilograms and to change the style of the dates displayed. The *Utilities* section also allows you to backup and restore files, to add your own codes for breeds, problems, etc. and to reindex the databases. In addition, the Utilities section includes the file transfer procedures for exporting and importing information to and from other programs.

Features of the Record Data Menu: permits recording and editing of information on the sheep in the flock according to flock events (purchases, births, deaths, weighings, etc.). It is organised by status of sheep (Ewes& Rams or Lambs) and by type of event. Most information on a single animal can be entered from the animal's *individual record window* found under the Ram & Ewe and the Lamb menu. Information on animals that fall into groups may be entered from group record routines. These include subgroup and pen designations, breeding groups, cull marks for ewes, selection of lambs for breeding or market, disposal of groups of animals, breeding records, preventive care and weight records. For example, when you vaccinate or worm the sheep, you enter the dates and procedures given to the group, and then pick the sheep from a list of appropriate candidates.

Specific Examples of Groups: *Breeding Groups:* When you plan breeding groups, sires are selected from a list of rams in the flock, or available for AI on the given breeding dates, the ewes are selected from lists of live ewes presented according to your criteria (age, breed, subgroup, pen, etc.) Five months later, from these breeding records, the program is able to assign sires and breeds to the resulting lambs. *Weigh Groups:* From the birth dates of lambs, appropriate weigh dates are calculated. A barn list of lambs is produced for weighing. From breed, dam, and birth date, Ewe Byte will calculate adjusted weights and indexes.

Features of the Create Reports Menu: Reports are organised according to four categories:

Action lists & inventories include the types of reports you would use as barn sheets e.g., inventories, ewes due to lamb, preventive care treatments, CSIP movements. These reports can also be used as worksheets for culling, selection of replacement animals, etc.

Individual sheep histories cover the productive and reproductive performance of breeding rams and ewes as well as their health and preventive care histories. The histories section also includes pedigrees and charts of descendants.

*Productivity & problem reports***,** analyse the records of weights, lambing problems, health events, etc. to show which animals are your most productive and which are most likely to give you poor performance in the future, based on their past performance.

Flock summaries do not show any individual animals. The reports in this section analyse productivity of the flock, allowing comparison between different time periods, when management may have varied or among selected subgroups from within your flock. It also produces an annual summary of productivity for the **Ontario Sheep Health Program**.

Also available is a flock *Diary* to record reminders or create a "To Do" list. Each week, the system will automatically analyse your flock, based on the default values you have set for worming, weaning, etc. and place in the diary how many and which animals are due for each procedure. There is also the ability to print reports, edit codes and seek help.

USING SYSTEM FEATURES

CONTROLS

Buttons: Many operations use buttons to begin or end an action, to move to the next step, or to back up a step.

Pick lists:
Six types of lists are used to select from information stored in the system: *pop-up, single selection lists; multiple selection lists; multiple selection, multiple column lists; spinners; check boxes;* and *radio buttons*.

Pop-up single selection lists: These are used for breed codes, problems, current dams, etc. To make a selection from the list, point to the arrow at the right of the name and click the left mouse then point to the desired item and click. The selected item will move into the top position. Wherever possible, items on the pick lists are restricted to those that you are likely to need. For example, lists for selecting breeds or subgroups in a report are restricted to those breeds or subgroups that have actually been used in your flock. Lists of animals are restricted to those currently in your flock.

Multiple selection lists: This type of list is used to select the columns to be printed in reports. First click on the *Select columns* button on the print window to display the columns menu. Then,

while holding down the <Ctrl> key, click on each item to toggle its mark between selected (highlighted and checked) and unselected. To view more options, while holding the <Ctrl> key, click on the arrows at the top or bottom of the list, if they appear. When finished, click on the screen outside the menu. In the example used above, both ID and Name are selected, Tattoo is unselected.

Multiple selection, multiple column lists: These are used to select individual animals for printing, selection to a group, etc. These lists have lines dividing each animal in the list and each column in the list. At the far left of each row is a small rectangle. If the rectangle is black, the animal is not selected, if it is clear, the animal is selected. Using the mouse pointer, click on a box to toggle it between selected and unselected. In the example, "Animal 1" and "Animal 3" are selected and "Animal 2" is unselected. Report lists initially have all animals selected, allowing you to deselect animals you do not wish to show up on a printed report. Lists of animals for possible editing begin with all animals unselected, requiring you to specifically select each animal you want to edit.
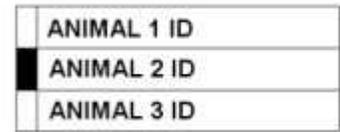
Spinners: Spinners are used for some number selections when there are commonly entered values within a range. You may either use the up/down arrows to select the value, or type the value into the entry box.

Check-boxes: These are used to mark individual possibilities that may be either 'Selected' Or 'Unselected'.   For example, to select both males and females, mark each corresponding box with an X by pointing to it using the mouse and then clicking the left mouse button. In the example both "Males" and "Females" are selected and "Wethers" is unselected.
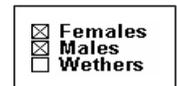
Check boxes are also used to activate some Pop-up single selection lists, for example, breed. To make the breed selection option active, click on the box to the left of "Breed" to mark it.   This will remove the "greyed-out" appearance of the breed list and you may then choose the breed from a pop-up list of the breeds used in your flock, or enter the code in the breed-code box. If you subsequently decide not to select by breed, click the check box again to turn off the option. The breed code and pick list will show up as grey to indicate that they are inactive.

Radio Buttons: A radio button group is a list where the buttons appear as circles to the left of the item names. A "bull's-eye" shows beside the selected (active) item. Selecting one option in a radio button group deselects all the other options. In the example on the right, selecting 'Name' would replace 'ID' as the active choice. A radio button group that is not greyed-out will always have one active choice.

ENTERING INFORMATION

Information is entered through **Record Data**. Each data entry window contains the options to *Save* or *Cancel* storage of the entries to the database. Until you choose *Save*, no changes will be made to what is stored in your computer. Choosing *Save* saves all the information on the current data entry window as well as related windows that you have changed at the same time (e.g. health records for a ram or ewe.) When you choose *Save*, the system will give you a message indicating that the information has been saved. After receiving this message, if the system does not return automatically to the menu or to a selection window, you may choose to enter further information, or choose *Cancel* to return. Cancelling after saving will not affect the data that has been saved.

Order of Data Entry: Data items do not have to be entered sequentially. Using the mouse, you can move to any data entry item on the window and edit the information contained in it.

Previously Entered Data: The system uses data previously entered (such as information on dam and sire) to fill in automatically as much information as possible. In this way, all pieces of information in the system remain consistent with each other. Sometimes you are prevented from making certain changes. This is because some earlier information disagrees with the changed information.

Automatic Error Checking: When you enter information, the system performs checks to reduce the number of errors that it might record. If what you have entered does not agree with information the computer already has stored, Ewe Byte will suggest the type of problem at the bottom of the screen or in a message window and prompt you to enter consistent information before proceeding.

There are some types of information for which you are responsible for accuracy. For example, if you assign a lambing code of stillborn to a lamb, the computer makes no checks as to whether the lamb is truly stillborn.

Windows Boxes for Data Entry: All the windows for entering information have the same style. At the top of the window is the header that gives the name of the procedure that you are using. The centre section of the window contains the names of data items and entry boxes for entering the information, or popup lists for selecting information. The bottom line of your screen contains messages that give additional information on entry requirements and your options or errors. The data windows may only be exited using the *save* or *cancel* buttons. A window may also contain additional buttons to allow you access to related windows.

Warning Messages: The system uses small windows to give you warning messages or to allow you to enter special information. Once the window is no longer needed, it will disappear and you will return to the window you left. Message windows, (the small grey windows that appear in the top right corner, are removed by pressing a key or clicking the left mouse button)

Information Not Available for Editing: If information is not in an entry box), it was generated by the system and may not be changed except possibly through another window, or by editing another animal's record. Information in entry boxes that is "greyed-out" may also not be edited at this time.

Optional entry items (i.e. that may be left blank) are indicated in blue lettering. **Required entry items** are shown in black lettering.

Replacing All or Part of an Entry Box: If an entire box appears highlighted, the entire contents of the box will be replaced when you begin typing. If you only wish to replace part of an entry, move the cursor to the point where you wish to make the change. Always begin typing at the left-hand side of a blank entry box.

Amount of Data That Can be Entered: The size of the entry box limits the size of entry permitted. For numeric entries, the position of the decimal point shows the maximum number of decimal places. **After making an entry**, press the <Enter> or <Tab> key or use the mouse cursor to move to the next entry box.

Entering Information or Codes Already In the System: If Ewe Byte requires you to enter information that it already holds in a database within the system, (e.g. the ID number of a dam or sire of a new lamb, e.g a breed or problem code), a pick-list menu of possible choices will be available. See page 13 for a description of combined entry methods. E.g to select a dam, click on the pick list and cursor to the ID of the desired ewe and press <enter> to transfer that ID to the dam entry box.

Editing Single or Multiple Animals: Most information on a single animal can be entered from the animal's *individual window.* (The exceptions are breeding records, preventive care and official 50 & 100-day lamb weights that may only be entered from group record windows.) Groups of individual animal records may be selected for editing. You can then cycle back and forth through the selected individual records, editing or not as you choose. Some information may be entered for either a *single animal or a group of animals.* These are subgroup and pen, cull marks for ewes, selection of lambs for breeding or market and weight records. Groups may be selected *based on other groups*; e.g. preventive care group may be selected from ewes in a breeding group.

ANIMAL ID

Edit boxes: These are small boxes, one space high and of varying length, according to the number of characters that can be entered in the box.

Comment area: A comment editing area is presented for entering longer descriptions such as those in a health record, a lambing problem or general comments on an animal. As much text as desired may be entered.

2: Comments_Area

Pop-up single selection lists: These are used for data that is restricted to a limited number of possibilities, for example the sex of an animal, the number born or raised in a litter, etc. To view all choices, use the arrow keys. Move the cursor using the mouse until the your desired choice is highlighted and release the mouse button.

Female ±

Code	Lambing Problem ±

Combination of methods: A data entry box with a corresponding a pop-up single selection lists is used for breed codes, problems, current dams, etc. To make an entry here, either type in the appropriate code in the data entry box or select from the list. The selected item will move into place at the top of the list and the code or ID will be shown in the entry box. *If the data entry box is not filled in, no entry has been made.*

CHOOSING ANIMALS FOR REPORTS OR EDIT GROUPS

There are several ways of selecting a group of animals, e.g. by sex, breed, subgroup, breeding group etc. The selection options on a window work together like cutting gates on a chute. Only those animals that make it through each gate are eligible for selection at successive gates.

Grouped options like *Males - Females - Wethers* or *Adults - Lambs* or *Current - Disposed* allow one or more to be selected, but the remaining options cut out all animals that do not correspond to *all* of your restrictions. In the example above a flock inventory list is being set-up. Selected options are: male, female and wethers; adults; current; including external; breed - POLLED DORSET; subgroup A and birth dates from June 30, 1997 to December 1st, 2005. In addition to the animals selected, the window offers the options to order the list in one of three ways. In the example above, ID order is chosen. The second ordering option is *Group by*. This option would group the list by *Subgroup* or *Breed* first and then within each group, sort it into the selected order. In the example, *Sex* has been chosen, so *ID* and *Sex* will order the list. To indicate that all the conditions on the window are satisfactory and begin a report or start a group list for further selection, choose the *Report* button. Choosing *Cancel* will return control to the previous window or menu.

If the list you are creating is for an edit group, you will be asked if you wish to *Mark listed animals as selected in this group?* Choose *Select all* if you are expect that you will want to use all or most of the animals on the generated list. You can then mark the leftmost box to de-select any animals that do not fit your purpose. Conversely, you should choose *Select none* if you will be choosing only a few animals from the generated list. Then you can unmark the left box of each animal you wish to select. See the next section, for guidance on how to select and de-select animals on multiple selection lists.

USING SCREEN REPORTS & MULTIPLE SELECTION LISTS

The screen form of a list style report appears in a report window. Most of these windows have the same style. The top line of the report is a header that describes the report. Use the arrows to move around the report. You can also move forward or backward through a group of records (rows) with *Page Up* or *Page Down*. You can move to the next or previous column by pressing *Tab* or *Shift+Tab* or by using the *horizontal scroll bar*. When you are finished viewing a report, the top left corner of the report window has a control button that allows you to double-click to close the window, or to click once and select *Close* from a menu.

Rearranging Column Order: The top line of the report area contains the column headers, or titles of each column (e.g. ID and Birth date). To rearrange the columns, you can "grab" a header and "drag" it to a new position, holding the left mouse button down and keeping the mouse cursor in the header row. The column positions you have selected will remain until you rearrange them, even when you leave the report.

Selecting or De-Selecting Individual Animals: The first column on the extreme left of the report may be white or darkened. A darkened box (as beside ID FLK1235AC) indicates that the item is deselected, or excluded from the next action. Clicking on this column will change its status. This is used for printed reports, where all deselected rows will be excluded from any printed report of this list. It is also used to select (or de-select) animals for editing, or for inclusion of specific groups (e.g. breeding groups.

Formatting the Screen Report: When you are viewing some screen reports, the **Table** menu becomes available by selecting *Table* from the top menu bar. Several items on the *Table* menu are useful for customizing the screen reports:

Font …
Go to Record
> Top
> Bottom
> Next
> Previous
> Record #
> Locate

Append New Record (not an option for Ewe Byte)
Toggle Deletion Mark
Append Records (not an option for Ewe Byte)
Delete Records
Recall Records
Remove Deleted Records
Replace Field (not an option for Ewe Byte)
Move Field
Resize Partitions
Link Partitions
Change Partitions

Specifically

Font... - Displays the Font dialogue so that you can change the font, font style or font size of the text in the report window

Go to Record... - Displays options that allows you to position the record pointer on a specific row in report window, including a specific record.

Toggle Deletion Mark - Activates or deactivates the deletion marker at the left edge of a row, marking or unmarking it for deletion when the report is printed.

Move Field - Allows you to move a field to a new location in the table by using the arrow keys then pressing *Enter* or *Return*.

Link Partitions - Links or unlinks the two partitions of a split window. If the partitions are linked (normal option), scroll with either vertical scroll bar to scroll both partitions. If the partitions are unlinked, scrolling one side of the list will not move the other side.

Change Partition - Activates the inactive partition of a split window and deactivates the active partition. This menu option is only enabled when the report window is split *Seek...* - Displays the Expression Builder, that allows you to search the report for a specific item depending on the selected *Order by:*: This option is disabled no order has been selected.

PRINTING REPORTS

The Print Report Menu: There are many options to customize formatting the report as it best suits your needs.

Select Columns: Brings up a window with default columns highlighted. You change these defaults by clicking on the items you wish. To select more than one item, hold down the <Ctrl> key while making the selections. A message on the upper right hand of the box *Report Width*, indicates how wide the report is. For portrait 8 ½ X 11" paper, the maximum width is 80. For wider reports, use landscape orientation or decrease the font size.

Print Report: Brings up the print window where you can select which printer to use.

Print to File: Reports can also be printed to a ASCII (*.txt) file where the data are separated by tabs. In this format the report can be imported into another program such as a word processor, a spreadsheet (e.g. Excel, Microsoft), a statistical package (e.g. SAS) or any other program that accepts ASCII files. For example, if you wish to import the report into Excel (Microsoft), choose the option to print as an ASCII file, open Excel and

from the menu choose Data – Get External Data – Import Text File. You will then be prompted through the rest of the procedure.

Print Delimited File: You may also save it as a delimited file in which the data are separated by commas (*.csv)
Printer reports allow you to select printer, font, print length and page orientation.

Set Font / **Page Length:** The standard page length is 66 lines for portrait 8 ½ X 11" paper. You can change this or keep the default. You may change the font or keep the default Arial 10 pt.

GETTING HELP

Help in the Manual: This *User Guide* is organised by the tasks you will be performing. An index to keywords and phrases is available at the end of the guide. The glossary on page 53 defines many of the terms used in Ewe Byte.

Help Messages: The *Message Line* on the lowest line of the screen gives additional guidance on the action or entry required when using a menu or entering information. It also informs you what type of problem has occurred when the system will not accept information you are trying to enter.

Help on the Menu Bar: Help is also found as an item on the *main menu bar*. This provides access to windows-style Help through a table of contents and a keyword search. If you are looking for an overview of parts of the system, choose the *Contents* menu. If you want help on a specific item, use the keyword *Search*.

CUSTOMIZING EWE BYTE TO YOUR SPECIFICATIONS

Where to Store Your Flock's Data: The default for where you data is stored is C:\Ewe Byte\Data. You can change where your flock's data is stored but you must tell the program where the information is. You can also have more than one flock's data stored. This is done as follows from the menu:

Utilities
    Customise system
       Change directory

Then enter the full path of your data directory, as well as the directories for reports and back-up files (e.g. a CD). Use the *find* buttons to select these directories from a list.
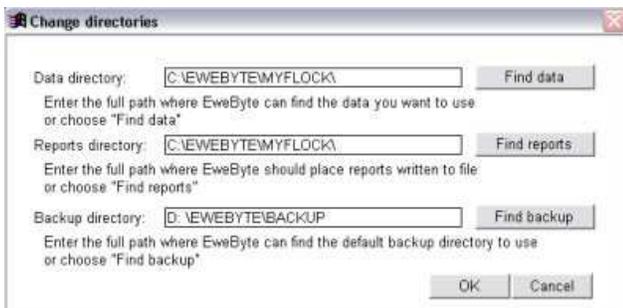
Before you begin to enter any records, you should customise the system to suit your sheep farm operation. Find the customising section by selecting the *Utilities* Menu, and then *Customise System* and then *Identify farm* or *Set default values*. Further directions can be found on page 41, under the heading CUSTOMISING THE SYSTEM.

DATABASE FILE PROCEDURES

Types of Data Files: Ewe Byte stores information in three types of database files. File extensions differentiate each type of file; .DBF (e.g., MAIN.DBF) indicates the main database file, .CDX (e.g., BREDDAM.CDX) indicates an index file, .FPT (e.g., DISPOSAL.FPT) indicates a memo file. (See the Appendix, page 62 for a list of database files included with the system.) Most databases have both index and database files and some also have a memo file as well.

Your flock information is contained in the data directory that you specified when setting up the system. The system also creates .MEM files to store default settings and latest report selections.

Backing Up Data Files: Because a database system is constantly reading from and writing to files, it is very important to keep the program backed up at regular intervals. As a rule, you should create a data backup whenever you update your records. It is very important to maintain a copy of your data directory as a backup for

your data files. The back-up should be external to your hard drive, e.g. a 3 ½ " floppy (holds up to 1.22 MB of data), a CD (up to 80 MB of data) or memory stick (variable sizes) or external hard drive. Use whatever is most convenient.

Replacing Corrupted Data from Back-Up: If any of your databases has been corrupted, the system will lock you out until you have replaced your databases with valid backup databases. Always replace *all* the databases and indexes in the data directory at the same time. Whenever you enter information, the system does many checks to ensure that the information is consistent with what is already on file. However, it stores the information in several different database files, depending on the type of data you are recording. If you restore databases or index files created during different sessions, it could damage the system integrity.

Deleting Corrupted Data: Occasionally, the system cannot use the databases because an index file has been corrupted. If the system refuses to allow you to begin because of a data problem, you can safely delete all the *index* files from your *data directory* (those files with the extension .CDX). The system will recreate them when you start it up. When this fails, your only option will be to reload the databases from backup, as above.

If the files in your *program directory* are damaged, you can restore them from the original disk shipped with the program.

Exiting Ewe Byte: To avoid damage to indexes or files *always* exit from the system using the *exit command* on the Utility menu. The only safe time to turn off the computer is when you shutdown. Never turn off the computer while you are in the middle of entering data or reporting on information. Often this will result in damage to the indexes, and may also damage your database files as well.

Re-Indexing Your Data: Running *Reindex* from *Utility menu* will rebuild the indexes (CDX) files. This should be done on a regular basis to improve response time when creating reports.

ENTERING YOUR FLOCK FOR THE FIRST TIME

Once you have customised the system, you must enter flock information before creating any reports. If you have records on file in the Ontario SFIP database, you may request a copy of your flock records in electronic form. The first step in entering your flock history will be to transfer in these records. See page 43 for instructions.

What Information To Enter: For the most comprehensive reports, it is useful to enter as much information, as far back in the history of a flock as possible. The other alternative is to enter only the animals that are currently in your flock. Whichever alternative is chosen, gather the relevant information from pedigree records, bills of sale, ROP reports, barn lambing sheets, or other information that you have on paper. The more thorough the records you enter, the more thorough will be the analysis of information you receive.

Chronological Order for Entry – Historical Data: If you enter historical information, enter the oldest information first. In chronological order, record each purchase, birth, weighing, death or disposal, and selection of lambs to the breeding flock.

Chronological Order for Entry – Current Data: If you are only recording the animals currently in your flock, be sure to enter the breeding animals before entering any of their offspring. The system will search through the records to find each sheep's parents. If they are on record already, it will enter much of the information automatically for you.

For either method, follow the appropriate steps in the next section *A Typical Entry Cycle*. The only exception is for a lamb that has already had its adjusted weights and indexes calculated by the ROP program, if you have not transferred them electronically. You may select the option *Edit Lamb Records* from the *Lamb* Menu, to enter those values instead of entering and calculating them through the *Weight Entry* option.

BEFORE YOU ENTER THE FIRST EWE

Before entering the first record, spend a couple of minutes to decide how you want your flock organised.

Identifying Your Sheep: To use Ewe Byte each sheep must have a unique identification. There are several means of identifying animals. The most commonly used is to assign a Year Letter and Generation Code (as is used by the Canadian Livestock Records Corporation) for the year in which they are born and a sequential number, generally in birth order. Because purchased sheep may have the same Letter and Number, Flock Letters should also be used, again these may be already assigned by the CLRC. Regardless, each sheep must have an **ID** within the flock that is <u>unique to that animal within your flock</u>. This is the main identifier that the system uses to locate each animal, and to tie the records in one data file to the others. It should also be a number that is meaningful to you. The ID may contain up to 11 characters. *If you wish*, the ID may be made automatically from the tattoo combination of **Flock ID** (up to four characters) plus the **animal tattoo number** (up to 5 characters) plus the year and generation.

Other Ways to Identify Your Sheep: To maintain flexibility, Ewe Byte can accommodate many other forms of identification: a **permanent tag number** (up to eight characters) that will be combined with the year and generation; a single letter may be used to indicate the **tag colour;** for producers that ID lambs differently than adults, a **lamb tag** (up to five characters) that will also be combined with the year and generation; **name** (up to 30 characters long); **registration numbers** for purebred sheep; and the **Canadian Sheep Identification Program (CSIP)** number which is used for animal movement and the **Canadian Voluntary Scrapie Certification Program .**

Sorting Sheep ID's: The system uses alphabetical ordering for sheep identification rather than numeric. That means that it will sort by letters and will include numerals as though they precede the letter 'A' in alphabetical order. For example, if you number your sheep from 1 to 99, the system will order them 1A, 10A, 11A, ..., 19A, 2A, 20A, 21A, and so on. If using your own numbering system, designate your sheep as 001A, 010A, 012A, etc. Then the order will be 001A, 002A, 003A, ..., 010A, 012A, ... But if using a national system, (e.g. CLR) do not change the ID's.
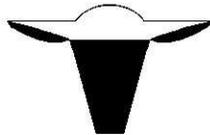
USING EWE BYTE YEAR-ROUND:
AN ENTRY CYCLE

This section is organised along the steps that you would typically follow in the life cycle of flock activities: purchase of a breeding animal, assigning it to a pen or subgroup, giving preventive care, treating health problems, or giving individual tests, breeding, lambing, weighing lambs, selecting market and replacement animals, etc.

RECORDING THE PURCHASE OF A EWE, RAM, SEMEN FOR AI, OR EMBRYO DONOR DAM & SIRE

When you purchase a new sheep (lamb or adult), AI sire or embryo donor ewe, select:
Record Data
> *Ram & Ewe Records*
>> *New sheep*.

After completing an entry press the <enter> key or <Tab> key to move to the next entry box or use your mouse. If Ewe Byte does not allow you to move the cursor from an entry box the information is incorrect or inconsistent with other stored information. If you have a question about what the system expects for a particular entry, check the message line at the bottom of the screen or seek more detailed help using the help menu.

Entering the ID: Every sheep in the system must have an ID and it must be unique for each animal in the database. Depending on how you have entered the defaults in the customising screen, you may have Ewe Byte automatically transfer the combination of flock id, tattoo number, year letter and generation code to the ID as you enter those values. The system assigns the appropriate year letter and generation code based on the birth date you entered. Do not leave any spaces in front of or within any ID or tag number that you enter. The only entry that can contain spaces is the name. The flock ID and tattoo number combination is not compulsory nor are the name, registration number, lamb tag or permanent tag. The message at the bottom of the screen states when information you are entering is optional.

Entering an AI Sire or Embryo Donor: If you are entering an AI sire or an embryo donor ewe that is not actually in your flock, use the subgroup code '*' to show this. The system will then recognise that this sheep should not be counted or listed as present in the flock. Such sires and dams must be on record before you enter any resulting lambings. You may also use the code, '*', in order to enter the ancestors of purchased breeding animals to record a more complete pedigree.

Saving the Entry: Before storing the record to the file, check over the window to ensure that all information is correct. The data in all fields will be stored as it shows in the boxes on the window.

THE SYSTEM DOES NOT PERMANENTLY SAVE RECORDS UNTIL YOU SELECT THE *SAVE* BUTTON.

Once you have seen the message "Record Saved" you may begin to enter another record. If there is no other entry, choose *Cancel* to return to the menu system.

Selecting a Adult Sheep Record for Editing: To change the record of a ram or ewe once you have saved it, choose *Edit sheep records*. If you only want to edit one record, and you know the id, mark the box next to *Single known ID* with an "X" and then enter the id of the sheep. Otherwise, choose a group of conditions that match all the sheep you wish to edit at this time. Only adult sheep will be selected. Then select the *Locate records* button.

This will present you with a list from which to select the records for editing. Use your mouse cursor to unmark the leftmost box beside each ID you wish to view. When you are finished, press the right mouse button to bring up the record(s) for editing.

Editing a Sheep Record: The first selected record will show in the same format of window that you used to enter the ram or ewe. You may change the items on the window, unless they have been derived from other records (such as its parent's ID's or breeds), or used to determine other information. For example, you cannot change an animal's sex if it has offspring. You may also use the buttons on the right to mark an animal for culling, to return the status of an animal born in the flock to a lamb, to view and/or record actual and adjusted weights and EPD's and to create or edit health, user-defined or disposal records.

Whether you make changes on the main window or in smaller edit windows, no changes to a record will be stored permanently until you choose *Save* from the main edit window.

If you have chosen to edit several records, you can use the buttons *Next* and *Previous* to move through the selected records. Choosing *Cancel* will return to the previous window.

DESIGNATING A SUBGROUP OR PEN

Setting Up Subgroups: Subgroup and Pen are ways of sorting your sheep into groups for breeding, feeding, handling or any other purpose you require. They may be real groups or groups on paper only. For example, if you are on an accelerated lambing system and have different groups of ewes lambing at three or four month intervals, you could designate each group of ewes that are set to lamb at the same time as a subgroup. Then it is a simple matter to change a ewe's subgroup in the computer if you shift her to another breeding group because she does not test pregnant, or does not lamb. If you have multiple breeds in your flock, you may choose to designate each breed of sheep as different subgroup. You may also use subgroup to designate two different flocks kept in the same database. The subgroup designation is optional.

Changing the Subgroup Designation: When you are first entering sheep and when you are changing individual records, you can specify a subgroup and pen as part of the individual record edit. If you wish to change the subgroup or pen designations for several sheep, select *Pen & Subgroup* from the *Record Data* menu. The window will provide many options to limit the list from which to select the animals for the designated subgroup and/or pen. You must also choose the order for the list. You may optionally specify a default subgroup and/or pen.

When you are ready to see the list of animals, choose the *Create/edit list* button. Use the mouse pointer to select each record you wish to change, clearing the mark at the far left of the record.   If you wish to review your work, select *View/edit list*. When you are satisfied with the changes, select *Save group/pen*. Only the selected (cleared) records will be saved. If you do not wish to save your list, you may either create another list, or select the *Cancel* button.

PREVENTIVE CARE PROCEDURES

Making a Preventive Care List: When it is time to administer preventive procedures to the flock or a subgroup of the flock (e.g.vaccinate, de-worm, test for disease), the system provides a facility for recording these in preventive care groups. A preventive care group is any number of animals that received the same treatment on the same day. Up to five procedures may be recorded for a single preventive care group. This can be accessed as follows:
Record Data
>   *Preventive care group*
>>   *New* or *Edit*

Add the desired sheep to the group using the "Add Sheep To The Group" button. Add the date for the procedure(s) to be done. Then add the procedures to be done from the pop-up selection lists. Then save the list. The list can be printed out as follows:
Create Reports
>   *Action lists and Inventories*
>>   *Preventive care lists*

Use the popup selection list to select the correct report and then use Print Reports to set up your barn sheet for printing. This printout can be taken to the barn to make sure the correct sheep are treated. These lists can also be used to check what procedures have been done to the sheep and when. Individual treatments can be viewed on the individual sheep windows (See page 31 for more information on these reports.)

Making Changes to a Preventive Care List: After choosing *Preventive care groups* from the *Record Data* menu, choose *Edit group.* Choose the group for editing by selecting the group from the pop-up menu or entering the group number in the entry box. Perform edit changes to group or individual sheep records, following the instructions under adding a group.

Selecting and Making New Preventive Care Procedures: The pop-up selection list has many procedures already built in. If you wish to enter a new procedure code, edit an existing code or deleting a code, go to:

Edit Codes
    Preventive care codes

On the window, select the general category (e.g. BLOOD TEST). The code PC BT are filled in as is the general description (BLOOD TEST). Type in the specific test you are doing (e.g. MAEDI VISNA) and add a code in the last box (e.g. MV), then save. The diagram shows the final result. This code is now available when making up a new Preventive care list.
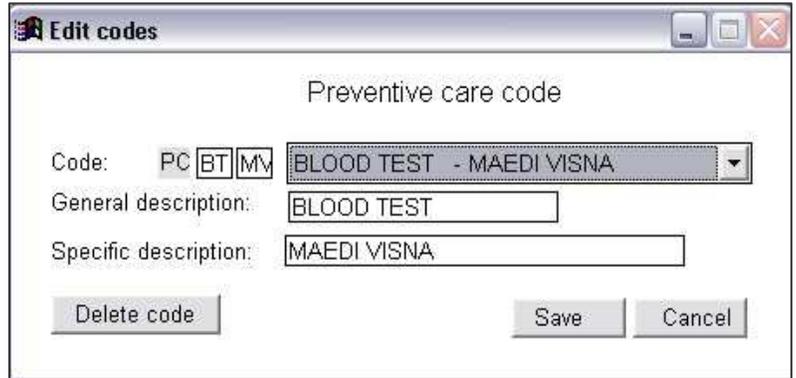
RECORDING HEALTH EVENTS OR USER-DEFINED EVENTS

What Is an Animal Health Event? An animal health record is designed to record a single health-related occurrence that relates to one animal on one day. Each health record is called an event. Health events may include: mastitis, entropion, an abortion, a body condition score, an injury, a semen abnormality, an aggressive ewe, a scrotal measurement of a breeding ram, a malformed lamb and so on. See the list of supplied health event codes in the Appendix (page 61).

What is a User Defined Event? User defined events are used to record any type of data not already stored elsewhere and is connected with an individual sheep or lamb on a single date. This procedure stores a date, a type code and a value. It also has as a memo field in which you can store as much information as you want. The types of information that you may wish to store in user-defined records include wool clip information (weight, grade, colour, etc.), back fat measurements, sales information or milk weights.

Adding New Codes: You may add your own codes to either list using the *Codes* section of the *Utilities* menu, or enter a new code while you are entering the Health or user-defined record.

Entering a Health or User-Defined Event: The procedure is the same for both.

Record Data
    Lambs or Rams & ewes
        Edit – select record(s) you wish to edit

When the animal record you selected is showing on an individual edit window*,* use the *Health record* or *Used-defined Record* button to begin editing an existing record for that animal or to create a new record.
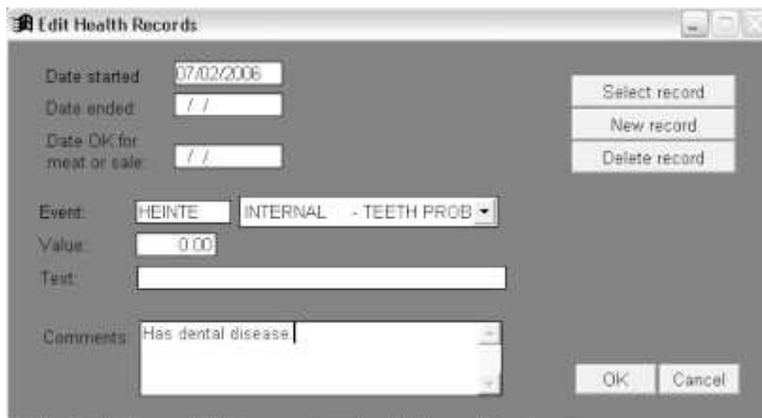
Once you have selected the *Health Record* or *User-defined Record* button, another record window will appear over the animal edit window. If you are entering a new event, begin by entering the date of the event. Then either enter the code in the code entry box or choose the event from the list at the right. No event can be recorded until a code appears in the entry box.

If you wish to record an event that is not on the list, go to Edit Codes on the main menu bar. Once you have entered a new code, you can use it as described above.

Making Comments: You may write comments to further describe the details of an event or problem, the treatment given, or its outcome. You may also attach a numerical value to an event. This will allow you to score, rank or average events later in a health or user-defined records report.

Saving or Editing an Event: When you are finished creating an event or editing events, choose the *OK* button to return to the main animal edit window. The health or user defined record will only be saved permanently once you choose to *Save* from the main edit window. Choose C*ancel* to return to the main window without saving any changes made to this animal's records since they were saved. Once you have created a health or user defined record for a sheep, you can recall it by choosing the appropriate button from the main animal edit screen and then choosing *Select event*.

You can see the health events and user defined events for individual rams and ewes as part of their *Ram and Ewe History* reports. You can list Health records for a period or for a selected group of sheep, or create a summary of health events in your flock, using the *Health report* (page 36). *The User-defined records* report produces similar lists and summaries of user-defined events.

CREATING ELECTRONIC REMINDERS IN THE DIARY

From most parts of the system, a sheep operation diary is available to act as an electronic reminder or "to-do list." Use this to write yourself notes when viewing a report, or entering information. A diary entry consists of a date, a check (T or F) indicating whether an item has been done, a key word describing the item, a memo field and a numeric field.

The Diary file is automatically updated for the following events: lambs due to be weighed or weaned; sheep due for worming or vaccination; and ewes due to be bred. The *When* column shows the date of the update, the activity due appears in the *What* column, the animals involved are listed in *Details*; the number of animals involved appears as the *Amount*. This update is done weekly on entering the program or when you select *Update events due* from the *Utilities* menu.

To view the Diary, select it from the main menu. The diary window will appear with the list of entries. You may delete a record by marking the leftmost box. It will disappear when you close the diary window. You can mark an item as "Done" by typing "Y" or "T" in the *Done* column. To view the details double click with the mouse pointing to the word "Memo" in the *Details* column.

To add a Diary item, press <Ctrl>+N at the same time or choose *Brows*e from the main menu bar and then choose *Append record*.

BREEDING EVENTS

Breeding records are optional, however recording this event enables a more accurate analysis of your productivity.

What is a breeding group? A breeding group consists of a group of ewes that have in common *all* of the following: ram(s) used for breeding, the dates of introduction and removal of the ram, and any synchronization program used. The group does not have to be physically separated from other breeding groups. E.g. ewe lambs can be designated as one breeding group and mature ewes as a second, but can be housed and bred together. To prevent confusion, Ewe Byte will only allow a ewe to be present in one breeding group at one time. But a ram can be listed as being in more than one breeding group.

Deciding which ewes to breed to which rams: Several reports can be used to assist with this decision. Use the *Flock Inventory, Ewe Productivity List, Non-lambing Ewes, Ewe & Ram Histories, Pedigree charts* and *Descendants charts* reports to help in selecting which animals to breed and when to breed them. If you use "home-bred" sires, you may wish to use *Level of Inbreeding* report to prevent inbreeding.

You may use the breeding records section before the actual breeding, when you are deciding breeding groups. You may then create a *breeding group report* to use as an action list when you separate the flock into breeding groups.

To create a new breeding group, choose:
Record data
> *Breeding group*
>> *New group*

Setting up the breeding group: The entry window prompts for information that pertains to the entire breeding group. First enter the "Sire In" date. Select the sires you are using from the drop-down menu. Select the ewes that you wish to breed. If a synchronization program is used, enter the correct information. The program will prompt you with the dates when you should introduce and remove pessaries, and the date when you should remove the ram. Information can be edited until ewes from that group start to lamb.

Selecting breeding rams: Up to three sires may be recorded with a single breeding group. Mark an 'X' in the check box to the left of each Sire ID box you wish to use. If a check box is not marked, the sire will not be recorded. You can delete a sire from the group either by replacing his ID with another valid ID or by clicking on a checked box to remove the mark. The system requires the full ID for each sire used. Either enter the ID number in the ID entry box or select the ram from the list of current rams at the right. The system will search for the ram's record in the database. If not in the database, use "Record data" to enter the information on that ram. This includes rams not in the flock (e.g. if using artificial insemination). When entering A.I. rams, use the subgroup designation ' * '.

Selecting a "Sire Out" Date: When you enter the date the sire was introduced, the system will use the length of a normal breeding period that you have entered as a breeding default to calculate the date the sire would be removed. You may press <enter> to accept this date or override it with another date. If you use only one sire and you record that he is introduced and removed on the same day, the system will allow you to record it as an AI breeding.

Synchronization programs: Ewe Byte allows you to set up a synchronization program using either vaginal pessaries or MGA. E.g. If you indicate that you are using pessaries, the program will calculate "inserted on" and "removed on" dates based on the "Sire in" date. It also allows you to record whether PMSG is used and the dose.

Breeding group number: is determined by the year of breeding and the order in which the groups were recorded in the computer.
E.g 0602 is the second breeding group of 2006.

Selecting ewes to breed: Choose the button *Add ewes to the group*. You will be presented with a group selection window to choose available ewes by breed, subgroup, pen, and/or birth dates. Once you are satisfied with the selection conditions, press *OK.* The next window will show a list of ewes with the criteria you have chosen, who are not already in a breeding group on the date shown. If you do not wish to include a ewe in the breeding group mark the left box next to her ID with a black rectangle by pointing to it using the mouse and clicking the left mouse button. If you do not wish to add any of these ewes, press the <esc> key. Otherwise, when you are finished selecting ewes, press the right mouse button. The selected ewes will be added temporarily to the group record.

You may then change the ID, pregnancy test results or date, or enter comments about this ewe's breeding. If you know the exact date on which a specific ewe was bred, you can enter that date into her record. To enter a comment about the breeding, or pregnancy test, press <ctrl> and <home> simultaneously or double-click the left mouse button when you highlight the word *memo*. When you finish typing the comments, double click on the top left corner of the memo window. If you do not wish to change the comments, press <esc>. If you wish to delete any ewe records, use the mouse cursor to mark the leftmost box on the ewe's record line. When you have finished editing the ewe records, click on the group record window. You must choose *Save* to save the changes to group and individual records. Choosing *Cancel* will cancel all changes made since the record was last saved.

List of breeding groups: To list the breeding groups, number and ID of ewes and breeding dates, choose:
Create reports
> *Flock summaries*
>> *Breeding groups*

This report will give you a screen or printed record of a selected group, with the dates, rams and the related record of each ewe.

Breeding performance: Ewe Byte uses your breeding information to create lists of ewes due to lamb during a given range of lambing dates, to automatically decide the sire of lambs born and to assess rams' and ewes'

reproductive performance. Breeding records of individual ewes and rams are also available through the *Ewe and Ram Histories*. The *Ram history* report also gives a summary of outcomes (lambings) that have resulted.

LAMBING EVENTS

Ewes due to lamb list: Based on breeding information entered, you may print this list from:
Create reports
      Action Lists and Inventories
            Due to lamb
This report shows the predicted range of lambing dates and sires, based on breeding information that you entered. It also gives a summary of the lambing history for each ewe. (See page 31 for more information on this report.) After ewes have lambed, you can print a list of *Ewes with lambs* (page 31).

Entering a lambing: When a ewe lambs, enter the information through:
Record data
      Lambs
            New lamb
When you first choose *New lamb*, a message window pops up on the right side of the screen indicating the ID of the last lamb born and entered into the system. Click on this window and the window for entering a lambing appears.

Embryo transfer lambs: If the lambs are born as the result of an embryo transfer, Enter "Y" at the question "ET?" This will give you a special window to record the donor dam and the recipient dam. Both these ewes must already be in the database. The system will regard the donor ewe as the genetic dam and the recipient ewe as the foster dam, unless there is a different ewe raising the lamb. In this very rare case, it will list the birth dam in a note in the lambing comments. Any additional lambing comments should follow this note. Ewe Byte will mark the embryo transplant on each lamb's record. You can only change this information by deleting the entire lambing and re-entering it. (You may also wish to create health records for the donor and recipient ewes, to record the harvest and transplanting of embryos.)

Lambing date: In most cases, the first entry is the birth date of the lamb(s). Enter dates in the form you selected in the system defaults. The system will prevent you from entering a date that is in the future.

Dam ID: Enter the Dam's ID by typing the full id into the entry box or by choosing the ID from the pick list of all ewes currently in your flock. The system will check to ensure that the dam is present in the flock on the lambing date. It will then make sure she is old enough to lamb, but not over seventeen years of age. If she has lambed in the previous five months, an error message will show. If any of these conditions is not correct, the system will ask you to renter the ID. If the ID is correct, but the date is wrong, use your mouse to move to the date box to renter it.

Matching lambing date and Sire ID with the breeding record: Ewe Byte will check for a breeding record for this ewe, which matches the birth date of the lamb. If a matching breeding record is found, and there is only one possible sire, it will automatically use that sire. You may not enter a different sire if the dam is listed as bred by a particular ram at the start of the lamb's gestation. If you know that the sire is different from one permitted by the system, first check the gestation length for the dam's breed. If this is correct, but the sire is still not allowed, delete the ewe from the breeding group that would have resulted in a lamb from the wrong sire. Then you may enter any sire that you choose. If there is no record or there is more than one possible sire, it will provide a list of possible sires, this will include an unknown sire ID that is composed of: your default flock letters, plus '88888', plus the year and generation letters of a four year old animal, e.g., FLK88888BC. If you choose the unknown sire, you will be asked for the breed of the sire. Otherwise, you may pick the sire from the list of possible sires, or enter the full ID of the lamb's sire. Any sire used must be in the database.

Enter the number of lambs born or use your mouse on the up/down arrows of the number born box to raise or lower the number on the list.

Breed of the lamb: From the dam's and sire's breeds the system will calculate the breed of the lamb.

Assigning a contemporary group to the lamb: The system checks to see if there is a contemporary group assignment that matches the breed and birth date for the lamb. It assigns that contemporary group number to the lamb, or starts a new contemporary group if none matches. If there have been more than five days since the last lamb was born and if the new lambing date is within fifteen days of the end of a suitable contemporary group, then

the system will ask if you wish to start a new group. Answer "yes" if you are expecting that this lamb will fit better into a group of lambs that will be born after it than into the existing contemporary group of lambs that are slightly older. Later, you can combine contemporary groups of lambs born within a sixty day period into a single group, using an option under the *Contemporary groups* procedures (see page 26).

Entering lamb information: You will then enter the information on each lamb born to this ewe at this lambing. If, for example she had three lambs, you must enter the remaining information for three separate records. If you quit before entering all three, the computer will not save any of the records. The files will remain as if the ewe had not lambed. The items in black lettering are the only items required. These are ID, sex, raised as and raised by.

Entering a lamb ID: There are many options for ID some of which can be edited later. Ewe Byte already assigns the letter of the year born and the generation letter. The format of the tattoo ID is flock letters – number – year letter – generation letter. Each lamb must have an ID entered when born that is unique within the flock.

Optional ID's: A **lamb tag number** may have up to five numbers and/or letters that will combine with the year letter and generation on reports. If you choose to enter a tag, it must be a unique number for each year. If you wish to reuse a number you have already assigned this year, you may make it unique by entering a zero in front of the number. Every time you wish to refer to this animal in the future by lamb tag, you must use the number as you have entered it here. (Unless you have changed it using the *Edit lamb* option.) The system uses the birth year already entered to find the year letter for the lamb tag and ID. The **perm (permanent) tag** is optional. It may contain up to eight numbers and/or letters that will combine with the year letter and generation on reports. If used, it must be unique for the year. The **name** is also optional. If used, it must be unique for the system. Spaces may be included in the name.

Raised by: Ewe Byte defaults to the natural dam as "*raised by*". Do not change this unless the lamb is fostered or bottle-raised. If the lamb was fostered, enter the full ID of the foster dam without leaving any spaces, or select it from the pick list. As with the birth dam, the foster ewe must be on file already.

Lambing problems: can be recorded from the pick list. If there was more than one problem, choose the one that you are most interested in tracking. Then record the others as comments. This entry may be left blank. If you have entered a lambing problem, you may enter comments, about this lamb's birth. Enter as much information as you choose.

Lamb gender: Choose the lamb's sex as '*Male*', '*Female*' or '*Wether*' (castrated male).

"Raised-as": This number refers to how many lambs were raised by this lamb's dam or foster dam (count this lamb plus the number of lambs being fed by the dam or foster dam). If the lamb was **artificially reared** e.g. bottle-fed, enter 'B'. If the lamb was stillborn or died shortly after birth, enter "0". "*Raised-as*" can be edited later if the status changes. However, the system does not verify that this number matches any other information entered for the dam, foster dam or any of the lamb's littermates. You are responsible for its accuracy.

Entering a stillborn or dead lamb: You are encouraged to record all lambs born, even those that are born dead or die shortly after birth. This increases the accuracy of your genetic information, culling decisions and helps to assess productivity more accurately. If you enter "0", you must enter information on the fate of the lamb. This requires entering the date of death and entering or selecting a code for the cause of death. Record any post mortem findings or use the memo box to record other observations on the lamb's death. When finished, select *OK*.

Optional lamb information: Birth weight may be entered in kilograms or pounds and ounces, depending on what you have chosen in the *Defaults* section. Use up to three letters for wool colour, if desired. You may enter any one or two character combination as the pen designation or leave the pen blank. If you did not enter a lamb as "dead", the system asks for a subgroup, prompting you with the subgroup of the mother. You may leave the subgroup blank. Do not use "*", as this code has special meaning.

Storing a lamb's information: Once you are satisfied with the lamb's record, choose *Save* to store it temporarily until all the lambs for this lambing have been entered. When you have saved the last lamb of the lambing, the system will store them permanently in the database. Choosing *Cancel* before saving the last lamb of a litter will prevent any of these lambs from being permanently saved.

Completion of a lambing: Once you have entered all the lambs for a given ewe's lambing, the system records the ewe as "lambed" in the appropriate breeding group. It will then delete the ewe from any breeding groups that are dated later than the one that resulted in this lambing. It is important to do this to keep reproductive statistics for rams accurate. It would be deceptive to list him as failing to impregnate an already pregnant ewe. Once you have saved the last lamb of the lambing, you may begin to enter another lambing as above. If you do not wish to enter another lambing, choose *Cancel* to return to the menu.

Editing or deleting a lamb's record: After you have saved lamb records, the way to change the information is by choosing *Edit Lamb* Records from the *Lambs* menu. Choose to edit a single record, or a group of lamb records in the same way as you chose sheep records for editing. Many of the editing options are similar to those in the new lamb window. The system does many checks and calculations when you enter a lambing. Therefore there are some items you cannot change except by completely removing the lamb record and those of its littermates and re-entering the lambing. These include the dam, sire, breed and born as. To delete a record choose *Delete* when the lamb's record is showing. This will remove from the database the lamb record as well as those of its littermates, after you confirm that this is what you want to do. You cannot delete just one lamb from a lambing.

Editing a lamb's record after weighing: The recorded sex and "raised as" may be changed as long as you have not used them to calculate adjusted weights for that lamb. If you have recorded weights, and either the sex or "raised as" is incorrect, you must first delete the weight record, correct the error and then re-enter the weight.

Additional options for editing a lamb record: The edit lamb window allows additional information to be entered. The official registration number may be recorded for a purebred animal. Presence or absence of horns or scurs can be recorded. The lamb can be marked for selection as a possible breeding animal, or conversely for market. When finally selected as a replacement animal, it can have its status changed. You may record expected progeny differences (EPD), and view actual and adjusted weights. Health records, User Defined records and Disposal records may be created or changed in this window. No changes to the record will be stored permanently until you choose *Save* from the main edit window.

Editing more than one record: If you have chosen to edit several records, you can use the buttons *Next* and *Previous* to move through the selected list of records. Choosing *Cancel* will return you to the menu or selection window without saving any changes made since the last *Save*.

Summarizing productivity: After you have finished entering the lambings, you should choose:
Record data
      Rams and ewes
            Summarize productivity
This will check through the ewe or ram record, records of lambings and lamb weighings to build a file summarising the number of lambs and weight of lamb produced, years in the flock, the lambing interval, etc.

WEIGHING LAMBS AT 50 & 100 DAYS OF AGE

In order to determine which of your breeding animals produce the best gaining lambs, and to determine which lambs should be selected as potential replacement rams and ewes, it is useful to weigh the lambs at approximately 50 & 100 days of age.

Comparing Lamb Performance Using Adjusted Weights: Adjusted weights are calculated to a standard age (50 or 100 days), gender (male), raised-as (single) and age of dam (4 years). In this way, lambs can be compared within their contemporary group. The adjusted 50-day weight is affected most by the milking ability of the dam and to a smaller extent by the genetic growth potential of the lamb. The adjusted 100-day weight measures the growth ability of the lamb and reflects the genetics inherited from the dam and the sire. In addition to these weights, the system calculates an adjusted daily gain (ADG.), indicating the weight gained between 50 and 100 days. To examine the formulas used in the calculation of adjusted weights and indexes, see the Appendix, page 56.

Comparing Performance Within a Contemporary Group:
Contemporary Group: Lambs are automatically assigned to contemporary groups. A contemporary group is comprised of animals of the same breed that are born within a 30-day period. This assumes that this group of lambs are reared using the same management.
Indexing Ewe Rearing Performance: Indexes that will allow comparison of ewe performance within a contemporary group will be calculated based on the adjusted 50-day weights of the lambs they reared. A minimum of 5 ewes is required.

Indexing Lamb Growth Performance: A similar index is calculated for the lambs based on their adjusted 100-day weights. The average animal within the group will index 100.

The adjusted weights and indexes become the basis for evaluating individual lamb, ram and ewe productivity. They are also used for evaluating flock productivity using various summary reports available through the *Create reports* Menu.

Selecting a Date to Weigh Lambs: Determine the 50 & 100 day weigh dates by selecting:
Create Reports
    Flock Summaries
        Weigh dates
Once you enter a range of birth dates, the system will report the range of dates that are acceptable as well as the number of lambs to weigh. The dates shown will show the ideal weighing period that is within fifteen days of the weighing age (50 or 100 days). However, it will accept lambs weighed as much as 21 days before or after the calculated weighing age. But it will not accept a 100-day weight that is taken less than 15 days after the 50-day weigh date. When you are checking the best dates to weigh lambs, you may wish to record the date you choose in the system *Diary*.

Printing a List of Lambs to be Weighed: You can use the *Lamb List* report found under:
Create Reports
    Action lists & inventories
        Lamb list
to print out a list of lambs for each contemporary group or range of birth dates. You may then use this list to record actual weights. After you have weighed the lambs and recorded the weights, use the *Lamb list*, or use the *Market lamb list* to compare the adjusted weights of lambs.

Entry of Weights is reached through:
Record Data
    Weight Records
Choose to record 50 or 100-day weights or unspecified using the radio button control. The *Unspecified* option can be used to record weights at any age. To record weights for the first time choose *New weights*. Record the date on which most of the animals were weighed. Lambs in a contemporary group do not need to have the same weigh date. This allows you to enter, for example, the weights of lambs that you weighed and sold before weighing the rest of the group. As you enter the dates for each lamb's weighing, the system will determine if the lamb is eligible to be weighed on that date. If a lamb within a contemporary group was disposed of before the weigh date or is too young or too old, a message will appear that the lamb is ineligible for weighing.

Entering Ultrasound Data: If ultrasound data is available at the time of weighing, select this option when selecting weights to enter. Ewe Byte will store the following data: muscle diameter and three back-fat depth measurements as well as adjusted back-fat depth and loin depth.

Editing Weights: To edit weights already entered, select *Edit existing weights for dates from:_____ to: _____*. Enter the range of dates of the previous entries that include the weights you wish to change. You do not need to change the weights of all the animals you select. You may also choose to further restrict your choice or to order the list. The only columns you will be able to change directly are the actual weights and weigh dates. The changes you make are held in a temporary file.

Calculating Adjusted Weights: The system will calculate adjusted 50 or 100-day weights automatically as you enter the actual weights and dates. Once you have finished entering weights, double click on the top left corner of the list window or click on the edit window. You will be asked if you wish to save or cancel changes to weight records. Once the weights have been saved, the system will automatically calculate indexes for the groups involved.

Combining or Moving Lambs Between Contemporary Groups: If you have too few animals in a group to calculate indexes, you may combine animals of the same breed born within a 60-day range into one contemporary group by:
Record data
    Contemporary groups.
Select the type of action (combine groups, move animals) and potential animals to be moved.

Recalculating Indexes After Changing Contemporary Groups: Recalculate the indexes of all lambs that were moved, as well as any left behind in smaller groups by using the button, *Calculate indexes* on the *Weight records* window.

Updating Ram and Ewe Productivity: After completing entering weights, select:
Enter data
> *Rams and ewes*
>> *Summarize productivity* and update records.

CALCULATING PRODUCTIVITY SUMMARIES FOR SIRES AND DAMS

Anytime you enter lamb births or weights or when you change lamb information, choose the option *Summarise productivity* from the *Rams & Ewes* records menu. This option summarises the number of lambs born to and raised by selected sires and dams. It also calculates the averages of the adjusted weights and indexes of their offspring.

Usually, the most efficient way is to choose to calculate for the entire current flock. Changing one lamb record may change the records for several animals: its dam and sire and the dams and sires of lambs in the same contemporary group. Ewe Byte uses the results of this calculation in several reports, so you should update the production summary periodically when there have been changes to lambs' information.

SELECTING LAMBS FOR BREEDING OR MARKET

For many flocks, replacement-breeding stock is retained from homegrown lambs. It is important to select those lambs that have the best expectation of being productive adults, either in terms of maternal performance (e.g. lambs born and raised) or carcass performance (e.g. growth, back-fat etc).

Selecting the Best Lambs for Breeding: Two sources of information are available to help select replacement lambs. The *Lamb* report from the *Action lists & inventories menu*, will rank lambs by a variety of parameters. To get a more detailed background of a specific animal, you can also look at *Ewe productivity* reports and *Ewe and Ram histories*.

Marking Lambs for Breeding or Market: Once you have decided which lambs to keep and which ones to send to market, Ewe Byte allows them to be marked. To mark lambs go to:
Record data
> *Select breeding /market stock*
Once marked, it is possible to create barn lists of lambs when the time comes to actually market or move the lambs to the breeding flock.

The *Select breeding/market stock* window allows you to set very specific criteria to bring up a list of lambs. Once the list is created, click the box to the left of the lamb ID to change it to clear (black is unselected). You may change all the selected records at once using the buttons on the main window, or you may edit individual records on the list, marking lambs for market or breeding or for change to adult by typing "Y" in the appropriate column and row of list. Then close the window by clicking twice on the top left corner. The changes will be recorded permanently when you choose the *Save* button. Only those animals on the list that you selected (leftmost box unmarked) will be changed.

Changing a Lamb to an Adult: This same window allows you to change a lamb to an adult once it joins the breeding flock. This change of status can also be done in the *Edit lamb* window. You do not need to mark a lamb for selecting before changing its status to adult.

Before you may use a lamb for breeding or record it as a sire or dam, you must change its status. This can be done now or later as a separate step. You may choose to reverse a status change (from ewe/ram to lamb) through editing the individual sheep record any time before the sheep has breeding records and or recorded offspring.

CULLING, SALE OR DEATH OF A SHEEP OR LAMB

Marking a Sheep for Culling: If you have chosen to cull an animal, or to review its record at a later date for possible culling, you can set a cull mark on its record. To aid in decisions on which sheep to cull, use the reports of *Ewe Productivity, Health, Cull-marked ewes* and also the *Ewe and Ram History* reports.

Marking a Single Animal to Cull: To mark a single ram or ewe for possible culling, choose that animal's record for editing. Select the *Cull mark/unmark* button.
Recording a Reason for Culling: The *Cull record* window will allow you to enter a reason for culling. You may also make additional comments. For example, if you have a ewe that you are thinking of culling because of poor body condition, select POOR CONDITION from the list. Then you may make a note to watch her condition after a certain date to see if it improves. When you are finished with the cull record, choose *OK* to store it temporarily and return to the main edit window. The words "Marked for culling POOR CONDITION" and the comments will appear near the bottom of the window. To save this mark choose the *Save* button from the main window.

Unmarking a Cull Mark: If you change your mind about a particular sheep and wish to remove a cull mark, you may use the *Cull mark/unmark* button again, and this time choose the button *Unmark* from the Cull window. Then choose *OK* and *Save*, as above. Removing the mark does not remove the comments, as this space also stores general comments about the animal. If you wish to change the comments, you may do that from the main edit window, before saving.

Marking a Group to Cull: Choose
Record data
        Cull-mark ewe group .
Select the group of ewes to be marked and enter a cull code, i.e. a reason for culling. Then select the desired criteria and choose to *Create list*. An example of criteria is all ewes that raised less than 1.5 lambs and are greater than 5 years of age. If individual sheep were already cull marked, this will be recorded in the column, "*Mark*". Otherwise, the code listed under "*Mark*" will be the default cull mark code. To mark to cull remove the black mark from the leftmost. You may change the cull marks to any cull code by typing that code in the "Mark" column.

Disposing of a Sheep – Died or Sold: Sheep leave the flock either by being culled, sold for breeding stock, sold for slaughter (market) or if they die on the farm. Disposing of a sheep or lamb does not delete the record from the database. It only marks it as removed from the flock and records its fate and the date of disposal. This allows the record to still be available for use in evaluating the performance of the dam & sire, for pedigrees and for evaluating flock performance.

Disposing of a Single Sheep or Lamb: If you have a single sheep that dies or is sold, you can dispose of it when editing the individual sheep or lamb record. Choose the *Disposal record* button from the main edit window. Enter the date the animal was sold and its fate. Comments can be recorded.
"Disposing" of an AI Ram or Embryo Donor: If you wish to remove an animal that was an AI or embryo donor (subgroup '*') from active consideration, list the fate as "Removed."

Reversing a Disposal: If a sale fell through or a mistake was made in recording a sheep as disposed, this disposal can be reversed. Choose the *Disposal record* button from the main edit window. Then select the button *Reverse disposal* from the disposal record window.

Disposing of a Group: If you sell a group of sheep at one time, use the procedure *Dispose of group*, to record the disposals. The first step is to choose sheep. Select the sheep from male/female/wether, adult/lambs, marked/unmarked for sale or breeding, breed, subgroup, pen, dates born or acquired and including or excluding external sheep. When you are satisfied with all the conditions, choose the button *Select sheep*. This will present a list of sheep that have all the conditions in common.

Use the mouse cursor to unmark the leftmost box of all the sheep you wish to dispose. When you have finished selecting, double click on the top left corner of the list window to close it. You may return to the list by selecting *View/edit list* or create a new list by changing the selection conditions and then choosing *Select animals* again.

Before saving the disposals of a group, in the lower left entry area, record the disposal conditions that apply to *all* the sheep. Either enter the fate code or select the fate from the list at the right of the code entry box. Enter the

date when the animals were disposed. If there were post mortems, record them here, and enter any comments that apply to all the sheep. Once you are satisfied with the fate and with the list of animals, choose *Save disposals*. Saving creates individual disposal records for each animal. These records may be edited through the edit individual record window, either for a lamb or ram & ewe, depending on the status of the animal at the time of disposal.

If you have another group to dispose, you may repeat the steps above. Otherwise choose *Cancel* to close the window and return to the menu.

If you have a group of animals that were wrongly listed as disposed, either through group or individual disposal records, you may use the group disposal window to reverse the disposals. Select the animals as above and then choose reverse disposals to return them to active in the flock.

CREATING REPORTS

You can customise most reports to your own particular requirements by choosing conditions that restrict the animals listed. Ewe Byte saves your last choices as defaults for the next time you create the report.

They can also be printed to a printer, an ASCII file or a delimited file, by selecting *Print report* from the main menu bar, or by selecting the *Print report* button, if available. Printed reports allow you to eliminate selected animals from those shown in the screen report, and to select the columns that will be printed. They also allow you to select printer, font, print length and page orientation.

ACTION LISTS & INVENTORIES

Flock inventory list
Lamb list
Market lamb list
Breeding groups
Due to lamb
Ewes with lambs
Preventive care lists
Cull-marked sheep

This first group of reports can be used as barn sheets, to identify sheep that require possible action from you.

Breeding Up Percentage
CSIP Movement
SFCP Inventory

FLOCK INVENTORY LIST:
This report is used to give a listing of sheep in the flock by various criteria. It can be used as a barn sheet for checking tags, vaccinating, etc. You can also use it to confirm whether the computer list of animals matches the animals you actually have. It can also list disposals to confirm sales or death records of animals that are no longer in the flock. The report shows all ID's and tag numbers, tag colour, breed, physical descriptors, sex, groups, birth, acquisition and disposal dates for the selected sheep. The printed report finishes with a count of the number of sheep in the selected group.

Selecting Animals for the Inventory: Animals can be chosen by status, sex, pen, subgroup, breed and birth dates. Selected animals can be grouped (using *Group by*) and then ordered within group by *Order by*. The *Order by* item allows you to order the sheep by various ID's, by birth date, or by date acquired.   For example if you select Adult, Female, Pen 1, Current, and Order by Birth date, and Group by Breed the report will list only the ewes that are currently in pen one by breeds and within each breed in order from the oldest to the youngest.

Reporting the Inventory: Once you have selected all the conditions, choose *Report* to view the flock inventory on the screen. When you are finished viewing the report, you can either choose to print it, or close the window using the button in the top left corner of the report window.

Deleting Individual Sheep from the Inventory Report: Use the mouse cursor to mark the leftmost box of each record you do not wish to show up on the printed report.

LAMB LIST:

The lamb list is used to create lists for weigh sheets, for evaluating lambs for replacement stock or market or for evaluating dams and sires and for selecting lambs for feeding groups. This report creates lists of lambs, either current, disposed or both, by various criteria such as sire, contemporary group, or sex. A lamb list report can include animals that have been selected as replacement stock and are currently listed as adults in the flock. It identifies their sires and dams and shows weight information.

Selecting Lambs for the Lamb List: Lambs can be chosen by age, sex, status, breed, group, age, sire and/or dam. The list may be left ungrouped or grouped by subgroup, pen, breed, contemporary group, sex, birth type (single, twin...), sire, dam or fate. Within the groups the records may be ordered by ID's, birth date, or various weight items.

Reporting the Lamb List: Once you are satisfied with all the conditions, choose *Report* to view the lamb list on the screen. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the button in the top left corner of the report window

MARKET LAMB LIST:

Use this report to estimate the weight of lambs in a group on the current or a future date. This allows you to predict how many and which lambs will be ready for market on a selected date, and which lambs are unlikely to reach market weight by that date, based on their recorded weights. Overall, the accuracy of the report depends on breed, age and management of the group.

Estimating the Projected Market Lamb Weights: The last 2 weights for each lamb is used to calculate the average daily gain (ADG) for that lamb. The report will take into account any recorded weights of the lambs, not just the official 50 and 100 day weights. If you enter a group daily gain, this gain is used for all the lambs. This ADG is used to extrapolate forward, the lamb's projected weight.

Selecting Market Lambs for the List: After selecting *Market lamb list* from the *Action lists & inventories* menu, select the lambs that you wish to display, as well as their order and grouping, if desired. You may also restrict the lambs to those with weights within a certain range. Only current lambs that have had at least one weighing will be shown. If you know a group's average daily gain since the last weighing for the group you can enter it for added report accuracy. Enter the date for which you wish to project the weight.

Reporting the Market Lamb List: Once you are satisfied with all the conditions, choose *Report* to view the market lamb list on the screen. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the button in the top left corner of the report window.

BREEDING GROUP REPORT:

The breeding group report shows information that applies to an entire breeding group and also lists the ewes in the group. It shows the rams used, the dates the rams were put in and removed, the expected lambing dates, hormone and pessary use for the entire group. For each ewe, it lists tags or ID number, pregnancy check results, the actual date of breeding (if entered) and whether the ewe has lambed as a result of the breeding. It also includes comments about the breeding. The printed report will also summarise the number of ewes in a group, how many of them lambed, and how many had positive or negative pregnancy checks. Use this report to create barn sheets when you are sorting the ewes into breeding groups, and to analyse the performance of breeding rams.

After selecting *Breeding groups* from the *Action lists & inventories* menu, identify the group you wish to report. You may type in the number or select it from a list of all groups on file. The list shows the date the breeding began and the ID of the first ram on the list. The ewes can be grouped by lambing and pregnancy test results. Choose *Report* to create the screen report.

Reporting the Breeding Group: The report screen will show the group information. To view individual ewe records, choose the button, *Show ewes*. You can then use the sliders on the side of the ewe window to view the entire ewe list. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the *Finished* button in the bottom right corner of the group report window.

DUE TO LAMB REPORT:
When you have a group of ewes about to lamb, use this report to obtain a list of all the ewes that can be expected to lamb within a given range of dates. During the lambing period, you can use this report to show which remaining ewes have not yet lambed. Once you have entered a lambing during the selected period, the ewe will no longer appear on the list.

The report is based on breeding records. If a ewe has a specific breeding date recorded on a breeding group record, the system will use that date to calculate the range of due dates according to the maximum and minimum gestation periods defined in the system. Otherwise, it uses her breeding group's exposure dates to calculate the due date.

What is in the Report: This report lists IDs for the ewe. It also shows statistics related to lambing: the date of each ewe's last lambing, her age, the number of lambs and lambings, average lambing and weaning percent per lambing, the ram to which she was bred and the range of dates when she is expected to lamb. At the end of the printed report, it gives a count of the ewes due to lamb within the period. The report will show all ewes that will lamb at any time that begins or ends during the selected period.

Creating the Report: Select *Due to lamb* from the *Action lists & inventories* menu. Enter a date near the earliest date you expect lambs and a date near the end of the period you wish to cover. It is not important to be exact. Even if a ewe's predicted lambing dates extend outside the selected period, the predicted dates will be shown. A record will be shown for each breeding when a ewe is listed in more than one group that fits the period. Select the ewes to be included, the groupings, and orderings you desire.

Once you are satisfied with all the conditions, choose *Report* to view the ewe list on the screen. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the button in the top left corner of the report window.

EWES WITH LAMBS REPORT:
This report gives a list of ewes that are currently raising lambs under weaning age, whether their own or foster lambs. It will include only lambs that are younger than your defined weaning age. Use it as a barn sheet or to confirm that the computer records match the actual barn activity.

What is in the Report: The report lists a ewe's ID's, lambing date, age in years and breed. It includes information on the lambs: ID's, sex, age in days, born, raised as, birth weight, sire, birth dam, breed, colour, contemporary group number, and lambing problem. The screen report lists each ewe, followed by all the lambs she is raising, then the next ewe. The *Type* column indicates whether you are looking at a ewe or lamb record.

Select *Ewes with lambs* from the *Action lists & inventories* menu. Choose the ewes you want to include in the report, the groupings and orderings. Pick the lambing period on which you want to base the report. Once you are satisfied with all the conditions, choose *Report* to view the list on the screen. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the button in the top left corner of the report window.

PREVENTIVE CARE LISTS:
There are 2 types of preventive care lists: "*Report by Group*" in which a group of sheep defined by you, receives a treatment (e.g. shearing, de-worming); and "*Report by Individual*" in which a single sheep or a list of sheep are defined and all treatments given (or not given) are listed for those animal(s).

Report by Group: When you define the group to be treated, Ewe Byte will create barn sheets for doing preventive care. It lists the date, the procedures done, and the sheep in each group. To select this type of report, select *Preventive care lists* from the *Action lists & inventories* menu. Choose *Report by group* and then choose the group from the list, or enter a group number into the entry box. Then select the *Report* button to create the screen report.

The group report shows the group number, the date, the number of animals treated and the procedures given. To view the list of animals, choose *Show animals*. You can then use the sliders on the side of the ID window to view the entire list. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the *Finished* button in the bottom right corner of the group report window.

Report by Individual: Use this report to list the preventive care procedures that were given to particular sheep, or to list sheep that have *not* received selected forms of preventive care. Choose the sheep to be shown, the order and grouping. You may also restrict the report to a specific period, a specific preventive care treatment (such as hoof trimming), or a single general treatment (such as all wormers or vaccines).

You may choose to view those sheep that fit the selected treatments and dates, or to see all the sheep in the selected group that were not treated. For example, if you wish to find out which ewes were not wormed in the last year, chose *Female* and *Adult* and *Current*. Then choose *Treatment dates from*. and enter the date one year ago. (You need not enter any date after *to:*) Choose *General treatment*. and then select WORMER from the list. Finally choose to *Show only: Untreated animals*.

Choose *Report* to create the list. When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the button in the top left corner of the report window.

CULL-MARKED SHEEP REPORT
This report creates screen and printer lists of sheep that you have marked to cull previously. It is useful to review whether you have actually culled the sheep that you marked as potential culls. You can also use the report to show the sheep you have culled and the reasons for culling over a given period. The summary form of the report gives numbers of animals culled and not culled by cull reason for the selected sheep and period.

Select *Cull-marked sheep* from the *Action lists & inventories* menu. Select the animals to be shown using the controls, and choose order and groupings. To see a list of animals set the *Type of report* to *List of individuals*. Setting *Summary only* will create a list of codes, with numbers of sheep in each category, but will not show any individual animals. Choose the *Report* button to create the screen report.

When you are finished viewing the report, you can either select *Print* from the menu bar, or close the window using the button in the top left corner of the report window.

BREEDING UP PERCENTAGE
This report is used to give a listing of sheep in the flock by various criteria. It allows you to select animals based on a percentage of a selected breed. The printed report finishes with a count of the number of sheep in the selected group.

CSIP MOVEMENT REPORT
CSIP stands for Canadian Sheep Identification Program. This Canadian Government report is used to give a listing of sheep entering or leaving the flock. It allows you to select animals based tag numbers or movement dates.

SFCP INVENTORY
SFCP stands for Scrapie Flock Certification Program. This Canadian Government report is used to give a listing of sheep entering, current or leaving the flock within 2 inventory dates.

INDIVIDUAL SHEEP HISTORIES

Ewe history
Ram history
Pedigree chart
Descendants chart

The purpose of these reports is to help you to make management decisions about individual sheep productivity. They can also help you to recognise the animals that may be the best candidates for selection as replacement breeding stock based on the productivity of animals in particular dam or sire lines.

EWE HISTORY REPORT
Before using this report, particularly for ewes with lambs, first recalculate productivity summaries to make sure information is up-to-date.

Choose *Ewe History* from the menu *Sheep histories*. Begin the report by entering a ewe's ID in the entry box, or select the ewe from the list of current ewes. If you wish to create a history for a disposed ewe, you must enter the full ID in the entry box. Then choose *Report* to create her history

What is Included: This report presents all information related to that ewe: i.e. lineage, born-as and raised-as statistics as well as growth statistics; breeding and lambing history. The screen also provides buttons to access more detailed information on offspring and events such as preventive care, health, weights, etc. One can also mark a ewe to be culled from this screen..

Accessing More Detailed Information: On the bottom right of the screen are a group of buttons that provide more in-depth information. *Offspring* lists all the offspring of the ewe (weights, fate, etc.). Similarly, *Health*, *User def'nd* (user defined), *EPD, Prev. care* (preventive care), and *Breeding* give access to further details. *Other* provides information on identifiers and tags, crossbred breakdown, wool colour, polled, inbreeding coefficient, general comments attached to the record, and a cull mark, if any. *Cull-mark* allows adding, removing or changing a cull mark.

Printing the Ewe History Report: The *Print* button allows all parts of her record to be printed as you select them. Choosing *Print* brings up a list of check-boxes to select items for printing. *Pedigree* will print the pedigree for up to 4 generations. *Other* prints all the information contained in the Other window, as well as ROP numbers, the dates she was born, acquired, disposed, etc. *Productivity summary* prints the information in the bottom left box. The remaining check boxes correspond to windows available from the main report screen. If you choose to print *Offspring records*, you will be given the opportunity to select the columns that will print. Choose *Finished* to return to the window for selecting ewes. When you have no more ewes to select, choose *Cancel* to return to the menu.

RAM HISTORY REPORT

This report gives the production averages for each selected ram, his health and preventive care codes, the records of his offspring and production averages of his daughters. It is the most comprehensive report available on a ram. Before using this report, particularly for rams with offspring, first recalculate productivity summaries to make sure information is up-to-date.

Select *Ram history* from the *Sheep histories* menu. Select the ram from the list of current rams, or enter the full ID of any ram in the entry box. (If you wish to create a history for a disposed ram, you must enter the full ID in the entry box.) Then choose *Report* to create the ram history.

What is Included: The ram's pedigree is displayed in the top left corner. His own adjusted weights and indexes, birth, acquisition and disposal dates appear in the top right corner. In the centre box is a breeding use summary based on breeding groups in which he was listed as either the only ram or one of a group (pen) of two or three rams. The percentage of ewes that had positive pregnancy tests is based on all ewes in the breeding groups, not only those that are listed as pregnancy tested. Productivity lists the number of lambs in the flock, sired by this ram and their growth statistics.

Accessing More Detailed Information: As with the Ewe History report, the bottom right part of the screen allows access to more information. .

Information on Daughters in the Flock: *Sum dtrs* shows productivity averages of ewes in the flock that were sired by this ram. For each age of ewe the following statistics are shown: the number of ewes, the total number of lambs they have produced, their average lambing interval, the average number of lambs born and raised per lambing, the lamb's average adjusted weights, and the average of their indexes. Choosing *Show dtrs* will list each daughter's productivity average.

Printing the Ram History Report: can be done as with the Ewe History report.

PEDIGREE CHART

The pedigree chart procedure creates a family tree style chart of a selected sheep and up to four generations of its ancestors. The report displays the Full ID's of those ancestors that are on file within the database.

Select *Pedigree chart* from the *Sheep histories* menu. Select the sheep from the list of current breeding animals, or enter the full ID of any sheep in the entry box. (If you wish to create a history for a disposed sheep, you must enter the full ID in the entry box.)

DESCENDANT'S CHART
This report will list all the descendants of a selected sheep that have been retained as breeding animals in the flock for up to four generations, and the productivity of those descendants. Two productivity measures (lambs per lambing, ADG, etc.) can be selected for each report. The chart will list rams and ewes kept for breeding.

Select *Descendants chart* from the *Individual sheep histories* menu. Before using this report, particularly for rams with offspring, first recalculate productivity summaries to make sure information is up-to-date Select the sheep from the list of current breeding animals, or enter the full ID of any sheep in the entry box. (If you wish to create a history for a disposed sheep, you must enter the full ID in the entry box.) Then choose the productivity measures you wish to display from the pick list. As each is chosen, it will be displayed in the window. The measures will alternately display in the first or second as you choose them. To overwrite a choice, select a different option, including the blank option at the bottom of the list.

To print, choose either *Print report* or *Print to file*. To create a report with different productivity measures, repeat the steps above.

PRODUCTIVITY AND PROBLEM LISTS

Ewe productivity lists
Ram productivity lists
Level of inbreeding
Lambing problem list
Non lambing ewes
Health report
User defined records
Disposals list

These reports can help you to identify specific problems in your flock management. Since they are ordered lists of sheep, these reports are useful to aid decisions about your best and worst performing breeding animals.

The choice of order can strongly influence your perception of exactly the same data. If you choose to order by *sheep ID*, then it will become apparent that certain animals appear more frequently than others. Ordering by *code* can reveal patterns in your own management, based on which types of events or problems occur more often. *Time* order can expose differences between one year and another, or one season and another. Experiment with different orderings using the screen reports, to see which is most relevant for the information you are seeking.

EWE AND RAM PRODUCTIVITY LISTS
This report will give you a summary of each ewe's or ram's reproductive performance and lamb averages. These statistics can be analysed and grouped according to selected criteria. Use this report for breeding and culling decisions.

Before using this report, first recalculate productivity summaries to make sure information is up-to-date

Choose *Ewe (Ram) Productivity* from the menu, *Productivity & problems lists*. Begin the report by selecting the animals you wish to include. Consider your purpose in viewing the report, as well as the measurements that are important to achieving your production goals. When you are satisfied, choose *Report* to create the list.

Information from the Report: The information shown includes: age at first lambing (ewes); lambing interval (ewes); lambs born and weaned per year or per lambing; ewe indexes (ewes) and average adjusted weights and gains on the lambs. It will also provide an average of expected progeny differences (EPD's) for weight and gain measurements – both direct and maternal. These EPD's are not calculated by Ewe Byte but are input from a genetic improvement program if available.

LEVEL OF INBREEDING REPORT
This report assesses which rams and ewes are too closely related to be mated. It calculates the level of inbreeding of a single sire when mated with a selected group of ewes as a coefficient of inbreeding for the potential offspring of each mating.

Interpreting Coefficients of Inbreeding: Animals with higher coefficients of inbreeding have fewer unique ancestors (more related ancestors) than animals with lower coefficients of inbreeding. For animals that have no related ancestors, the coefficient is 0. For example, the level of inbreeding for the offspring of a ewe bred back to its own sire would be 0.25. Generally animals with high coefficients, are more likely to express negative traits and less commonly, positive traits.

Creating a Report: Choose *Level of inbreeding* from the menu, *Productivity & problems lists*. If you have not yet calculated the coefficients of inbreeding, or you have raised new breeding animals since you last calculated the coefficient, do so when asked at the start of the report. If you have a large number of animals, this will take several minutes, since the system must make several passes at the database, calculating all possible relationships between animals. Select a sire from the list of current sires, or by entering a sire ID in the entry box. Then select the ewes you wish to mate with that sire. If you wish, you may choose to limit the level of inbreeding that will be displayed to a level over or under a chosen number. This will allow you to see only the ewes that should or should not be bred to this ram.

Choose *Report* to create the report. The screen report shows The ID's of the ewes, their breed, crossbred breeds, sire, dam, as well as their own coefficient of inbreeding as "Inbred" and the result of a cross with this sire as "Inbreed".

LAMBING PROBLEM LIST

This report creates screen and printer lists of lambs with recorded lambing problems. It is useful to see patterns of lambing problems within your flock or problems with certain sires or dams. If you record detailed comments when you record the lambings, this report can also act as a diary to help analyse your lambing management. It can also be used to create a summary of lambing problems for the selected animals. The summary gives a count of animals by problem, and by outcome (how long the lambs lived).

The screen allows the list to be restricted or sorted in a number of ways: by problem (category or individual code); by outcome (raised to 29 days, died at a certain age, etc.); and by other factors such as birth dates, dam, sire, or breed.

Choose *Lambing problem list* from the menu, *Productivity & problems lists*. Begin the report by selecting the lambs that you wish to show, including the number of days the problem lambs lived. (Note that if a very young animal is sold, it still will be counted as raised to 30 days.) Then select the order of the report. If you wish, limit the problems that should be displayed to a selected general problem category or a single problem. Select the radio button for *General problem.* or *Specific problem.* and then select the problem from the popup list. If you choose to restrict the lambs shown by lambing problem code, only those codes that you have actually used will appear on the popup list.

Creating a Report: There are two kinds of reports available. Use the radio button to pick the one you want. The *List of animals* shows the ID's of the lambs, their breeds, sire, dam, etc. It also includes the lambing problem and lambing comments. If the word *memo* in the *Comments* column has an upper case "M", there are comments for the lambing. To view the comments, point the mouse cursor to the word *Memo* and double-click the left mouse button. The *Summary only* report shows a list of problems in the first column, counts of the number of animals with the problem for each outcome in the next columns. the last column down and the bottom row contain totals. Note that some animals will be reported in more than one category. Raised "0" will usually include all those animals that died before 30 days, depending on how you recorded them.

NON LAMBING EWES

This report will provide a list of breeding age ewes that have not lambed recently. The report will list all ewes currently in the flock that have not lambed since the date you have defined as "recently" along with the date of their last lambing. If the lambing date shown for a ewe is blank, it means that the ewe has never lambed.

Using this Report to Set Up Breeding Groups: The list of ewes with their previous lambing date can be used to identify ewes ready to be bred. To create this report, enter today's date in the area *List ewes that have not lambed since*, and it will list all the ewes currently in the flock with the date of their last lambing.

Creating a Report: Choose *Non lambing ewes* from the menu, *Productivity & problems lists*. Enter the date for the report. Choose the order for the ewe list. Finally, choose whether or not you want yearlings included in the report. Choose *Report* to create the report.

HEALTH REPORT

This report creates lists of sheep with recorded health events, including abortions, lambing interventions and diseases that you have recorded. The report is useful for checking your management practices and to aid in culling decisions. You may restrict the records to be shown in several ways: by type of sheep, by range of health event dates, by general event categories or individual events. It also allows you to summarise health events.

Creating a Report: Choose *Health report* from the menu, *Productivity & problems lists*. Select the animals to be included, their order and groupings. Choose to restrict the health events to those within a certain range of dates, if desired. Otherwise unmark the *Event dates from* check box. Use the radio buttons to report on all events or a selected general type or a single specific health event. Choose *Report* to create the report. The screen list gives the animal's ID's as well as the event name, date, value and comments. The summary lists the events, the total value, average value and a count of the number of occurrences.

USER-DEFINED EVENTS REPORT

This report creates lists of sheep with existing user-defined records. These may include wool clip information (weight, grade, colour, etc.), back fat measurements, sales information (amount and purchaser) and milk weights. You may restrict the records to be shown in several ways: by type of sheep, by range of dates, by general category or by individual event type. It also allows you to create a summary of the user defined event records.

Creating a Report: Choose *User defined records* from the menu, *Productivity & problems lists*. Select the animals to be included, their order and groupings. Choose to restrict the user defined events to those within a certain range of dates, if desired. Otherwise unmark the *Event dates from* check box. Use the radio buttons to report on all events or a selected general type or a single specific user defined event. Finally, choose to create a *List of animals*, or a *Summary only*. Choose *Report* to create the report.

The **screen list** gives the animals' ID's as well as the event name, date, value and comments. The **summary** lists the events, the total value, average value and a count of the number of occurrences.

DISPOSALS LIST

This report lists sheep with recorded disposals (deaths, sales, etc.). It also allows you to create a summary of the disposal records. Use it to check whether your records are up-to-date and to review your flock management.

Creating a Report: Choose *Disposal records* from the menu, *Productivity & problems lists*. Select the animals to be included, their order and groupings. Choose to restrict the disposals to those within a certain range of dates, if desired. Otherwise unmark the *Disposal dates from* check box. Use the radio buttons to report on all disposals or a selected general type of disposal or a single specific disposal. Finally, choose to create a *List of animals*, or a *Summary only*. Choose *Report* to create the report.

The **screen list** gives the animals' ID's as well as the disposal category, date, post mortem(PM) and comments. The **summary** lists the disposal categories, with a count of disposed rams, ewes, lambs and a total number disposed for each category.

FLOCK SUMMARIES

Overall productivity
Annual Flock Productivity
Lamb production
Reproduction
Flock composition
Weigh dates
Breeding groups
Breeding productivity
Lambing season

Flock summary reports contain no individual animal information – but only summaries of your flock's performance and allow comparisons of performance between years or between subgroups within the flock or to outside performance standards or to goals you may have set for your operation.

Summary statistics are also available under *Productivity and Problem Lists*, specifically the *Lamb report, Health report, User defined records report, Disposals report* and *Cull-marked sheep report.*

OVERALL PRODUCTIVITY SUMMARY

This report summarises the flock or subgroup productivity by age of dam and by period for the latest 12 months and the previous 12 months, also for the last five years and the entire flock history (if longer than five years). It is a tool to help you compare the results of your flock management over several years.

Since the entire database is searched several times to create this report, it may take several minutes to be completed. (While the system is summarising the data, it will display a "progress report".) However, once you have created this summary, you may review the latest summary any time without recreating it.

What is in the Report: The report summarises the flock through several statistics: total and average numbers of ewes and rams in the flock; lambing intervals; lambings per ewe; lambs born per lambing. It gives a breakdown for each birth type and type of rearing, showing the percentage of deaths per lamb born, the total number of lambs born and lambs weaned. It also shows the lambs weaned and average 50 and 100-day weights broken down per lambing and per ewe in the flock. It also shows the number of lambs that were weighed at 50 and 100 days with their corresponding average adjusted weights and daily gains.

See the *Appendix* for a sample of the Overall Productivity Summary report, an explanation of terms and the method of calculating the statistics used in the report.

How to Create the Report: To create the report, choose *Overall productivity* from the *Flock summaries* menu. If you wish, you may restrict the report to current dams only, or to dams of a selected breed, subgroup or pen. To make a meaningful analysis of your productivity, it is best to use the largest group possible. If you have breeds of ewes that have very different productivity, you may wish to divide by breed. However if you eliminate all disposed ewes from the list, you will be left will only a few young ewes in early years.

Selecting a Time Period: Include the last lambing date to be included in the summary. If you have a regular break between lambings, use a date in that period for the most meaningful statistics. For example, if your lambings generally occur from October to May, use a date sometime between June and September to divide lambing years. If the latest lambs have not yet been weighed, you may wish to use a date that excludes them.

Choose *Create report* to begin the report. As the report is calculating, the system will report its progress. Please do not interrupt while it is working. The screen report appears rotated from the printed report. (That is, rows in print are columns on the screen and columns, rows.)

Once you have created a report, you may view it any time by choosing *View report.* However, the report may not match the selected conditions if you have changed them since last creating the report. Use *Print* or *Print to file* to create a printed version.

Showing the Data in Graph Form: Choosing *Show graphs* and then selecting the desired graph from the popup menu can view graphs of information contained in the report. Graph windows can be enlarged to full screen size by clicking on the top right corner. They can be closed to return to the Overall Productivity selection screen by double clicking on the top left corner. Choose *Cancel* to return to the menu.

ANNUAL PRODUCTIVITY SUMMARY REPORT

This report summarises the flock productivity over a selected 12 month lambing period and allows you to set goals. This format is compatible with the Ontario Sheep Health Program. More information is provided in the Appendix.

Selecting a 12 Month Period to Analyse: Which 12 months you select is very important! Make sure that the 12 month period should include the time from the first lambing to when the lambs are weaned. Do not split. If your flock uses accelerated lambing management, select a period that encompasses the best 12 months - not necessarily January 1st to Dec 31st. If more than one lambing occurs during this 12 month period, also examine the reproductive and lamb rearing performance of each lambing group using the **Lamb Production Summary** or **Reproduction Summary.**

How to Interpret the Worksheet: After selecting the 12 month period to analyse, a worksheet is displayed with lines containing the following information: text that refers to the number next to it; a number; a second number in

brackets [ ] which refers to a line in the OSHP form "Flock Productivity Data Entry Form". Every few lines, is a measure of performance in CAPS, e.g. ADULT MORTALITY RATE, and in brackets ( ), what "lines" were used to calculate that measure of performance. The figure to the right of the measure of performance, is the actual calculation which can be used for the OSHP Flock Productivity Calculation and Goal Setting Form. An explanation of each measure of performance, whether that measure is required or optional for the OSHP, and suggested goals and interpretation of those goals, is provided in the Appendix.

How to Set Goals: This report lists the calculated measures of performance and provides a space beside each measure for you to enter a flock goal. Setting goals is a requirement for the OSHP. There is also a space to add comments. For example, if adult mortality is too high (e.g. 8% actual versus a goal of 5%), you could add an explanation of why that might be the case (e.g. predator losses) or plans on how to address reaching goal (e.g. purchase a guard llama). Goals can then be saved and printed.

LAMB PRODUCTION SUMMARY

This report gives you some of the same lamb production measures as the annual productivity summary report but allows you to restrict the report to a particular breeding group or group of animals. The information in the report includes the number of lambings, lambs born and weaned, lambs per lambing, weaned per lambing, lambs weaned per lamb born, percentage of singles, twins, triplets, also the average adjusted 50 and 100 day weights and gains. The group of dams to be summarised can be selected from the entire flock, from a range of birth dates, a contemporary group, a breed or a subgroup.

See the Appendix for a sample Lamb Production Summary report and the basis for calculating statistics for this report.

To create the report, choose *Lamb production* from the *Flock summaries* menu. If you wish, you may restrict the report to current dams only, or to dams of a selected breed, subgroup or pen. Include the range of lambing dates to be included in the summary.

REPRODUCTION SUMMARY

This report again summarises lambing and breeding statistics as the Annual Productivity Summary report, but it allows you to restrict the report for selected periods based on the entire flock or a selected subgroup. The program uses breeding records as well as lamb records to calculate several measures of reproductive performance. Note that the periods defined are lambing periods, so that statistics relating to exposures to rams are based on breedings that occurred approximately five months before the lambing period.

See the Appendix for a sample Reproduction Summary report and the basis for calculating statistics for this report.

To create the report, choose *Reproduction summary* from the *Flock summaries* menu. If you wish, you may restrict the report to current dams only, or to dams of a selected breed, subgroup or pen. Include the range of lambing dates to be included in the summary.

FLOCK COMPOSITION REPORT

This report counts the numbers of sheep in your flock on any date by sex, age, and breeding status. The report is particularly useful for obtaining a "snapshot" of your flock for year-end statistics or for planning use of facilities or feed requirements. It will also conduct counts by breed , pen or subgroup, if requested. The report lists the numbers of ewes in the following categories: open, bred, with lambs under weaning age and ewe lambs over one year that were marked for breeding but have not yet had their status changed to "Ewe." It counts rams and marked ram lambs over one year. Finally it lists lambs under weaning age, between weaning and one year and unmarked lambs over one year that are still present in the flock.

Note that if you pick a date *other than today*, all sheep under one year of age on that date will be listed as lambs, no matter what their current status. The one exception is for young ewes that were listed in a breeding group before that date. These will be counted as bred ewes.

To create the report, choose *Flock composition* from the *Flock summaries* menu. Enter the date for the count. If you wish, use the radio buttons to subdivide the count by breed, subgroup or pen. Choose Report to begin the count. From the report window choose *Print* or *Print to file*, or choose *Finished* to close the report window and return to the Flock composition selection screen. You may then create another count or choose *Cancel* to return to the menu.

WEIGH DATES REPORT

When you have lambs that are approaching weighing age, choose this report to determine the range of dates when the lambs are eligible for weighing. This report gives a summary of the contemporary groups that include lambs born in the selected range of lambing dates. It shows the number of lambs remaining in each group and the earliest and latest weigh dates for each group at 50 and 100 day weighings.

To create the report, choose *Weigh dates* from the *Flock summaries* menu. Enter the earliest and latest birth dates to be included. Choose *Report* to begin the count. From the report window choose *Print report*, or double click in the top left corner to close the report window and return to the Weigh dates selection screen. You may then create list or choose *Cancel* to return to the menu.

BREEDING GROUPS REPORT

Use this report as a reminder of hormone treatment dates or of the starting and ending dates for recorded breeding groups. It can also serve as an analysis tool to view the reproductive success of your rams and ewes under various conditions. A breeding group report summarises the breeding activity during a selected period. The report lists the groups, the number of ewes in the group, the number testing pregnant, the number who have lambed, the dates the rams were introduced and removed, the rams that were used with the group, artificial insemination and hormone use.

To create the report, choose *Breeding groups* from the *Flock summaries* menu. Enter the earliest and latest ram usage dates to be included. Choose *Report* to begin the count. From the report window choose *Print report*, or choose double click in the top left corner to close the report window and return to the Breeding groups selection screen. You may then create list or choose *Cancel* to return to the menu.

BREEDING PRODUCTIVITY REPORT

Producers that have more than one breeding group per year (e.g. accelerated lambing flocks) should use this report to determine different levels of productivity between breeding groups. This report is similar to the Annual Productivity Summary report except that it analyses only one breeding group at a time. In this way, it is also different than the Lambing and Reproduction reports, which allow more flexibility in selecting a time period and / or animals to analyse. This report is also an optional part of the OSHP.

LAMBING SEASON REPORT

The lambing season report shows the number and percentage of lambs born each month during a selected period, for a selected group of ewes. Use the report get an overview of when most of your lambs are being born. Run the report for different time periods to see changes in your lambing period from one year to another.

To create the report, choose *Lambing season* from the *Flock summaries* menu. If you wish, you may restrict the report to current dams only, or to dams of a selected breed, subgroup or pen. Include the range of lambing dates to be included in the summary.

Choose *Create report* to begin the report. Once you have created a report, you may view it any time by choosing *View report*. Use *Print* or *Print to file* to create a printed version. Choose *Cancel* to return to the menu.

DAIRY REPORTS

If you purchased the Dairy version of Ewe Byte, you may also access the dairy reports, otherwise they will not be available on your version.

List ewes by dairy status
Ewe flock count
Dairy ewe management
Test day lists
Test day summary
Ewe milking summaries

LIST EWES BY DAIRY STATUS REPORT

The screen allows you to select which ewes to list. When the report button is selected, a list of selected ewes is produced which include their milking status.

EWE FLOCK COUNT REPORT

This report allows you to view a summary of the milking status of the flock classified as follows: dry, milking, milking & nursing, nursing lambs under 60 days (not being machine milked) and total ewes in the dairy flock.

DAIRY EWE MANAGEMENT REPORT

This report allows you to produce a list of test day results from the dairy ewes and make decisions with respect to drying off, changing nutrition, etc.

TEST DAY LISTS REPORT

This is a management list that allows you to order the results by: ID, days in milk, quantity of milk produced, somatic cell count, linear score, fat or protein content.

TEST DAY SUMMARY REPORT

This summarizes the selected test day based on the parameters used for the list.

EWE MILKING SUMMARIES

This is a list of all the ewes in the dairy flock and a summary of their milk production but no other production information.
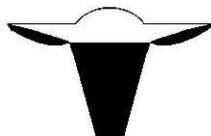
USING THE SYSTEM UTILITIES

CUSTOMISING THE SYSTEM

Before you begin to enter any records, it is helpful to customise the system to suit your sheep farm operation. Find the customising procedures by selecting *Utilities* from the Main Menu, and then *Customise System*.

IDENTIFYING YOUR FARM

Within the customising routine, first choose *Identify Farm*. If you are a user of SFIP information, enter you SFIP ID number here. This stores information about your farm to be used later when you create printed reports. Use upper and lower case letters, as you would normally on name and address. All this information is optional. When finished, choose *Save*.

SET DEFAULT VALUES

The next step is to designate the most common, or default, flock and breeding information in several categories, as requested in the *Set default values* window. Setting these here will allow you to just press <enter> to accept many entries, rather than having to type them each time. But you will have the opportunity to change the default that appears when entering information. Items shown in black and controlled by radio buttons must have a selection. Items shown in blue are optional. Items that you can set default values for that describe your sheep and their management include:

Breed – select the most common breed in your flock
Wool colour (letter, e.g. W = white)
Horned or polled.
Herd or farm name, which can optionally be automatically added to the front of the animal ID
Flock letters as assigned by the Canadian Livestock Records (CLRC)
Default tag colour (e.g. Y = yellow tag)
Vaccination, de-worming and lambing interval in days
Age at weaning
Length of breeding exposure to ram in days
Min and max gestation (pregnancy) length in days

The number of days you set as the weaning age is particularly important to keep reports consistent with your management, since the system will report lambs as raised to weaning based on the age you have specified. Items that are your personal preference include the style of date (month/day/year, day/month/year or year/month/day) and weight entry and display (pounds or kilograms).

Setting Up How You ID Your Sheep: Many sheep ID's are comprised of CLRC flock letters, year letter (+generation code) and number. This ID can be tattooed in the ear and / or on a tag. Sometimes tag colour is added to the ID. Sheep may also be ID'd with the Cdn National Sheep Identfication Program (NSIP) which may also be used for the voluntary scrapie program. Ewe Byte allows many options for customizing how your sheep are identified.

Selecting *Yes* for *ID = flock letters + tattoo + year letter + generation code* will place this combination as a default in the ID field when entering all animals. Unless you are using a different ID system, choose *Yes*.

Selecting *Yes* for *Lambtag = tattoo for new lambs* will place the combination of ID + year letter + tattoo in the lambtag field as a default when entering new lambs only. It does not affect the tags for adults or edited lamb records.

Selecting *Yes* for *Permtag = tattoo for new lambs* will place the combination of ID + year letter + tattoo in the permanent tag field as a default when entering new lambs only. It does not affect the tags for adults or edited lamb records.

Grouping Your Flock: There are many reasons why you might wish to divide your flock into more than one group. E.g. purebred vs commercial that are to be bred differently; accelerated lambing flocks that may have 2 or 3 differently managed flocks on the same property; a virtual "AI" flock comprised of rams not in the flock but the semen is used for breeding; or 2 flocks with differing health status.

Using Subgroups: There is the option of giving parts of a flock either letters, or numbers to designate them as separate subgroups. (Thus a ewe may be designated as in subgroup "A" or in subgroup "2", for example.) One subgroup symbol has a special meaning for the system. The symbol '*' is used to designate an AI ram or embryo donor ewe, or an ancestor of your sheep that has never been a part of your flock. No sheep with subgroup "*" will be counted as present in the flock.

Using Pens: The system also allows two spaces for pen designation, that you may use as you choose. These two spaces may be any combination of blanks, letters and numbers. (For example, B2 could signify barn 2, or 1 could show the animal is in pen 1.) When customising, you should give the most common pen and subgroup, allowing the system to prompt with those values when required. If you do not plan to use pen or subgroup designations, you may leave these blank. The default values can be left blank, if you do not wish to be prompted with a subgroup or pen when entering breeding animals.

CHANGE DIRECTORY

From the *Customise system* menu, choose *Change directory* if you wish to change either the directory where the data files are stored, or to change the directory where reports to file will be saved. You may either type in the directory or choose *Find data* or *Find reports* to reveal a window in which to search for a directory. You may change any of the customizing information at any time.

REINDEXING DATABASES

If you have more than 100 sheep in your database, you should use the *Reindex databases* procedure from the *Utilities* menu whenever you have added several animals or several health, maintenance or breeding records to the database. Reindexing automatically reorders the records so that various operations run more quickly.

BACKING UP & RESTORING DATA

This set of procedures allows you to backup and restore data files from within the system. It copies only the data files and associated memo files in the data directory (not the index files). If you create backups using the system Backup procedure, you should restore using the Restore procedure.

Before you begin a backup, you must have ready either a formatted disk in your floppy/CD/flash drive or a separate directory on your hard drive. You can also key in a new directory name. Reply Y to accept new file name. While a hard drive backup is quicker, a floppy/CD/flash disk backup is preferable. It will allow you to keep your data files even if you have problems with the hard drive.

Choose *Backup & restore databases* from the *Utilities* menu and then choose either *Backup databases* or *Restore databases*. You may then accept the default directories for copying to and from, enter new directories, or choose them from the directories lists using the *Find...* buttons. When you are satisfied choose *OK* to begin the procedure, or choose *Cancel* to return to the menu without doing the backup or restore.

You may also use Windows file copy or backup commands to create backups of your data directory. If you do choose to use Windows commands to back up the files, you may restore the same way. However, it is important to restore all the files in your data directory simultaneously. Never restore individual data files from different sessions. If the windows backup files are not compressed, you may restore them using the system's Restore procedure.

When you are starting up, if the system cannot load your data files because of a data error, it will give you the option of restoring the files from a backup disk or directory before proceeding. Do not accept this option if your files are compressed.

BROWSING FILES

This option allows you to browse the data files. The browse is for viewing only. It will not allow you to edit the records. The records shown in a browse are the raw data files in the form in which the system stores them.

Browsing is sometimes useful if a report shows information that is very different from what you had expected. You may have entered something different from what you intended.

Choose *Browse files* from the *Utilities* menu. Then select the files to browse from the browse list. When finished viewing a file double click on the top left corner of the *Browse* window. This will return you to the Browse file selection window where you can either choose another file or choose *Cancel* to return to the menu.

If you have the software, Visual FoxPro you will be able to browse and even change the database files using this program. Do not make any changes to data without using Ewe Byte. Considerable effort is made by the system to ensure that data in various files is accurate and compatible with all other information in the system. **Do not, under any circumstances, make changes to the structure of the databases**. If outside changes make information incompatible, you could destroy the usability of your entire database.

TRANSFERRING DATA

Ewe Byte offers the capacity to electronically transfer records to and from the Ontario Sheep Flock Improvement Program (SFIP), to and from the Canadian Livestock Records Corporation (CLRC), from Lambplan, and to and from electronic readers or scales. To begin importing or exporting records, choose *Transfer Data* from the *Utilities* menu.

EXPORTING RECORDS
Depending on the type of records to be exported, choose the applicable *Export* function. Then choose the group of animals from which to select the records to be exported. Choose *Create list* to begin selecting the animals. Use the mouse cursor to unmark the leftmost box of the records you wish to export. Close the window by double clicking on the top left corner. Then choose *Export records* to begin creating the list for export. You will be asked where to place the file being created.

Files for export to SFIP can be sent on a disk or via e-mail. Files exported to CLRC may be sent on disk or via e-mail. Obtain details from CLRC or SFIP regarding latest procedures for submitting electronic records.

If you have not filled in your SFIP and Breeder numbers, as well as farm identifying information, do so before beginning the data export. When you begin transferring a record to CLRC, you will need to include credit card information, if this is how you will pay.

If you are exporting a CLRC record to transfer an animal to another person, you will need to enter some information about that person i.e. name and contact information. Breeder ID is preferred as well.

IMPORTING RECORDS
Obtain data files from the SFIP or CLRC or Lambplan or electronic reader/scale. If you are importing SFIP files you will need a basic information file and/or an EPD file. From the CLRC, request basic pedigree files in the ANML.TXT format. For Lambplan, you can import EBVs (Estimated Breeding Values) from the ATFEBV.DBF file. Electronic or Barcodes can be extracted from Equivalence files downloaded from an electronic reader or scale. Contact Ewe Byte support if your reader is not listed under Utilities/Customize/Set Defaults

Importing SFIP Records: Choose the appropriate *Import* function, depending on the type of record to be imported. If you choose SFIP records you will need to further choose to import either an EPD file or Pedigree file. You will be asked where to find the file to be imported. Choose the file using the file finder window. Ewe Byte will then open the file and read the records, one animal at a time. It will attempt to match the imported records with records already in the database. If an exact match is found, with the same ID it will ask if you want to overwrite the current data with the new data. If a close match is found with a different ID, it will ask if you want to replace the animal in the database with the new information, or create a new record for this animal.

Importing CLRC Information: Available information from CLRC includes flock id, tattoo, year letter, registration number, name, breed, birth date, birth type, sex and dam and sire registration numbers and names. If the dam or sire cannot be found in your database using their registration number or name, the CLRC registration number will be recorded as the ID of the dam or sire. The combination of flock id, tattoo, year letter and generation will be used as the ID for other animals.

If an animal on the CLRC file was born in your flock, the only information that can be changed are the identifiers. If the birth date, sex, breed, dam, sire, etc. are different from those recorded, you will be warned, and the changes will be ignored.

EDITING THE CODES

The *Edit Codes* option from the menu allows you to customise the list of codes used by the system to represent problems, events, etc. You can add codes, change them or delete codes. Most of the codes consist of four to six letters.

The first 2 letters: refers to the general topic (HE for health, PC for preventive care, etc.). Those letters can only be used for that topic.

The next 2 letters: specifies more detailed grouping of information (e.g. within health, IN for internal problems, RE for reproduction, etc.).

The last 2 letters: can be used to specify a particular problem or procedure (PT for pregnancy toxaemia within health, subgroup reproduction: HEREPT will be the full code to be entered when writing a health record for a sheep with pregnancy toxaemia). These two pairs of codes are interpreted by the system according to the definition that is attached to each code, whether by the designers, or by you. If you change or add to the codes, you should do so in a systematic way, so that the meaning of the codes remains consistent.

The system uses the codes to group coded events, problems, etc. when creating reports, so the codes you choose should conform to your flock management. See the Appendix for a listing of the codes provided with the system.

Editing, Adding or Deleting Codes: To make changes to codes, choose *Edit codes* from the menu and then choose the type of code you wish to edit. To add a code, if there is already a general level code for the specific code you want, choose it from the popup list. The general letters will appear in the appropriate box, and the general name will appear in the general name entry box. You can then enter the new specific code and name. To change or delete a code, first select the item from the list. Then either choose the *Delete code* button, or make the desired changes. (Note that if you delete a code that you have already used, the system will only show the code letters in reports and will no longer be able to show the name of the coded item.) Choose *Save* to store the changes you have made, or *Cancel* to annul them.

The breed codes are two letter codes as in the ROP system used by many genetic improvement programs such as SFIP. If you choose to add codes, change or delete them, please be aware that they may no longer conform to ROP guidelines. When you enter a new breed code, the system requires you to enter a size for the breed as 'S'mall, 'M'edium or 'L'arge. You may also change the default gestation length if you know that your breed normally has a longer or shorter gestation length.
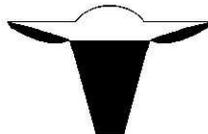
HOW DO I?

This next section is a very brief overview of how to use Ewe Byte and is a good reminder for those that are Ewe Byte users but may only use it every few weeks or months.

ADD A NEW SHEEP
1.   From the menu bar choose:
     - Record data
     - Rams & ewes
     - New sheep
2.   Enter required information:
     - the date the animal was born
     - the date it entered your flock
     - a unique ID for the animal
     - its sex
     - if the breed of this sheep is not the default breed, choose the button *Change breed* and select the breed &/or crossbreeds
3.   Enter optional information:
4.   Check that all information on screen is correct for this sheep
5.   Choose the *Save* button to store this record in the database
6.   Add another sheep or choose *Cancel* to return to the menu

ADD A NEW LAMB
1.   From the menu bar choose:
     - Record data
     - Lambs
     - New lamb
2.   Enter required information in the header for the litter:
     - the date of birth
     - the dam's ID (or choose dam from the list)
     - if there is more than one possible sire, enter or choose the sire
     - the number born in this litter
3.   Enter information that applies to each lamb:
     - *required:* - ID, Raised by, Sex, Raised as
     - *optional information:* - anything else on lower part of screen
4.   Check that all information on screen is correct for this lamb
5.   Choose the *Save* button to store this record in the database
6.   If there are other lambs in litter repeat steps 3-5
7.   Repeat steps 2-6 to enter another lambing or choose *Cancel* to return to the menu

EDIT A SHEEP RECORD
1.   From the menu bar choose:
     - Record data
     - Rams & ewes
     - Edit sheep records
2.   Choose the sheep to edit:
     either enter a known ID
     or   - pick characteristics of a group that including the sheep to edit
           - choose *Locate records* button
           - press right mouse button to begin editing
3.   Change available information:
     - some information cannot be changed (e.g. breed or sex of an animal with offspring)
     - an adult sheep may only be restored to a lamb if it was born in the flock and has no offspring
     - use buttons to gain access to sub-screens with other parts of individual record
4.   Check that all information on this screen and sub-screens is correct for this sheep
5.   Choose the *Save* button to store this record in the database
6.   Use *Next* or *Previous* buttons to view/change other records or choose *Cancel* when finished editing

EDIT A LAMB RECORD
1.   From the menu bar choose:
     - Record data
     - Lambs

- *Edit lamb records*
2. Choose the lamb to edit:
    either   - enter a known ID or
             - select id of dam with lambs from dropdown
    or   - pick characteristics of a group including the lambs to edit
        - choose *Locate records* button
        - press right mouse button to begin editing
3. Change available information:
    - some information cannot be changed except by deleting the records of the lamb and all its littermates this includes born as, dam and breed
    - sex/sire can only be changed if there are no weight records
    - use buttons to gain access to subscreens with other parts of individual record
4. Check that all information on this screen and subscreens is correct for this sheep
5. Choose the *Save* button to store this record in the database
6. Use *Next* or *Previous* buttons to view/change other records or choose *Cancel* when finished editing

RECORD A DISPOSAL
Disposals may be recorded for groups of animals or when editing any ram, ewe or lamb's individual record
To dispose of a single animal:
1. Follow the steps for *Editing a ram, ewe or lamb record*
2. When the animal's record is on the edit screen, choose *Disposal record* to activate the Disposal record window
3. Record a fate code, or select a fate from the list
4. Record the date of disposal
5. Record optional information (post mortem, comments)
6. Select Buyer and Scrapie/CSIP tag number if desired
7. Choose *OK* to temporarily store the disposal or *Cancel*
8. Choose *Save* from the main screen to permanently store the disposal and any other changes you have made to the database
To dispose of a group:
1. From the menu bar choose:
    - *Record information*
    - *Dispose of group*
2. Record the disposal conditions that apply to an entire group
    - the date of disposal
    - the fate
    - optional items (post mortem, comments,buyer)
3. Select the characteristics of the group that includes all or most of the sheep to be added and the order they will be shown. Be sure to choose *Current animals*
4. Choose *Select animals* and choose to initially select or unselect the entire list
5. On the list, mark the leftmost box of any sheep you do not wish to dispose. Double click the top left corner of the list window when finished
6. If you wish to review the list or make further changes, choose *View/edit* list and repeat step 5
7. Click *Assign CSIP/* Scrapie IDs button if required for slaughtering monitoring
    7a. Specify a range of tag numbers to assign
    7b. Click *Assign IDs* to do one-one match with disposed   Ewe Byte ID (usually mandatory for adults) or Click *Tags Only* to store block of tags (maybe OK for young lambs – check government requirements)
8. Choose *Save disposals* to save disposals for all unmarked animals on the list
9. Dispose of another group by repeating steps 2-7, or choose *Cancel*

RETURN A DISPOSED ANIMAL TO LIVE/ACTIVE
Disposals may be reversed for groups of animals or when editing any ram, ewe or lamb's individual record
To reverse the disposal of a single animal:
1. Follow the steps to *change a ram, ewe or lamb record*
2. When the animal's record is on the edit screen, choose *Disposal record* to activate the Disposal record window
3. Choose *Reverse disposal* and when asked, confirm that this is what you wish to do
4. Choose *Save* from the main screen to permanently remove the disposal record and store any other changes you have made to the record
5. Use the *Next* and *Previous* buttons to record other disposals, or choose *Cancel*
To reverse the disposal of a group:
1. From the menu bar choose:
    - *Record information*
    - *Dispose of group*
2. Select the characteristics of the group that includes all or most of the sheep to be added and the order they will be shown. Make sure to choose *disposed animals*

3. Choose *Select animals* and choose to initially select or unselect the entire list
4. On the list, mark the leftmost box of any sheep you do not wish to reverse. Double click the top left corner of the list window when finished
5. If you wish to review the list or make further changes, choose *View/edit* list and repeat step 5
6. Choose *Reverse disposals* to remove disposal records for all unmarked animals on the list
7. Reverse disposals for another group by repeating steps 2-6, or choose *Cancel*

RECORD A HEALTH EVENT
1. Follow the steps to *edit a ram, ewe or lamb record*
2. When the animal's record is on the screen, choose *Health record* to activate the Health record window
3. Choose *New record*
4. Record the date of the health event
5. Record an event code, or select a health event from the list
6. Record optional information (end date, value, comments)
7. If there is more than one health record choose *OK* and Click *Health record*, then *New record* to create next health record
8. Choose *OK* to temporarily store the record(s) or *Cancel* to return to main edit window without saving any health records
9. Choose *Save* from the main screen to permanently store the health records and any other changes you have made to the record

CHANGE A HEALTH EVENT RECORD
1. Follow the steps to *edit a ram, ewe or lamb record*
2. When the animal's record is on the screen, choose *Health record* to activate the Health record window
3. If there is more than one health record choose *Select* record to change a to different health record. Use the cursor to highlight any part of the desired record and then click anywhere outside the list window
4. If the record you wish to edit is showing, change any information
5. If there is more than one health record choose *Store record* and then *Select record* to edit another health record
6. Choose *OK* to temporarily store the record(s) or *Cancel* to return to main edit window without saving any health records
7. Choose *Save* from the main screen to permanently store changes to the health records and any other changes you have made to the record

RECORD A USER DEFINED EVENT
1. Follow the steps to *edit a ram, ewe or lamb record*
2. When the animal's record is on the screen, choose *User defined record* to activate the User defined record window
3. Choose *New record*
4. Record the date of the user defined event
5. Record an event code, or select a user defined event from the list
6. Record optional information (value, comments)
7. If there is more than one user defined record choose *OK* then click on *Health record* and then *New record* to create next user defined record
8. Choose *OK* to temporarily store the record(s) or *Cancel* to return to main edit window without saving any health records
9. Choose *Save* from the main screen to permanently store the user defined records and any other changes you have made to the record

CHANGE A USER DEFINED EVENT RECORD
1. Follow the steps to change a *ram, ewe or lamb recor*d
2. When the animal's record is on the screen, choose *User defined record* to activate the User defined record window
3. If there is more than one user defined record choose *Select* record to change a to different user defined record. Use the cursor to highlight any part of the desired record and then click anywhere outside the list window
4. If the record you wish to edit is showing, change any information
5. If there is more than one user defined record choose *Store record* and then *Select record* to edit another health record
6. Choose *OK* to temporarily store the record(s) or *Cancel* to return to main edit window without saving any user defined records
7. Choose *Save* from the main screen to permanently store changes to the user defined records and any other changes you have made to the record

RECORD/CHANGE PREVENTIVE CARE PROCEDURES
1. From the menu bar choose:
   - *Record data*
   - *Preventive care groups*
   - *New group* or *Edit group*
   - if you have chose to edit an existing group, choose the group from the list and then choose *OK*
2. On the Preventive care group record screen, enter the date of the preventive care

3. Choose up to 5 treatments, or enter the treatment codes
4. Select *Add sheep to group*
5. Select the characteristics of the group that includes all or most of the sheep to be added
6. Mark leftmost box of animals on the list that do not belong in the group, then click anywhere outside the list window when finished
7. To add additional animals, choose *Add sheep...* again. To remove animals, choose *View/edit sheep in group* and mark leftmost box of animals on the list that do not belong
8. Choose *Save* when finished, or *Cancel* to return without saving any changes since the last save

RECORD/CHANGE BREEDINGS
1. From the menu bar choose:
    - *Record data*
    - *Breeding groups*
    - *New group* or *Edit group*
    - if you have chose to edit an existing group, choose the group from the list and then choose *OK*
Information on the Breeding group record screen applies to all ewes in the group
2. Mark Sire 1 and either enter or select a sire ID from the list
    - if there is more than one sire repeat step 2 with Sire 2 and Sire 3
    - to remove a sire from a group, remove the mark beside his ID, or replace it with another ID
3. Enter the dates the ram was put with the ewes and removed
4. Enter AI and pessary information, if applicable
6. Choose *Add ewes to group*
7. Select the characteristics of the group that includes all or most of the ewes to be added
8. Mark leftmost box of ewes on the list that do not belong in the group, then click anywhere outside the list window when finished
9. To add additional ewes, choose *Add ewes to group* again. To remove ewes, choose *View/edit sheep in group* and mark leftmost box of ewes on the list that do not belong
10. To edit information on individual ewes, (a single date of breeding, pregnancy test information, etc.) choose *View/edit sheep in group*. Click anywhere outside the list window when finished changing ewe records
11. Choose *Save* when finished, or *Cancel* to return without saving any changes since the last save

RECORD/CHANGE WEIGHTS
Actual weights may only be recorded or changed using the weight records procedure
1. From the menu bar choose:
    - *Record data*
    - *Weight records*
2. Choose the *Type of weight* you wish to record
    - 50 day or 100 day for the weights that will be used to asses productivity
    - unspecified for all other weights.
3. Choose to record:
    - new weights, and enter a default date that can be overwritten for each animal *or*
    - edit weights already recorded, than enter range of dates before and/or after that includes the weights to be edited.
4. Select the characteristics of the group that includes all or most of the sheep to be added, and the order they will be shown. Only current animals will be shown for new weight records.
5. Choose *Enter/edit weights*
6. Enter/changes weights and/or dates. Records with blank dates or weights will not be saved.
7. Double click on the top left corner when finished. Choose to save or cancel all changes to the weight record when asked.
8. If you wish to recalculate indexes for any groups that may have become out of date, choose that button.
9. When finished, choose *Cancel*.

CHANGE ANIMALS IN CONTEMPORARY GROUPS
Contemporary groups may be changed for individuals or groups of animals. The animals in a single contemporary group must be of the same breed and born within 60 days of each other.

1. From the menu bar choose:
    - *Record data*
    - *Contemporary groups*
2. Choose one of 3 available options:
    - *Combine 2 or more groups into 1*
    - *Move animal(s) to new group*
    - *Move animal(s) to existing group*

If you choose to combine 2 or more groups into 1:

3.   Select the groups to be included:
    choose either :
    - *from contemporary groups:*
    - Unmark the selected groups from the list of groups that appears. When finished, close the window by double clicking on the top left corner.
    or;
        - *from breed and birthdates:*
        - Enter the breed of the contemporary groups and the range of birthdates that includes the groups. (Note that all groups with even one birth within the range will be included.) If you have chosen more than 4 groups or less than 1 group, a message will indicate this.
4.   Choose *OK* to view a list of groups that will be combined. If the range of birthdates of lambs in the selected groups is too great to combine into one group, a message will indicate this.
5.   Mark the leftmost box of any group on the list that you do not want to combine into one.   Unmarked groups will be combined. When finished, close the window by double clicking on the top left corner.
6.   Confirm that you wish to save the changes.

If you choose to move animal(s) to new or existing group
3.   Select the animals to be included:
    choose either :
    - *from contemporary groups*
    - Unmark the selected groups from the list of groups that appears. When finished, close the window by double clicking on the top left corner.
    or;
    - *from breed and birthdates*
    - Enter the breed of the lambs and the range of their birthdates
4.   Choose *OK* to select animals to move
5.   If you have chosen to move lambs to an existing group, select the group from the list of groups.
6.   Select the lambs to move from the list by unmarking the leftmost box.
7.   Confirm that you wish to save the changes

CHANGE ANIMALS IN MANAGEMENT GROUPS
Management groups may be changed for individuals or groups of animals. The animals in a single management group must be of the same breed and born within 60 days of each other.

1.   From the menu bar choose:
    - *Record data*
    - *Management groups*
2.   Choose one of 3 available options:
    - *Combine 2 or more groups into 1*
    - *Move animal(s) to new group*
    - *Move animal(s) to existing group*

If you choose to combine 2 or more groups into 1:
3.   Select the groups to be included:
    choose either :
    - *from management groups:*
    - Unmark the selected groups from the list of groups that appears. When finished, close the window by double clicking on the top left corner.
    or;
        - *from breed and birthdates:*
        - Enter the breed of the management groups and the range of birthdates that includes the groups. (Note that all groups with even one birth within the range will be included.) If you have chosen more than 4 groups or less than 1 group, a message will indicate this.
4.   Choose *OK* to view a list of groups that will be combined. If the range of birthdates of lambs in the selected groups is too great to combine into one group, a message will indicate this.
5.   Mark the leftmost box of any group on the list that you do not want to combine into one.   Unmarked groups will be combined. When finished, close the window by double clicking on the top left corner.
6.   Confirm that you wish to save the changes.

If you choose to move animal(s) to new or existing group
3.   Select the animals to be included:
    choose either :
    - *from management groups*
    - Unmark the selected groups from the list of groups that appears. When finished, close the window by double clicking on the top left corner.

or;
- *from breed and birthdates*
- Enter the breed of the lambs and the range of their birthdates
4.   Choose *OK* to select animals to move
5.   If you have chosen to move lambs to an existing group, select the group from the list of groups.
6.   Select the lambs to move from the list by unmarking the leftmost box.
7.   Confirm that you wish to save the changes

RECORD/CHANGE A PEN OR SUBGROUP
Pen and subgroup may be changed for groups of animals or for individual sheep when editing a ram, ewe or lamb record
To change the pen and/or subgroup of a single animal:
1.   Follow the steps to *change a ram, ewe or lamb record*
2.   With the animal's record showing in the edit window, enter a new pen and or subgroup in the appropriate box
3.   Choose *Save* to permanently store changes to the pen and/or subgroup and any other changes you have made to the record
To change the pen and/or subgroup of more than one animal at a time:
1.   From the menu bar choose:
     - *Record information*
     - *Pen & subgroup*
2.   Enter a default pen and/or subgroup
3.   Select the characteristics of the group that includes all or most of the sheep to be added, and the order they will be shown. (Only current animals will be shown)
4.   Choose *Create/edit list* and choose to initially select or unselect the entire list
5.   On the list, mark the leftmost box of any sheep you do not wish to change. Change the subgroup and/or pen of any sheep that you wish to change from the default. Double click the top left corner of the list window when finished
6.   If you wish to review the list or make further changes, choose *View/edit* list and repeat step 5
7.   Choose *Save pen/subgroup* to save the entire list
8.   Change another group by repeating steps 2-7, or choose *Cancel*

CULL MARK EWES
Cull marks may be recorded for groups of ewes or for an individual animal when editing a ram or ewe record
To cull mark a single animal:
1.   Follow the steps to *change a ram, ewe or lamb record*
2.   When the animal's record is on the edit screen, choose *Cull mark/unmark* to activate the Cull mark window
3.   Enter a cull reason code or choose a reason from the list
4.   Optionally, enter comments
5.   To remove an existing cull-mark, choose *Unmark*
6.   Choose *OK* to temporarily save the cull-mark or *Cancel* to negate any changes
7.   Choose *Save* from the main screen to permanently store cull marks and any other changes you have made to the record
To cull mark a group of ewes:
1.   From the menu bar choose:
     - *Record information*
     - *Cull mark ewe group*
2.   Enter a cull mark code, or choose a code from the list
3.   Select the characteristics of the group that includes all or most of the ewes to be added, and the order they will be shown. (Only current ewes will be shown)
4.   Choose *Create/edit list* and choose to initially select or unselect the entire list
5.   On the list, mark the leftmost box of any ewes you do **not** wish to change. Double click the top left corner of the list window when finished
6.   If you wish to review the list or make further changes, choose *View/edit* list and repeat step 5
7.   Choose *Save cull-marks* to save the entire list

SELECT LAMBS FOR MARKET OR FOR BREEDING STOCK
Change of status to adult breeding animals and selection or market marks may be recorded for groups of lambs or for individual lambs when editing a lamb record
For a single lamb:
1.   Follow the steps to *change a lamb record*
2.   When the animal's record is on the edit screen;
     To mark it
         - Choose *Mark/unmark* to activate the Selection/market mark window
         - Choose *no mark*, *mark for breeding* or *mark for market*
         - Enter a code or choose a reason from the list
         - Choose *OK* to temporarily save the mark or *Cancel* to negate any changes

To change the status of a lamb:
  - Choose *Adult <=> Lamb*
  - Confirm that you wish to change the status to a breeding ram or ewe.
3. Choose *Save* from the main screen to permanently store mark, change of status and any other changes you have made to the record

To mark or change the status of a group of lambs:
1. From the menu bar choose:
    - *Record information*
    - *Select breeding/market stock*
2. Select the characteristics of the group that includes all or most of the ewes to be added, and the order they will be shown. (Only current ewes will be shown)
3. Choose *Create/edit list* and choose to initially select or unselect the entire list
4. On the list, mark the leftmost box of any lambs you do **not** wish to change. Double click the top left corner of the list window when finished
5. If you wish to review the list or make further changes, choose *View/edit* list and repeat step 4
6. *To mark lambs:*
    - Choose to mark selected lambs for market or breeding. (This will not include a code on the records)
   To change lambs to adult:
    - Choose *Change to adult*
7. Choose *Save all changes*.
8. Repeat steps 2-7 for another group or choose *Cancel*.

REVERSE A CHANGE OF STATUS FROM ADULT TO LAMB
Change of status back to lamb from adult breeding animals may only be done when editing an individual sheep record. Only animals that were born in the flock and have no recorded offspring may be returned to lambs
1. Follow the steps to *change a ram or ewe record*
2. When the ram's or ewe's record is on the edit screen, choose *Adult <=> Lamb*
3. Confirm that you wish to return the status from a breeding ram or ewe to a lamb
4. Choose *Save* from the main screen to permanently store the change of status and any other changes you have made to the record

ADD/CHANGE A CODE
Codes may be added when editing sheep information or using the main menu
1. *When editing information:*
    - Choose the *New code* button.
   From the main menu
      - Choose:
         - *Utilities*
         - *Edit codes*
         - the type of code you wish to edit
In the edit code window:
2. If you wish to edit a code or a more specific code to a general one, choose the code from the list
3. The two letter general code appears in the middle code box, the specific code in the left box
4. The general description appears in the top box under the list, the specific description in the bottom box
5. Enter new codes and/or descriptions where desired
6. When the information on the entire screen is as desired, choose *Save*

ADD AN AI RAM, EMBRYO DONOR EWE, OR ANCESTORS FOR PEDIGREE PURPOSES ONLY
Use these steps to record sheep that have never been a part of your flock
1. Follow the steps for *adding a ram or ewe*
When editing the animal's record;
2. The *date acquired* may be any date you choose
3. Record the *subgroup* as '*'
4. If you do not wish to have the animal come up on lists of currently available animals (for breeding rams, etc.), record a *disposal*, with the fate "Removed"
5. Choose *Save* to store the entire record

CHANGE THE STYLE OF DATE
1. From the main menu
    - Choose:
        - *Utilities*
        - *Customise*
        - *Set default values*

2. Select the radio button for the type of date:
    - day/month/year
    - month/day/year
    - year/month/day
3. Choose *Save* to save this change and any other changes you have made

CHANGE THE WEIGHTS FROM KILOGRAMS TO POUNDS
1. From the main menu
    - Choose:
        - *Utilities*
        - *Customise*
        - *Set default values*
2. Select the radio button for the type of weight entry:
    - kilograms
    - pounds
3. Select the radio button for the type of weight display:
    - kilograms
    - pounds
4. Choose *Save* to save this change and any other changes you have made

CHANGE DEFAULTS FOR BREEDING LENGTH, WEANING, ETC.
1. From the main menu
    - Choose:
        - *Utilities*
        - *Customise*
        - *Set default values*
2. Enter any new values
3. Choose *Save* to save this change and any other changes you have made

CHANGE THE NAME AND ADDRESS IN THE REPORT HEADERS
1. From the main menu
    - Choose:
        - *Utilities*
        - *Customise*
        - *Identify farm*
2. Enter correct name, address, etc.
3. Choose *Save* to save this change and any other changes you have made.

RECORD SFIP OR CLRC NUMBERS
1. From the main menu
    - Choose:
        - *Utilities*
        - *Customise*
        - *Identify farm*
2. Enter correct numbers in the appropriate boxes
3. Choose *Save* to save this change and any other changes you have made
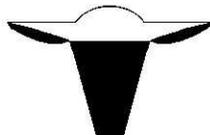
GLOSSARY OF TERMS

100 day index: Based on the adjusted 100 day weight of a lamb relative to other lambs in the same *contemporary group*. The average of 100 day indexes for all lambs in a contemporary group is 100.

adjusted 50 day weight: Weight of a lamb taken between 35 and 65 days, adjusted to allow lambs to be compared as if they were 50 day old ram lambs raised as singles by a four-year old dam.

adjusted 100 day weight: Weight of a lamb taken between 85 and 115 days, adjusted as *50 day weight*.

adjusted daily gain (ADG): Per day gain between the *adjusted 50* and *adjusted 100 day weights*.

acquired (date): Date the animal joined the flock. Birthdate or date purchased.

ASCII file: Basic text file (*.txt) that can be imported into other programs.

back-up: Copy of a file used as insurance against disk failure, or file errors. Used to *restore* data.

bottle fed: Artificially fed milk, either entirely or as a supplement to dam's milk.

born as: The number born (live and stillborn) to a single ewe, in a single lambing, including the animal under consideration.

breeding group: A group of ewes that have all of the following in common: the ram(s) they are exposed to, the *breeding period*, hormone management, if any. A ram may be listed with more than one breeding group at the same time, but each ewe may be in only one group at a time.

breeding period: The period from the time the ram is introduced to a *breeding group* of ewes until he is removed.

breeding up: Method of using purebred rams to increase percentage of desired breed in commercial ewes over time

cancel: End current activity. If *cancel* is chosen during data entry, changes after the last *save* will be abandoned.

check box: A small square box with descriptive text. It can be marked with an X to alternate between two states such as yes and no or selected and unselected. If the box has an X in it, the setting is yes. New selections are made using the mouse pointer.

coefficient of inbreeding: Calculated measurement for an individual animal of the proportion by which totally unrelated genetics have been reduced by inbreeding. The coefficient of inbreeding for unrelated animals is 0.

comment area: A box on the screen for entering longer amounts of text to describe an animal, a problem, treatment, etc. Comments are stored in memo fields.

contemporary group: Lambs of the same breed born within a 30 day period. The contemporary group is used to calculate *ewe indexes*, *100 day indexes* and *multi-trait indexes*.

control: Feature of the screen that allow selections to be made, or actions to be initiated. Controls include various *buttons*, lists and *entry boxes*.

CSIP: Canadian Sheep Identification Program used to track movement of sheep and lambs. See www.cansheep.ca for more details

cull mark: A code placed on the record of a sheep that marks it for possible culling in the future.

data directory: The file directory that stores the *data files* holding pieces of information about animals in a flock. The contents of these files change whenever data is added or edited. It is separate from the *program directory*

data file: A group of individual *records* collected into a single computer file with the file extension .DBF and its associated index file (.CDX) and memo file (.FPT), if needed.

database system: A set of files that interact to store information about animals in a flock (also called a relational database). In addition to storing data, a database system allows for organizing analyzing and retrieving and modifying information. Each *file* is composed of *records* of individual animals. Each record is composed of several *fields*.

delete: Completely, permanently remove a record. If the basic record of an animal is deleted, all traces of the animal will be removed from the database. This includes indexes for groups that includes the animal. Deleted records may only be recovered from backup files or re-entered.

delimited file: A list of animals with each *field* on a line is separated by a comma and each line separated by a carriage return mark. Delimited files can be imported into spreadsheets.

dispose: Remove an animal from active status in a flock. The animal's record remains in the database and can be used to calculate productivity measures for the flock and for the dam and sire. In contrast to *delete*.

EBV records: Estimated Breeding Values (EPD) values produced by Lambplan in Australia. These values relate to several different traits. See http://www.sheepgenetics.org.au/lambplan/ for more details.

entry box: A rectangle that is designed to accept a specific number of characters, numbers or dates. The size of the box and the number of decimals allowed correspond to the size of the storage field in the database.

EPD records: Estimated Progeny Difference (EPD) values produced by national or regional programs. These values relate to several different traits. See for more details http://www.omafra.gov.on.ca/english/livestock/sheep/facts/sfipepds.htm

Equivalence values: Matching Electronic ids to Ewe Byte ids

event: A single problem, measurement, etc. that happens to a selected animal on a single date.

ewe index: Based on the total *adjusted 50 weight* of lambs raised by the ewe at the same time, compared to other ewes raising lambs in the same *contemporary group*. The average of ewe indexes for lambs in a contemporary group is 100.

external animal: A breeding animal that was never present in your flock, designated by *subflock* '*'. External animals are recorded for background (pedigree). They can include AI rams, embryo donor ewes and ancestors of sheep in the flock.

field: Each field stores one specific type of data about an animal e.g. birth date or ID. Several fields make up a *record*, several records make up a *data file*.

flock ID: A code of up to four letters or numbers that indicates the flock in which an animal originated..

foster dam: The dam that raised a lamb, if different from the original dam.

generation code: A single letter attached to the ID's of animals that allows the same ID to be reused for different years. The generation code letter changes every 22 years. (See also *year letter*.)

group by: On some reports, the option to divide animals by common factors such as age, or breed. Within the groups, the animals can be arranged by the item chosen as *order by*.

health event: A health problem, treatment or measurement that is given to a single animal on a given date.

ID: A unique identifier required for each animal, composed of up to eleven letters and/or numbers. The ID is used to link information about an animal held in different *data files*.

lamb tag: An identifier for each animal, composed of up to five letters and/or numbers. The lamb tag must be unique for each year. It will be shown with the *year letter* and *generation code*.

litter: All lambs born to a single ewe during a lambing, whether or not they were raised by that dam.

main menu bar: The second row of the main Ewe Byte window immediately below the title bar. Each item on the main menu bar gives access to a related popup menu or initiates an action.

management group: Lambs of the same size born within a 30 day period. The management group may be used to calculate *ewe indexes*, *100 day indexes* and *multi-trait indexes*. instead of contemporary group

message line: The bottom line of the screen that gives advice about the requirements for data entries (fields) and some problem descriptions.

message window: A small area in the top right corner of the screen that gives advice, warnings, etc. Message windows can be removed from the screen by pressing a key or clicking the mouse button.

multiple selection list: A list that permits more than one option to be chosen at a time.

multi-trait index (MTI): An index based on the 100 day weight and the type of birth (single, twin, etc.) of an animal relative to others in its *contemporary group*. The average of multi-trait indexes for all lambs in a contemporary group is 100.

order by: On some reports, animals can be arranged by the item chosen as order by. There may also be an option to group by common factors such as age, or breed.

OSHP: The Ontario Sheep Health Program is a voluntary flock health program managed by the Ontario Sheep Marketing Agency. More information can be found at: http://www.ontariosheep.org/OSHP.HTML

pen: A group of animals for management or analysis selected from the main flock and designated by one or two letters and/or numbers. This need not be a physical group.

permanent tag: An identifier for each animal, composed of up to eight letters and/or numbers. The permanent tag must be unique for each year. It will be shown with the *year letter* and *generation code*.

pop-up list: A menu of choices with an arrow on the right that displays the remainder of the list. The top item on the list is the currently chosen one.

predicted producing value (PPV): An estimate of future productivity of a ewe based on the number and *adjusted 50 day weights* of lambs raised.

preventive care: Procedures such as worming, vaccinating, hoof trimming, etc. that are given to a group of sheep to maintain health.

preventive care group: A group of animals that had one or more preventive care (health maintenance) procedures done to them on the same day.

print to file: Write a report to an *ASCII file* that can be imported into a word processor, or transferred electronically.

productivity: Measurement of the number and adjusted weight of lambs produced by a ram or ewe, or by a group of sires or dams, within a given period of time.

program directory: The file directory that stores the operating files that remain largely unchanged when using the program. It is separate from the data directory

radio button: A control on a list of options, each with a small circle beside it. Only one option is selected at a time, like the push buttons on a car radio. The active selection has a "bull's eye in the circle. New selections are made using the mouse pointer.

raised as: The number of lambs raised at one time by the same dam, including the animal being considered.

raised by: The dam that raised the animal. This could be the birth dam, a *foster dam*, or 'BOTTLE' if the lamb was artificially raised. For a lamb that is still-born, it should be listed as raised by the birth dam.

record: A single row in a *data file* that contains related information (*fields*) about a single animal or event.

Restore: Bring back a complete set of data *files* from previously created backup files.

Save: Permanently store a *record*, or changes to a record to the database.

SFCP: Scrapie Flock Certification Program used to track inventory of sheep and lambs between 2 annual inventories. More information is found at http://www.inspection.gc.ca/english/anima/heasan/man/scrtre/scrtre-a6e.shtml

SFIP: Sheep Flock Improvement Program is a home test genetic improvement program designed to assist sheep producers in the evaluation of potential breeding stock and to provide a measure of the comparative productivity of ewes in the flock. See http://www.omafra.gov.on.ca/english/livestock/sheep/facts/info_sfip.htm for more details

slider: Bar on the right and/or bottom edge of some windows that allow information on the screen to be scrolled.

spinner: A control that "spins" through a series of numbers using the mouse to activate up and down arrow buttons. A spinner also allows direct entry of a number using the keyboard.

stillborn: an animal that was not born alive. For many calculations, stillborn animals are grouped with animals whose birth and death date was the same.

subgroup: A group of animals for management or analysis selected from the main flock and designated by a single letter or number. This need not be a physical group.

tattoo: A number used to identify an individual sheep combined with the *flock ID*, *year letter* and *generation code*.

user defined event: A measurement or incident that relates to a single animal on a given date, for example sales data, fleece measurements, etc.

weaning age: On reports, the age at which a lamb is considered weaned, based on the age you set as a default.

year letter: A letter assigned to each calendar year, used in the identification of animals. The letters I, O, Q and V are not included. Every 22 years a different *generation code* is added to make the year letters unique

APPENDICES

CALCULATING ADJUSTED WEIGHTS & INDEXES[1]

Note that all weights are calculated in kilograms.

ADJUSTED 50-DAY WEIGHTS
= WT1 x (50 - days of age at 50-day weighing) x ADG50
    where
      WT1 = actual weight at 50-day weighing x 50-day adjustment factor
      ADG50 = (WT1 - 2.5) / days of age at 50-day weighing

ADJUSTED AVERAGE DAILY GAIN (ADG)
= [(WT100 - WT50) / INTERVAL] (x 1.07 if ewe or wether)
    where
      WT100 = actual weight at 100-day weighing
      WT50 = actual weight at 50-day weighing
      INTERVAL = time in days between 50-day and 100-day weighing

ADJUSTED 100-DAY WEIGHTS
= (ADG x 50) + Adjusted 50 day weight
    or if there has been no 50 day weight recorded:
= FWT100 +[(100 - age at weighing) x ADG.]
    where
      FWT100 = actual weight at 100-day weighing x adjustment factor for 100 days
      ADG = FWT100 x .76/age at weighing

100-DAY INDEX
= 100 + ([(ADJ100 - avADJ100)/sdADJ100] x 20)
    where
      ADJ100 = adjusted 100 day weight for the individual lamb
      avADJ100 = average adjusted 100 day weight of the contemporary group
      sdADJ100 = std dev of 100 day weights of contemporary group

MULTI-TRAIT INDEX (MTI)
= 100 + (M - avM)/sdM x 20
    where
      M = adjusted 100 day weight of lamb x multiple birth factor
      avM = average of M for contemporary group
      sdM = standard deviation of M for contemporary group

EWE INDEX
= 100 + (E - avE)/sdE x 20
    where
      E = the sum of adjusted weights for the ewe at this lambing
      avE = the average of E for all ewes in the contemporary group
      sdE = the standard deviation of E for all ewes in the contemporary group

PREDICTED PRODUCING VALUE (PPV)
= 100 + R x (avEI-100)
    where
      avEI = the average of all a ewe's ewe indexes over her lifetime
      R = n x 0.2 /(1+ (n-1) x (0.2))
      n = the number of ewe indexes the ewe has had during her lifetime
      0.2 = the estimated repeatability of lamb production

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[1] Sheep Flock Improvement Program Breeder's Handbook, Ontario Ministry of Agriculture, Food and Rural Affairs. Jan 2004

CALCULATING ANNUAL PRODUCTIVITY SUMMARY:

Those measures that are required for the Ontario Sheep Health Program are indicated.

GENERAL INVENTORY

Adult Mortality Rate: Required for OSHP
> Adult ewes are most at risk of dying from predators, diseases that occur around lambing and some infectious diseases, e.g. mastitis, pneumonia and chronic wasting diseases. Most mortality can be limited to less than 5% annually with good management practices that reduces the risk of these diseases.
> **Calculation** = # of adult sheep that die in 12 month period / average # of adult sheep in the flock over same period.

Adult Cull Rate: Required for OSHP
> Also called **Removal Rate**. This includes all removals including breeding sales of adults. Good managers will remove a proportion of the ewe flock that is not as productive as the new replacement stock. Most culls should be **voluntary**, e.g. a ewe whose lambs at weaning were not as heavy as the average of the group, should be removed and replaced with a more productive ewe. **Involuntary culls** are because the animal is no longer productive, e.g. mastitis, infertile.
> **Calculation** = # of adult sheep that are removed from the flock in a 12 month period / average # of adult sheep in the flock over the same period.

REPRODUCTIVE PERFORMANCE

Ram : Ewe Ratio:
> Only calculate if use one breeding group in this 12 month period, otherwise only calculate per breeding group. Different breeding management systems require different ram : ewe ratios.   For example, range breeding a flock over 42 days in season, may only require 1 ram per 50 ewes, whereas synchronization of the flock in or out of season may require a much lower ratio, e.g. 1 ram per 7 to 15 ewes. If reproductive performance is poor for this breeding group, use this number to determine if "ram power" may be an issue.
> **Calculation** = 1: (# of ewes in breeding group / # of rams that group of ewes are exposed to).

Pregnancy (Scanning) Rate:
> If scanning using ultrasound is routinely done, this allows you to more quickly pinpoint problems in ewe or ram fertility or breeding management practices.
> **Calculation =** [(# ewes scanned for pregnancy in 12 month period - # ewes scanned open) / # ewes scanned for pregnancy.] * 100%.
> This can be further broken down to determine more specific information on prolificacy. The denominator will always be # of ewes scanned for pregnancy.
> % Scanned Open
> % Scanned with Singles; Twins; Triplets & More.

**Lambing Rate - per Exposure to the Ram:	Required for OSHP**
> The proportion of the breeding group that lambs from a breeding exposure. A ewe may be exposed more than once to the ram if there is more than one breeding period included in the 12 months. This may be very close to the pregnancy (scanning) rate in value, unless there is a marked problem with abortion. This figure should be greater than 95%.
> **Calculation =** (# ewes that lamb in the 12 month period / total # of exposures in the corresponding 12 month period) * 100%.

Lambing Rate - per Ewe Exposed to the Ram:
> This is for producers using an accelerated or frequent lambing system in which the ewe may have an opportunity to lamb more than once / year. If fertility is good, then both lambing rates should be very close in value. If not, then it is important to analyse performance by breeding group to determine which exposure is performing badly.
> **Calculation =** (# ewes that lamb in the 12 month period / total # of ewes in the breeding flock in the corresponding 12 month period) * 100%.

Ewe Lamb Lambing Rate:
> This reflects the fertility of ewe lambs, i.e. ewes that have not lambed before. Poor fertility may be due to problems with nutrition, breeding management, genetics or seasonality (if bred out of season). If this figure is low, e.g. < 90%, the producer may wish to examine the fertility rate of those ewe lambs exposed to the ram for the first time vs those ewe lambs that may have been previously exposed to the ram but failed to conceive. If the former is lower than the latter, then perhaps the ewe lambs have not yet reached puberty and factor affecting this should be examined. If the latter is lower than the former, then there may be a group of ewe lambs that are infertile for other reasons.
> **Calculation= (#** ewe lambs that lambed in that 12 month period/ # ewe lambs exposed to the ram in the corresponding 12 month period) * 100%.

Average Age at First Lambing (months):
> This reflects the fertility of ewe lambs as well as management decisions of when to breed ewe lambs as well as possible decisions on whether and when to re-expose ewe lambs that did not conceive to the first breeding. This is a more historic view of ewe lamb fertility than ewe lamb lambing rate. For intensively reared sheep, the average age should be between 12 and 18 months. For extensive range breeds, this figure may be closer to 24 months.
> **Calculation= (**Sum of ages of all ewe lambs that lambed in that 12 month period / # of ewe lambs that lambed)

Abortion Rate:

    Sheep are prone to many causes of abortion, both infectious (e.g. chlamydiosis, toxoplasmosis, campylobactiosis, coxiellosis) and non-infectious (e.g. iodine deficiency). Many of the causes of abortions may also cause a decrease in lambing rate (open ewes) and an increase in stillbirth and neonatal mortality rate. Flocks without an abortion problem have rates < 2%. Flocks with endemic abortion problems have rates of 5 to 10%. Abortion storms often have rates of 20 to 30%. Abortion rates greater than 5% should be investigated by a veterinarian, particularly if the abortions are clustered in time.

    Calculation= (# of ewes and ewe lambs observed to abort in that 12 months / # of exposures during corresponding 12 months) * 100%

Lambs Born per Exposure to the Ram: Required for OSHP

    This is a measure of prolificacy (more lambs per ewe lambing) and fertility (the ability of the ewe to become pregnant). Should record all term stillborn lambs as well as all live births. Targets are specific to the prolificacy of the breed used. If this figure is lower than target (e.g. 1.3 for extensive range ewes up to 2.0 for intensive prolific ewes), then prolificacy and fertility should be examined separately.

    Calculation= (# lambs born in that 12 months / # of exposures during corresponding 12 months).

Lambs Born per Ewe Exposed to the Ram (per Ewe per Year):

    For producers using an accelerated lambing program. It measure prolificacy and fertility but also measures the success of the accelerated lambing program. If the value for "per ewe exposed" is lower, then analyse by breeding group to determine where there is a failure of either fertility or prolificacy.

    Calculation= (# lambs born in that 12 month period / # of ewes exposed to the ram in the corresponding 12 months)

Lambs Born per Lambing: Required for OSHP

    Also called "drop rate", "litter size" or sometimes erroneously called "lambing rate". Again should include all stillbirths as well as live births. A low value may be due to factors that affect the ewe's prolificacy and not necessarily affect the ewe's ability to become pregnant. This could be nutritional, genetic, related to ram fertility, ram:ewe ratio, etc.

    Calculation: (# lambs born in that 12 month period / # of lambings in same 12 month period).

Proportion of Ewes Lambing Singles vs Twins vs Triplets or More:

    Although prolificacy is desired, the distribution of singles vs multiples is also of interest. The risk of undersized lambs, ewe rejection or other mis-mothering issues is increased with ewes lambing triplets or more (in some breeds, this may be quads or more). If the distribution is skewed so that too many ewes have large litters, the producer may wish to modify the hormonal component of the breeding program. If the distribution is skewed so that too many ewes are producing singles, other issues such as nutrition, genetics, ram power, seasonality etc should be examined.

    Calculation = (# of lambings producing singles / total # of lambings) ; (# of lambings producing twins / total # of lambings); (# of lambings producing triplets / total # of lambings); (# of lambings producing quads or more / total # of lambings).

Length of Lambing Period: Required for OSHP

    This reflects the length of the breeding season - usually 6 to 7 days shorter than the lambing period, and the success of the breeding exposure. A drawn-out lambing period may detract from lambing management, i.e. the ability to properly attend and manage lambings.

    Calculation= date of last lambing - date of first lambing

Distribution of Lambing Within the Lambing Period:

    Also called proportion of flock lambing to "X" breeding. For flocks that only have one breeding group per year. Producers using an accelerated lambing system or that have more than one breeding group in their flock, need to analyse by breeding group. During the normal breeding season (e.g. fall), the ewe has more than one opportunity to be bred by the ram (length of the estrous cycle is 17 days). Most (75%) of the ewes should conceive to the first breeding opportunity. Failure to do this indicates a problem with breeding management. If the lambing season is spread out, check ram and ewe fertility issues.

    Calculation= Proportion of ewes lambing to 1st cycle=(# of ewes lambing < 163 days after the ram is introduced / # of ewes lambing) * 100%; Proportion of ewes lambing to 2nd cycle=(# of ewes lambing 163 to 174 days after the ram is introduced / # of ewes lambing) * 100%; Proportion of ewes lambing to 3rd + cycles = (# of ewes lambing more than 174 days after the ram is introduced / # of ewes lambing) * 100%.

LAMB SURVIVAL PERFORMANCE

Stillbirth Rate: Required for OSHP

    The proportion of lambs born that are stillborn (i.e. never observed alive) is a reflection of peri-partum and lambing management but, combined with an elevated abortion rate - may also indicate a problem with infectious or non-infectious abortion. The stillbirth rate is often 5% or greater but should be < 2%. If elevated, routine lamb necropsies should be performed to discover the reason.

    Calculation= (# of lambs stillborn / total # of lambs born) * 100%

Lamb Mortality Rates: Pre-Weaning Mortality Rate Required for OSHP

    Most mortality in lambs born alive occurs within 48 hours of birth - generally pointing to problems with late gestation, lambing and / or post-lambing management, but infectious disease (e.g. diarrhea, pneumonia) can cause significant losses in older lambs. Pre-weaning mortality rates are often greater than 10% but should be < 5%. If losses are greater, extra information will be gained by breaking down when lambs die. The divisions listed below are as calculated

by the Sheep Flock Improvement Program. As with stillbirth problems, routine lamb necropsies should be performed to discover the reason for these losses. Please note that the rates are calculated based on those lambs that die / those lambs at risk of dying at the beginning of the time period.

Pre-Weaning Lamb Mortality Rate:
>**Calculation**= (# of lambs dying before weaning / total # of lambs born alive)

Proportion of Lambs Dying:
>**Birth to 10 days: Calculation=** (# of lambs dying before 10 days / total # of lambs born alive)*100%
>**11 days to weaning: Calculation=** (# of lambs dying 11 days to weaning / total # of lambs alive at 10days) * 100%

Post-Weaning Lamb Mortality Rate:
>**Calculation=**(# of lambs dying between weaning and marketing or breeding / # of lambs alive at weaning)* 100%

Total Lamb Mortality Rate:
>This value is more important for economic considerations rather than for investigating why lambs are lost.
>**Calculation**=(# of lambs stillborn and dying before marketing or breeding / total # of lambs born) *100%.

WEANING PERFORMANCE

Lambs Weaned per Exposure:Required for OSHP
>This is a reflection of management from breeding through to weaning for all breeding groups in the defined year. It is more important as an indicator of economic success - i.e. availability of lambs for marketing or breeding stock sales for that year.
>**Calculation= (#** of lambs weaned in that 12 month period / # of exposures to the ram over the corresponding 12 month period).

Lambs Weaned per Ewe per Year:
>For producers using an accelerating lambing program. Again this is more important for evaluating economic viability of the operation.
>**Calculation=** (# of lambs weaned in that 12 month period / # of ewes in breeding program over the corresponding 12 month period).

Lambs Weaned per Lambing: Required for OSHP
>This indicates the prolificacy of the ewes that lambed and the success of the lamb rearing management.
>**Calculation=** (# of lambs weaned in that 12 month period / # of lambings in same 12 months).

Average Weaning Weight of Lambs:
>For those producers that are not on the Sheep Flock Improvement Program and weigh their lambs at weaning. These values are unadjusted (for age of ewe, whether the lambs are female or male, whether raised as a single, twin, triplet etc, orphaned or bottle reared and age at weaning) and as such are a raw indication of how well the lambs are growing. Use the SFIP adjusted values for comparison to targets or production in previous years.
>**Calculation=** (sum of weaning (50 to 60 day) weights of lambs / # of lambs weaned in that 12 month period).

Kilograms or Pounds of Lamb Weaned per Exposure to the Ram or per Ewe in the Flock:
>As with lambs weaned per ewe, this indicates the overall economic success of breeding through to weaning, but also provides information on the success of the growth of the lambs. This provides potential information on the amount of kg of lamb available to be marketed per ewe carried in the flock.
>**Calculation= (**sum of weaning weights of lambs / # of exposures in corresponding 12 month period).
>**Calculation= (**sum of weaning weights of lambs/ # of breeding ewes carried in the flock)

CALCULATING LAMB PRODUCTION SUMMARY

SAMPLE REPORT

Ewes in group:	97	Born as singles:	38%
Number of lambings:	532	twin:	60%
Lambs born:	777	triplet:	2%
Raised to weaning:	664	quad or more:	%
Born/lambing:	1.46	Fostered	1%
Born live/ lambing:	1.43	Artificially fed	%
Raised/ lambing:	1.25		
		Average weights:	
Born live/born:	.98	Birth weight:	4.44
Raised/born:	.85	Adjusted 50 day:	20.3
		Adjusted 100 day:	35.7
		ADG:	0.31

HOW NUMBERS ARE DERIVED:
Ewes in group: total ewes in group present in flock at any time during the designated period.
Number of Lambings: # lambings for these ewes during period.
Lambs Born: total lambs born (live or stillborn)

Born live: lambs who lived at least 1 day.
Raised to weaning: lambs alive at end date of period or that lived
to default weaning age.
Born as Singles, Twins, Triplets or Quads or More: lambs born as 1, 2, 3 or 4 or greater as a percentage of all
lambs.
Raised by Dam, Foster Ewe or Bottle Feeding: lambs raised by dam, foster ewe or artificially fed as a
percentage of all lambs
Average Weights: avg of weight for lambs with a recorded weight

CALCULATING REPRODUCTION SUMMARY

SAMPLE REPORT

Totals for entire period		**Averages/Ewe exposure to ram(s)**		
Ewes in flock:	80	Days exposed to ram(s):	45	
Rams used:	7	Ewes testing pregnant:		92%
Lambings:	386	failures to lamb:		12%
Assisted lambings:	37	assisted lambings:	8%	
easy:	8	easy:		2%
difficult:	3	difficult:		8%
Lambs born:	544	Lambs born:		1.25
Lambs raised:	471	Lambs raised:		1.08

Averages / Lamb born during period		Average # of ewes in flock/Year:		32.1
Lambs raised:	0.87	**Averages / Ewe / Year**		
Deaths before 100 days:	0.13	Exposures to ram:		1.13
% of deaths(<100 days) that were:		Days exposed to ram:		52
Stillborn or < 24 hrs:	66%	Lambings:		0.99
at 0 to 2 days: 78%		Assisted lambings:	10%	
at 3 to 10 days: 15%		easy:	22%	
at 11 to 30 days: 4%		difficult:	8%	
at 31 to 50 days: %		Lambs born:	1.40	
at 51 to 100 days: %		Lambs raised:	1.22	

HOW NUMBERS ARE DERIVED:

Ewes in flock: Count of all ewes present at any time during the period.
Rams used: Count of all rams listed as sires or rams in breeding groups.
Lambings: Total lambings not including abortions, but including stillbirths.
Assisted lambings: Lambings that were listed as assisted, including easy and difficult assists.
Lambs born: Total of both live born and stillborn lambs.
Lambs raised: Lambs that were still alive on the last day of the period or that were live at 29 days.
Average # ewes in flock / Year: Total days during the entire period when each ewe was present in flock / 365.
Averages / Ewe / Year: Each of the items in this section is divided by the average number of ewes in the flock per
year.
Exposures to ram(s): An exposure to a ram is counted as either a ewe being listed in a breeding group that could
have resulted in a lambing during the defined lambing period, no matter how long that breeding group lasted.
One exposure is also counted for a ewe that has lambed without being listed in a breeding group for the
corresponding period.
Days exposed: The number of days a ewe was recorded as in a breeding group or if a ewe lambed without being
listed in a breeding group, this is assumed to be the default breeding period defined in the system
customisation.
Ewes failing to lamb: Failed exposures, i.e., ewes that did not lamb after a given exposure.
Averages/Ewe exposure: Based on exposures as listed above.
% ewes testing pregnant: Percentage of positive tests/ram exposures in a breeding group
Deaths before 100 days: Portion of lambs that died at less than 100 days (excluding marketed lambs)/lamb born.
This will always be less than 1.
% of deaths (<100 days) that were: Each of the remaining numbers is divided by the total number of deaths
before 100 days, then expressed as a percentage. Note that "Stillborn or < 24 hrs" is also included in "at 0 to 2
days."

CODES

CULLING CODES

CUAG	AGE		CUPC	POOR CONDITN	
CUBH	BEHAVIOUR	- BAD TEMPER	CUPM	POOR MOTHER	
CUDS	DISEASE		CUPR	PRODUCTIVITY	
CUDSAB	DISEASE	- ABORTING	CUPREI	PRODUCTIVITY	- LOW EWE INDEX-WTS
CUDSCL	DISEASE	- CASEOUS LYMPHADENI	CUPRLI	PRODUCTIVITY	- LONG LAMBG INTERVL
CUDSHF	DISEASE	- HOOF PROBLEMS	CUPRLP	PRODUCTIVITY	- LOW LAMB PERCENT
CUDSMA	DISEASE	- MAMMARY	CUPRPF	PRODUCTIVITY	- PREGNANCY FAILURE
CDDSMV	DISEASE	- MAEDI-VISNA	CUTY	BODYTYPE	
CUDSTE	DISEASE	- TEETH-MOUTH PROB	CUTYBC	BODYTYPE	- BREED CHARACTER
CUIF	INFERTILE				

FATE/DISPOSAL CODES

FADD	DIED		FADDSB	DIED	- STILLBORN
FADDAB	DIED	- ABORTION	FADDSV	DIED	- STARVATION
FADDAC	DIED	- ACCIDENTAL	FADDUN	DIED	- UNKNOWN
FADDAG	DIED	- AGE	FAEU	EUTHANIZED	
FADDDS	DIED	- DISEASE	FAMK	MARKET	
FADDFB	DIED	- AFTER BIRTH	FAMKBS	MARKET	- BREEDING STOCK
FADDHY	DIED	- HYPOTHERMIA	FAMKCA	MARKET	- CARCASS
FADDIN	DIED	- INJURY	FAMKFZ	MARKET	- FREEZER
FADDLA	DIED	- LAMBING PROBLEMS	FAMKLV	MARKET	- LIVE
FADDMA	DIED	- MANAGEMENT	FAMKSY	MARKET	- STOCKYARD
FADDMB	DIED	- DEAD IN MEMBRANE	FARE	REMOVED	
FADDMF	DIED	- MUMMIFIED FETUS	FASDBA	SOLD	- BREEDING-AUCTION
FADDPB	DIED	- PREMATURE	FASDBO	SOLD	- BOTTLE LAMB
FADDPN	DIED	- PNEUMONIA	FASDBP	SOLD	- BREEDING-PRIVATE
FADDPR	DIED	- PREDATOR			

HEALTH CODES

HEAB	ABORTION		HEMANM	MAMMARY	- NO MILK
HEABCA	ABORTION	- CAMPYLOBACTER	HEMS	MUSCL-SKELTN	
HEABEN	ABORTION	- ENZOOTIC	HEMSAR	MUSCL-SKELTN	- ARTHRITIS
HEABPR	ABORTION	- PREDATOR	HEMSCF	MUSCL-SKELTN	- CONFORMATION
HEABTO	ABORTION	- TOXOPLASMOSIS	HEMSFC	MUSCL-SKELTN	- FRACTURE
HEAL	ABNORMAL LAMB		HEMSFR	MUSCL-SKELTN	- FOOT ROT
HEBH	BEHAVIOUR		HEMSIJ	MUSCL-SKELTN	- INJURY
HEBHAG	BEHAVIOUR	- AGGRESSIVE	HEMSJI	MUSCL-SKELTN	- JOINT ILL
HEBHRL	BEHAVIOUR	- REJECTS LAMB	HEMSLA	MUSCL-SKELTN	- LAMENESS
HEEY	EYES		HEMSSL	MUSCL-SKELTN	- SPIDER LAMB
HEEYBL	EYES	- BLINDNESS	HEMSWM	MUSCL-SKELTN	- WHITE MUSCLE
HEEYEN	EYES	- ENTROPION	HENV	NERVS SYSTEM	
HEEYIJ	EYES	- INJURY	HENVLS	NERVS SYSTEM	- LISTERIA-CIRCLING
HEEYPE	EYES	- PINK EYE	HENVPO	NERVS SYSTEM	- POLIO
HEIN	INTERNAL		HENVRB	NERVS SYSTEM	- RABIES
HEINCL	INTERNAL	- CASEOUS LYMPHADEN	HENVSC	NERVS SYSTEM	- SCRAPIE
HEINCO	INTERNAL	- COCCIDIOSIS	HENVTT	NERVS SYSTEM	- TETANUS
HEINDA	INTERNAL	- DIARRHOEA	HEPLCH	POST LAMBING	- CHILLED <5 HRS OLD
HEINJA	INTERNAL	- JAW PROBLEMS	HEPLCS	POST LAMBING	- CHILLED-STARV>5 HR
HEINJD	INTERNAL	- JOHNES DISEASE	HEPLLN	POST LAMBING	- LARGE NEWBORN LAMB
HEINNI	INTERNAL	- NAVEL ILL	HEPLSN	POST LAMBING	- SMALL NEWBORN LAMB
HEINOF	INTERNAL	- ORF	HEPLWN	POST LAMBING	- WEAK NEWBORN LAMB
HEINPA	INTERNAL	- PARASITES	HEPRID	PREDATOR	- INJURY-DOG
HEINPK	INTERNAL	- PULPY KIDNEY	HEPRIW	PREDATOR	- INJURY-WILD ANIMAL
HEINPR	INTERNAL	- PROLAPSED RECTUM	HERE	REPRODUCTION	
HEINPS	INTERNAL	- POISONING	HEREHC	REPRODUCTION	- HYPOCALCEMIA
HEINTE	INTERNAL	- TEETH PROBLEMS	HEREIF	REPRODUCTION	- INFERTILE
HEINTW	INTERNAL	- TAPEWORMS	HEREIJ	REPRODUCTION	- INJURY
HEINUC	INTERNAL	- URETHRAL CALCULI	HEREPR	REPRODUCTION	- PIZZLE ROT
HEINUI	INTERNAL	- URINARY INFECTION	HEREPT	REPRODUCTION	- PREGNANCY TOXAEMIA
HELAAS	LAMBING	- ASSISTED-DIFFICULT	HEREPU	REPRODUCTION	- PROLAPSE UTERUS
HELATU	LAMBING	- TORN UTERUS	HEREPV	REPRODUCTION	- PROLAPSE VAGINA
HEMA	MAMMARY		HERESA	REPRODUCTION	- SEMEN ABNORMALITY
HEMAGM	MAMMARY	- GANGRENOUS MASTITI	HERESC	REPRODUCTION	- SCROTAL CIRCUMFERE
HEMAHU	MAMMARY	- HARD UDDER	HERESH	REPRODUCTION	- SCROTAL HERNIA
HEMAIJ	MAMMARY	- INJURY	HERETI	REPRODUCTION	- TESTICLE INFECTION
HEMAMS	MAMMARY	- MASTITIS	HERETR	REPRODUCTION	- TESTICLE RETAINED

HERETU	REPRODUCTION	- TESTICLE UNDERSIZE
HERS	RESPIRATORY	
HERSCO	RESPIRATORY	- COUGHING
HERSMV	RESPIRATORY	- MAEDI VISNA
HERSNB	RESPIRATORY	- NASAL BOTS
HERSPN	RESPIRATORY	- PNEUMONIA
HESKBS	SKIN	- BLACKSPOTS

HESKDI	SKIN	- DOCKING INFECT
HESKKE	SKIN	- KEDS
HESKKW	SKIN	- KEMPY WOOL
HESKLC	SKIN	- LICE
HESKMA	SKIN	- MANGE
HESKSC	SKIN	- SCURS

LAMBING PROBLEM CODES

LAAL	ABNORMAL LAMB	
LADI	DIFFICULTY	
LADICO	DIFFICULTY	- CORRECTED
LADICS	DIFFICULTY	- CAESAREAN
LADIEA	DIFFICULTY	- EASY ASSIST
LADIHA	DIFFICULTY	- HARD ASSIST

LADISB	DIFFICULTY	- STILLBORN
LAPLHY	POST LAMBING	- HYPOTHERMIA
LAPLMR	POST LAMBING	- MOTHERING
LAPLWL	POST LAMBING	- WEAK LAMB
LASB	STILLBORN	
LASBAL	STILLBORN	- ABNORMAL LAMB

PREVENTIVE CARE CODES

PCBT	BLOOD TEST	
PCCR	CRUTCHING	
PCDRAB	DRUGS	- ANTIBIOTICS
PCDRDW	DRUGS	- DEWORMING
PCDRID	DRUGS	- INSECTICIDE DIP
PCDRVC	DRUGS	- VACCINES
PCDRVT	DRUGS	- VITAMINS
PCFB	FOOTBATH	

PCFT	FOOTTRIM	
PCSH	SHEARING	
PCSU	SURGERY	
PCTM	TRACE MINRAL	
PCVA	VACCINE	
PCVI	VITAMIN	
PCWL	WEAN LAMB	
PCWO	WORMER	

BREED CODES

SFIP/CLRC

CODES	BREED NAME	SIZE
BC	BORDER CHEVIOTM	
BF	BLUE FACED LEISTER	M
BL	BORDER LEICESTER	M
BG	BOER GOAT	M
BM	BITISH MILK	M
BO	BOOROOLA	M
BR	BOER GOAT	M
BW	BLACK WELSH MOUNTAIN	S
CD	CANADIAN ARCOTT	L
CF	CLUN FOREST	M
CL	COLUMBIA	L
HR/CO	CHAROLLAIS	M
CP	COOPWORTH	M
CR	CORRIEDALE	M
CW	COTSWOLD	L
DH	DORSET HORNED	M
DL	DLS	M
DO	DORPER	M
DP	DORSET POLLED	M
LE	ENGLISH LEICESTER	M
EF	EAST FRIESIAN	L
FB	BLACK FACE	S
FL/FN	FINNISH LANDRACE	S
HA/HS	HAMPSHIRE	L
HL	HEXAM LEICHESTER	M
HY	HYBRID	M
IF	ILE DE FRANCE	L
IL	ICELANDIC	M
JA	JACOB	M
KA	KATAHDIN	S
KH	KERRY HILL	M
KK	KARAKUL	M

SFIP/CLRC

CODES	BREED NAME	SIZE
LA/LC	LACAUNE	L
LN/LI	LINCOLN	L
LY	BARBADOS BLACK BELLY	M
MM	MERINO HORNED	S
MP	MERINO POLLED	S
MO/MT	MONTADALE	M
NC	NORTH COUNTRY CHEVIOT	M
NF	NEWFOUNDLAND	M
NL	NEWFOUNDLAND LOCO	M
OU	OUTAUAIS ARCOTT	M
OX	OXFORD	L
PE	PERENDALE	M
PO	POLYPAY	M
RA/RG	RAMBOUILLET	L
RI	RIDEAU ARCOTT	M
RT/RM	ROMNELET	M
RV	ROMANOV	M
RY	ROMNEY	M
SB/SC	SCOTTISH BLACKFACE	M
SD/ST	SOUTHDOWN	S
SH/SR	SHROPSHIRE	M
SL	SHETLAND	S
SU	SUFFOLK	L
SX	ST. CROIX	M
SY	SOAY	S
TA	TARGHEE	M
TS	TEASER	
TX	TEXEL	L
TU	TUNIS	M
WD	WHITE DORPER	M
XL	CROSSBRED LARGE	L
XM	CROSSBRED MEDIUM	M
XS	CROSSBRED SMALL	S
XX	CROSSBRED UNKNOWN	M

FILES

DATA DIRECTORY FILES

BREEDGRP.DBF	BREEDGRP.CDX	
BREDDAM.DBF	BREDDAM.CDX	BREDDAM.FPT
CSIP.DBF	CSIP.CDX	
CODEFILE.DBF	CODEFILE.CDX	
DIARY.DBF	DIARY.CDX	DIARY.FPT
DISPOSAL.DBF	DISPOSAL.CDX	DISPOSAL.FPT
HEALTH.DBF	HEALTH.CDX	HEALTH.FPT
MAIN.DBF	MAIN.CDX	MAIN.FPT
MAINTGRP.DBF	MAINTGRP.CDX	
MAINTIND.DBF	MAINTIND.CDX	
MAINTPRO.DBF	MAINTPRO.CDX	
NAMEADDR.DBF	NAMEADDR.CDX	
SUMMARY.DBF	SUMMARY.CDX	
TWO.DBF	TWO.CDX	TWO.FPT
WEIGHTS.DBF	WEIGHTS.CDX	
WT_EPD.DBF	WT_EPD.CDX	
DEFAULTS.MEM		

(Optional dairy data files)

EWELAC.DBF	EWELAC.CDX	
MILKDATA.DBF	MILKDATA.CDX	MILKDATA.FPT
MILKSUMM.DBF	MILKSUMM.CDX	

PROGRAM DIRECTORY FILES

BREEDCOD.DBF	BREEDCOD.CDX
EFACTR50.DBF	EFACTR50.CDX
EWE BYTE.EXE	
EWE BYTE_PROBLEMS.EXE	
EWEHELP4.CHM	
FACTOR50.DBF	FACTOR50.CDX
FACTR100.DBF	FACTR100.CDX
FOXUSER.DBF	FOXUSER..CDX
RTFACTOR.DBF	
SFIPDISP.DBF	SFIPDISP.FPT
STATSGRPH.DBF	STATSGRPH.FPT
SYSTMDEF.MEM	
YEAR.DBF	YEAR.CDX

(There may be additional files starting with TEMP. These can be Ignored)

(Once you have used each report, the following will also be created.)

M_BACKUP.MEM	M_PCGRLS.MEM
M_BIRPRB.MEM	M_PCIND.MEM
M_CULMRK.MEM	M_PRDSUM.MEM
M_DAMHST.MEM	M_RAISNG.MEM
M_DISPOS.MEM	M_RBGRP.MEM
M_DUETO.MEM	M_REPR.MEM
M_EWEPRD.MEM	M_RESTR.MEM
M_FLKINV.MEM	M_SEASN.MEM
M_FLKLST.MEM	M_SELBS.MEM
M_GRPBRD.MEM	M_SELLAM.MEM
M_GRPWT.MEM	M_SELSUM.MEM
M_HEALTH.MEM	M_SFIP.MEM
M_INBRED.MEM	M_SFIPOU.MEM
M_LAMLST.MEM	M_SIRHST.MEM
M_LMBPRD.MEM	M_UDRECS.MEM
M_MKTLST.MEM	M_WTLST.MEM
M_NLE.MEM	

YEAR LETTERS AND GENERATION CODES

Year	letter	gen		Year	letter	gen
1947	A	A		1992	B	C
1948	B	A		1993	C	C
1949	C	A		1994	D	C
1950	D	A		1995	E	C
1951	E	A		1996	F	C
1952	F	A		1997	G	C
1953	G	A		1998	H	C
1954	H	A		1999	J	C
1955	J	A		2000	K	C
1956	K	A		2001	L	C
1957	L	A		2002	M	C
1958	M	A		2003	N	C
1959	N	A		2004	P	C
1960	P	A		2005	R	C
1961	R	A		2006	S	C
1962	S	A		2007	T	C
1964	U	A		2008	U	C
1965	W	A		2009	W	C
1966	X	A		2010	X	C
1967	Y	A		2011	Y	C
1968	Z	A		2012	Z	C
1969	A	B		2013	A	D
1970	B	B		2014	B	D
1971	C	B		2015	C	D
1972	D	B		2016	D	D
1973	E	B		2017	E	D
1974	F	B		2018	F	D
1975	G	B		2019	G	D
1976	H	B		2020	H	D
1977	J	B		2021	J	D
1978	K	B		2022	K	D
1979	L	B		2023	L	D
1980	M	B		2024	M	D
1981	N	B		2025	N	D
1982	P	B		2026	P	D
1983	R	B		2027	R	D
1984	S	B		2028	S	D
1985	T	B		2029	T	D
1986	U	B		2030	U	D
1987	W	B		2031	W	D
1988	X	B		2032	X	D
1989	Y	B		2033	Y	D
1990	Z	B		2034	Z	D
1991	A	C				

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