

Avian Incubation Management System

AIMS

User's Guide

The Avian Incubation Management System

AIMS

Bringing incubation into the 21st Century

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Preface

AIMS has evolved from an incubation spreadsheet program I developed many years ago.

Whilst that program did the job it was intended for, calculating and graphing weight loss during incubation, it was limited and unable to calculate the required humidity for the egg, or do all the data validation and reports, which AIMS is capable of.

AIMS started life as an incubation program, but as I needed to add the parents of eggs, a stock database was added to save the user re-typing the ring numbers etc. for each new egg. Having stock on file meant that I had to be able to move them to new aviaries, dispose of them, add new stock, edit them, etc, etc.

Thus AIMS grew into what it is today, a fully-fledged stock management program with state of the art incubation management.

With modern incubators, using sophisticated electronics to control temperature and humidity to a very fine degree, incubation is no longer the mysterious art it once was; it is now very much a science. I hope that you will look upon AIMS as a tool to assist you in this.

By enabling you to control the incubation to a fine degree I hope that AIMS will help you with your incubation by increasing your hatch rate and also give you a better understanding of it.

Acknowledgements

I would like to thank Mr. Ceri Griffiths, of the Welsh Hawking Centre, for having the confidence in me, not to mention the courage, to trust his valuable eggs to my early incubation program, the predecessor to AIMS and Beta testing early versions of AIMS with his eggs and stock.

I would also like to thank all the users of the program who have come back to me with comments and suggestions for things they wanted added to it. This enables me to evolve the program to make it as useful as possible to all our users

Most of the thanks for the program should however go to my wife, Susannah, for putting up with the endless days, and many many nights, of my tapping away on the computer.

Why control weight loss in eggs

Why do eggs need to lose weight

A large percentage of the avian egg is water, 79 - 88% in altricial species (those which are fed by the parents after hatching) and 69 - 76% in precocial species (those which feed themselves after hatching). The water concentration of the chick on hatch is about the same as that of the fresh laid egg. However, during development, the embryo produces water as a by-product of metabolism. To maintain the water balance this excess water must be removed from the egg during incubation.

Also, before it can hatch, the chick has to inflate its lungs and air sacs fully before it can go from using the chorio-allantoic membrane as the gas exchange organ to lung respiration. Within the rigid confines of the egg, the only space available to the chick for the inflation of the respiratory system is the air cell, which has a volume equal to the water removed from the egg. Too little water loss may prevent proper inflation of the respiratory system.

How does this weight loss occur?

To understand how eggs lose weight one must first understand what relative humidity is.

If you take a tall glass jar containing air with no water molecules in it and stand this upside down in a bowl of water, water molecules will come off the surface of the water and rise into the air in the cylinder due to evaporation. This will continue until the air has so many water molecules in it that some are returning to the water by virtue of their movement and others are knocked back into the water as they come off the surface because they collide with molecules in the air. At this point the number of molecules leaving the water and those returning to it are equal. The air in the cylinder now contains as much water as it can hold and is said to be saturated. If one increases the temperature the water molecules will have more energy, the air in an open space would become less dense, and a given volume of air would be capable of holding more water molecules.

The water molecules by virtue of their movement exert a pressure, which can be measured. This is called the vapour pressure. When the air is saturated with water vapour the vapour pressure is called the saturation vapour pressure. This will increase with temperature.

The percentage relative humidity we are all so used to seeing is defined as 'The percentage ratio of the vapour pressure to the saturation vapour pressure at a given temperature'.

Example

I have a % relative humidity of 42.79% in my incubator. What does this really mean?

If your incubator were running at 37.4 degrees Celsius, the saturation vapour pressure of air at sea level and at a temperature of 37.4 degrees Celsius is 48.75 torr, (torr is the unit of vapour pressure and is equal to 1 mm of mercury in a barometer).

$$\% \text{ Rh} = 100 \times \frac{\text{Vapour pressure}}{\text{Saturation vapour pressure at the given temperature}}$$

$$42.79 = 100 \times \frac{\text{Vapour pressure}}{48.75}$$

By rearranging the equation we get:

$$\begin{aligned} \text{Vapour pressure} &= \frac{42.79 \times 48.75}{100} \\ &= 20.82 \text{ torr} \end{aligned}$$

Thus at 37.4 degrees Celsius a %Rh of 42.79 mean that you have a vapour pressure in the incubator of 20.82 torr, i.e. a vapour pressure equal to 42.79% of the saturation vapour pressure at that temperature.

It is called relative humidity because it is relative to the temperature.

The interior of the egg is always at 100% humidity. Therefore it's vapour pressure is equal to the saturation vapour pressure at the incubation temperature, (it will increase slightly during the second half of incubation due to the heat produced by the embryo taking the internal egg temperature above that of the incubator.)

If you have an egg at 37.4 degrees Celsius and the incubator has a relative humidity of 40 %, the vapour pressure in the egg will be 48.75 torr (the saturation vapour pressure of air at 37.4 degrees Celsius) and the vapour pressure inside the incubator will be 40% of 48.75 torr, or 19.5 torr. You will therefore have a difference of pressure from the inside to the outside of the egg of 29.25 torr (48.75 - 19.5).

It is this difference in pressure, which causes the water to be forced out of the egg. Once the water is on the surface of the egg it is then removed by evaporation.

Therefore, contrary to what some people believe, the speed of the air moving over the egg has no effect on its weight loss, this has been verified using eggs in wind tunnels.

The weight loss from the egg is purely a result of the relative humidity inside the incubator. The lower the relative humidity the greater the difference in vapour pressure between the inside of the egg and the incubator and hence the greater the weight loss.

By controlling the weight loss one can optimise the hatch rate. I am finding more and more that raptor eggs are having to be incubated in very dry incubators, by dry, I mean low humidity's rather than a machine just containing no water.

I often hear people say for example that a friend runs his machines dry with Harris Hawk eggs in and gets a good hatch rate, so I do the same with mine.

If the friend lives in a dry area of central England and you live at the top of a misty mountain then his 'dry' machine may have an Rh of 25%, whilst your 'dry' machine may be at 60%. You need to measure the %Rh in the machine.

System requirements

A.I.M.S. requires the following minimum system to run:

80486 processor or higher

32MB RAM , 64 MB or higher recommended

Hard drive

CD drive

Mouse.

Microsoft Windows 95/98/NT/2000/ME, the program will no longer run on Windows 3.1

VGA or higher resolution monitor recommended.

The above is the minimum system requirements for the program.

IMPORTANT NOTE

You **MUST** set the task bar, the bar at the bottom of your screen, which shows you which programs are running, to Auto Hide.

To do this select the task bar and click on the right mouse button.

Select properties and ensure that the Auto Hide box is checked.

If you do not do this then some of AIM's screens may not display properly and you will get an error message ' Position off screen'

Licence agreement

IMPORTANT - READ CAREFULLY BEFORE INSTALLING THE SOFTWARE

By installing the software you indicate your acceptance of the following Licence Agreement

AVIAN INCUBATION MANAGEMENT SYSTEM LICENCE AGREEMENT

This is a legal agreement between you (either an individual or an entity) and Avian Management Services. By installing this software you are agreeing to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement do not install the software and return it and all documentation to your supplier for a full refund.

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About this manual

I have written the manual so that users who have no knowledge of computers or experience with egg weight loss will be able to easily understand it and be able to use AIMS. This has meant that I have had to write it in a form that may seem over simplified to many users and I apologise for this.

AIMS has been designed to be easy to use, but at the same time has many features, some of which would not be apparent if I had not written the manual in this way.

I have repeated much of the manual in the on-line help file in AIMS so that users may get answers to questions they may have whilst using the program. To get the help file simply press F1. Please note that the manual is more up to date than the manual.

Some basic procedures used throughout the program

When you go into some sections on screens to enter data, such as dates and times, AIMS will fill the entry with a default value for you. This may be the current date, time, or a pip time taken from a list. To accept the default press **ENTER**. If the background to the section you are in is in blue then you may overwrite the default value with one your own. The year in some default dates may appear as the full year, e.g. 1998.

AIMS has very extensive, and sometime it may appear unforgiving, error checking routines. I have been very tough with these to ensure that all data entered will be as accurate as possible, so that you get the best from the program.

When you go into a data entry section or select a menu option you will, in most cases, be given a message at the bottom left of your screen that tells you what that entry or menu option is for. If it is a data entry section you will also be given a number in brackets. This is the maximum number of characters you may enter for that entry, e.g. for the Egg ID you would see (6). If it is an entry requiring a number you will be shown two numbers separated by a point, e.g. (3.2). This would indicate a number that can have three digits before the point and two after it, e.g. 123.45.

In the main menu you will see that in each option one of the letters in the name is underlined. If you press and hold down the ALT key and then press underlined letter the menu in question will come up.

You can use the mouse or arrow keys to select the option you want. If that option has an arrow next to it, using the right arrow key will bring up a sub menu.

Rings

In order to be consistent throughout the program AIMS automatically removes any spaces in ring numbers and puts all characters into uppercase.

Installation

From CD

Insert CD into your CD drive.

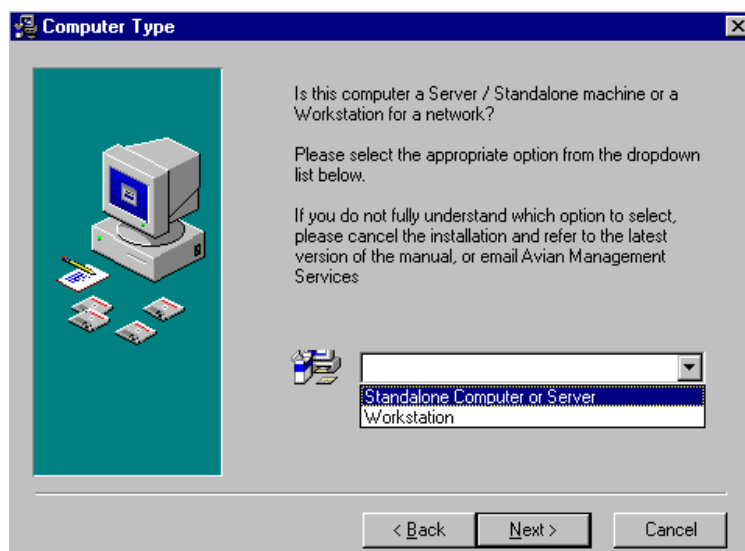
If you have Autorun set on your CD drive then the installation program will start.

If Autorun is turn off, then using Windows Explorer double click on the Setup.exe file on the CD. This will load and run the installation program.

Follow the on screen instructions.

You will be asked to select the type of computer you are installing AIMS onto.

You can select from Standalone Computer / Server or Workstation



If you are using AIMS on a single standalone computer then select Standalone Computer / Server.

If you are installing AIMS onto a workstation on your network then select Workstation.

Before you install a workstation version of AIMS you must:

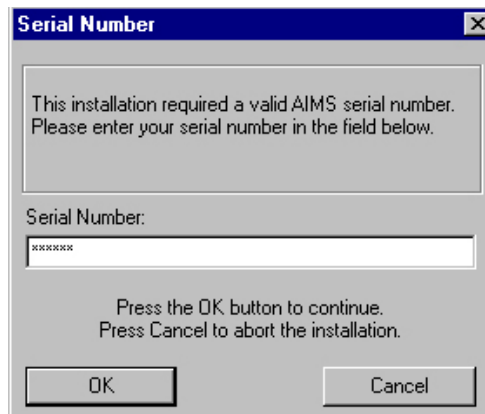
1. Have installed a Server version of AIMS on your network.
2. Have the drive, or directory, where the Server version of AIMS is installed mapped on the Workstation computer.
3. Have network access rights to the AIMS Server mapped drive.

The installation will then search your network for the server version. If it finds it then it will continue to install the Workstation Version.

If it fails to locate the Server version the installation will be aborted.

Please read the network section of this manual before using AIMS on a network.

During installation you will be asked for your Serial Number, this is on the AIMS CD, or was provided to you when you purchased AIMS online.



Please use the one serial number for the server and all workstation copies you install on your network.

The installation program will add the AIMS icon to your desktop.

From the Internet

You can download AIMS from our web site at www.avianmanagement.com

Making a floppy disk set

If the computer that you want to install AIMS on does not have an Internet connection you can download a series of files from the web page and save them onto floppy disks.

To install from the disks insert disk 1 into the computer and click on the AimsSetup.exe file. This will start the installation. When the installation program needs a new disk it will ask you for it.

During the installation you will need the Serial Number that was provided you when you purchased the program.

Upgrading AIMS

We provide **FREE** upgrades to the program, within any version, via our Internet site at www.avianmanagement.com

Within any version means that if you purchase AIMS version 5.0, you will receive 5.1, 5.2, ...5.9 **FREE**. Within version changes are minor enhancements to the program and bug fixes

If major enhancements are made then this would be released as version 6 and there would be an upgrade fee for this. This fee covers our costs for programming and allows us to maintain the program and continually add new features to it.

If you would prefer to receive a CD for the within version upgrade, rather than download from the internet, there is a nominal charge of 30 USD to cover the cost of CD production and postage by airmail to you.

You can order the Upgrade CD via our Internet site via secure online ordering.

If you are upgrading from an earlier version make a backup of your data before installing the new version. Rename your AIMS directory to something like AIMSOLD. Then install the new version into a new directory, such as AIMS.

After installing the new version you can use the option from the Utilities menu to 'Move Data From Earlier Version'.

If you are upgrading from a version earlier than 3.0 and are using passerines place the bugfix.exe file into your **OLD** AIMS directory and double click on it. This will load your passerines into the Hitax file. You can then backup your old data **before** running the new version of AIMS.

IMPORTANT NOTE for passerine users

If you are using passerines and are upgrading from a version earlier than 5.0 please contact us first since we will need to send you a small program to convert some of your passerine Taxon ID numbers to the new ones.

Support

We provide full support for AIMS via email and upgrades via our web site.

Before contacting us for support please be sure that you have read the manual fully. We have found that 90% of the questions that new users ask us are already answered in the manual.

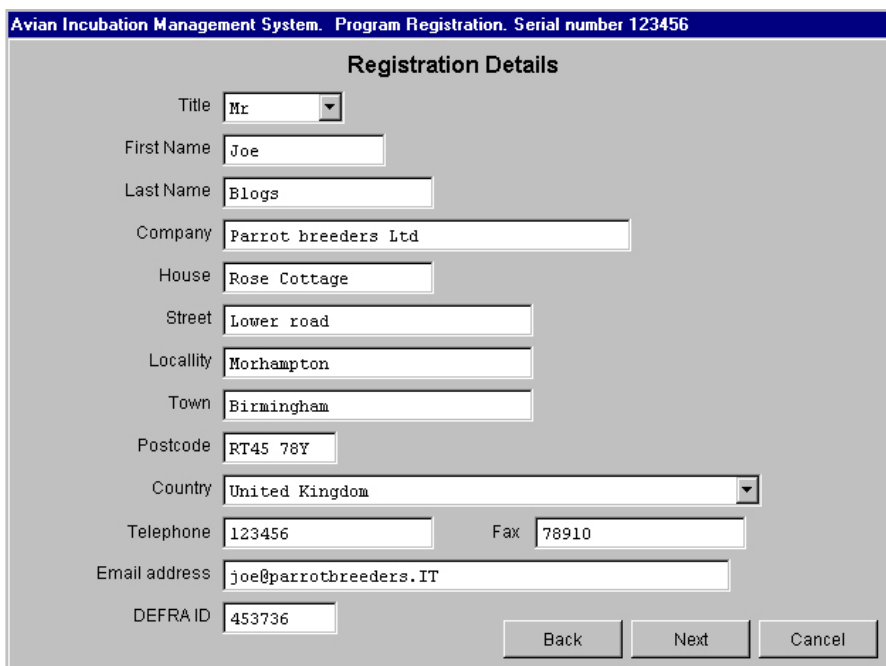
If you have any support questions please email us at support@avianmanagement.com

On the site you can download the latest versions of AIMS, updates to the KW files, manual and help files.

We are currently re-writing the whole program in Visual FoxPro and will be adding many new features. We would very much like to hear your comments and needs so that we can include the best features for our users.

Registering the program

We have invested a lot of time and money in the development of AIMS. In order to prevent copying of the program, it contains a registration system. Please note that your licence of AIMS allows you to install ONE Server copy of the program and unlimited Workstation copies on a single network. If you need to install more than one server copy please contact us.



The screenshot shows a registration form titled "Registration Details" within the "Avian Incubation Management System. Program Registration. Serial number 123456". The form contains the following fields and values:

Field	Value
Title	Mr
First Name	Joe
Last Name	Blogs
Company	Parrot breeders Ltd
House	Rose Cottage
Street	Lower road
Locality	Morhampton
Town	Birmingham
Postcode	RT45 78Y
Country	United Kingdom
Telephone	123456
Fax	78910
Email address	joe@parrotbreeders.IT
DEFRA ID	453736

At the bottom of the form are three buttons: "Back", "Next", and "Cancel".

The first time you run AIMS you will be asked to register the program.

To do this, complete the on screen form with your name and address details. These details will also be used on forms that you print out in AIMS, such as CITES application forms.

Please be sure to select the correct country, as there are some country specific features in AIMS.

If you are in the UK and have species which are registerable with DEFRA please enter your DEFRA ID number as this will be needed to print out on forms which the program produces for you to send to DEFRA. This option is not available if United Kingdom is not selected as your country.

Once you have completed the form click on the next button.

You can now select the method by which you want to submit your program registration.

Register by email using Outlook

If you have Microsoft Outlook, version 97 or above, installed on the computer that you have installed AIMS on you can click on this button and the registration program will compose an email and place it into your Outbox in Outlook ready to send to us. If Outlook is not installed on your computer this button will be disabled.

Do not use this option with Outlook express.

Create text file to email to us

If you do not have Microsoft Outlook on the computer that you have installed AIMS on, but wish to email us the registration document then AIMS can create a text file called aimsreg.txt. This will be placed in your AIMS directory.

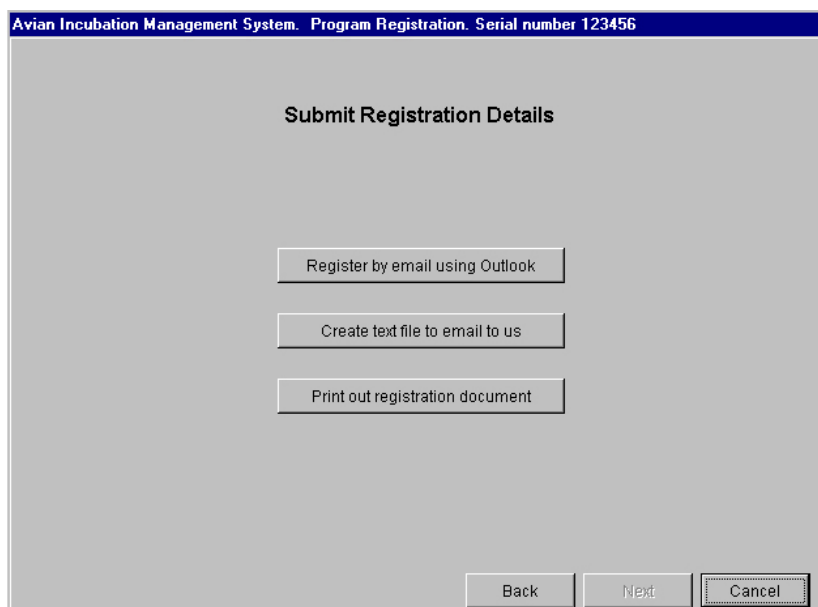
You can paste this into an email to send to us.

Please DO NOT send this as an attachment, as our server will delete it before it arrives. For security reasons we do not accept email attachments.

Printout registration document.

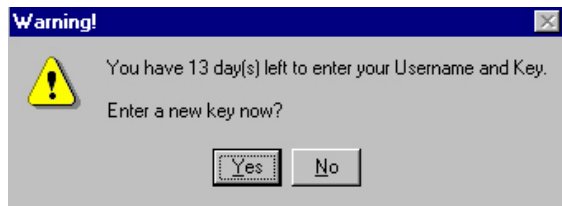
If you do not have email you can printout a registration document and fax or post it to us. The document contains our address and fax number.

If the computer on which you install AIMS does not have a printer attached and you do not have email you can create the text file and save it to a floppy disk and then print it out from another computer to fax or post to us.

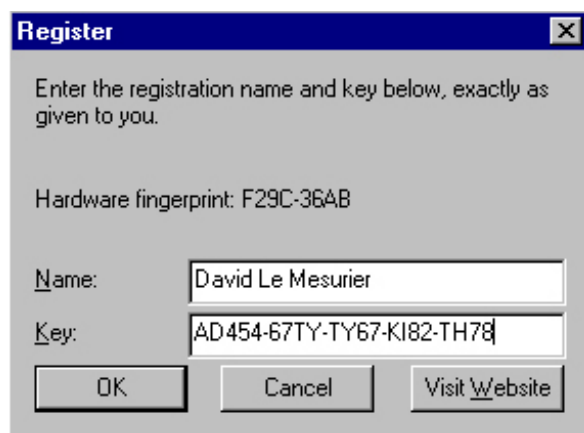


The program will now run for a period of 14 days. During this time you must enter a User Name and Key, which we will provide you upon receipt of your registration document. This is done to prevent unauthorised copying of the program.

Each time you run AIMS, until you enter your User Name and Key, you will be shown how many days left you have and have the option to enter your User Name and Key.



If you select **No** it will run AIMS, until your 14 days has expired.
If you select **Yes** you will be able to enter your User Name and Key.



If the 14 day period has expired and you have not entered your User Name and Key you will be able to enter your User Name and Key, but not run AIMS until you do so.

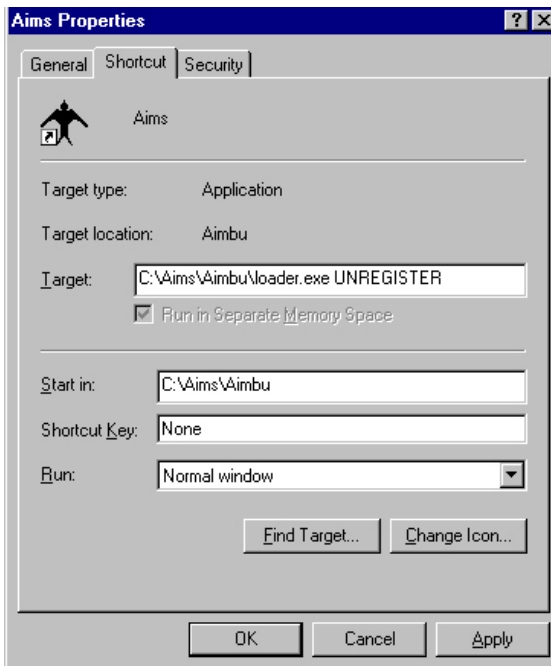
The Key we will provide you is specific to the computer AIMS is installed on. It will not work on any other computer.

Unregister an Installation of AIMS

If you purchase another computer and want to move your installation of AIMS to that machine then you will have to Unregister AIMS on the original computer.

To unregister your copy of AIMS right click on the desktop Icon and select Properties from the bottom menu option that appears.

Select the shortcut page.

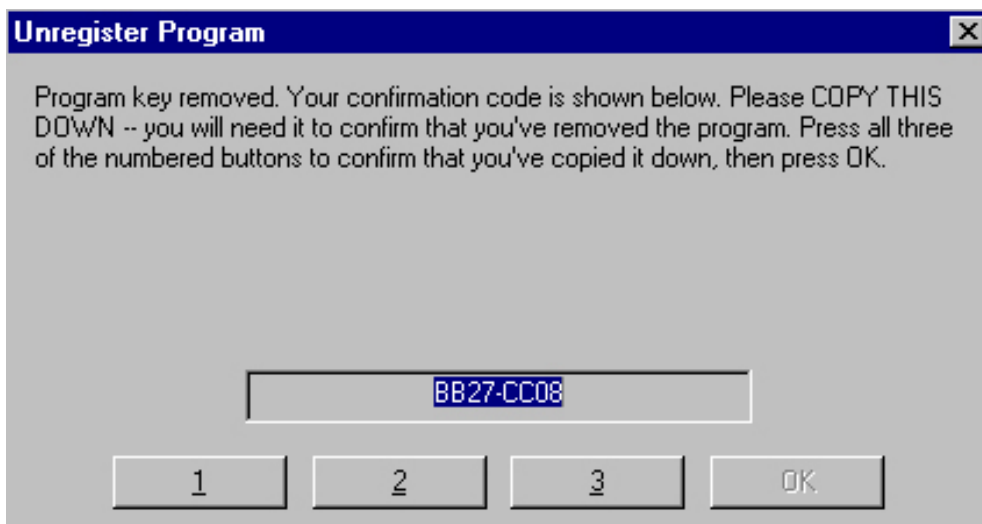


At the end of the Target line which points to the program add the word UNREGISTER.

Click on the apply button.

Click on the desktop Icon to run AIMS.

You will be warned that proceeding will unregister the program and have the opportunity to cancel this. If you select to continue you will be shown the following screen.



You need to write down the confirmation code and send this to us. This shows us that the program has been unregistered on this machine.

We can then issue you with a new key for your new computer.

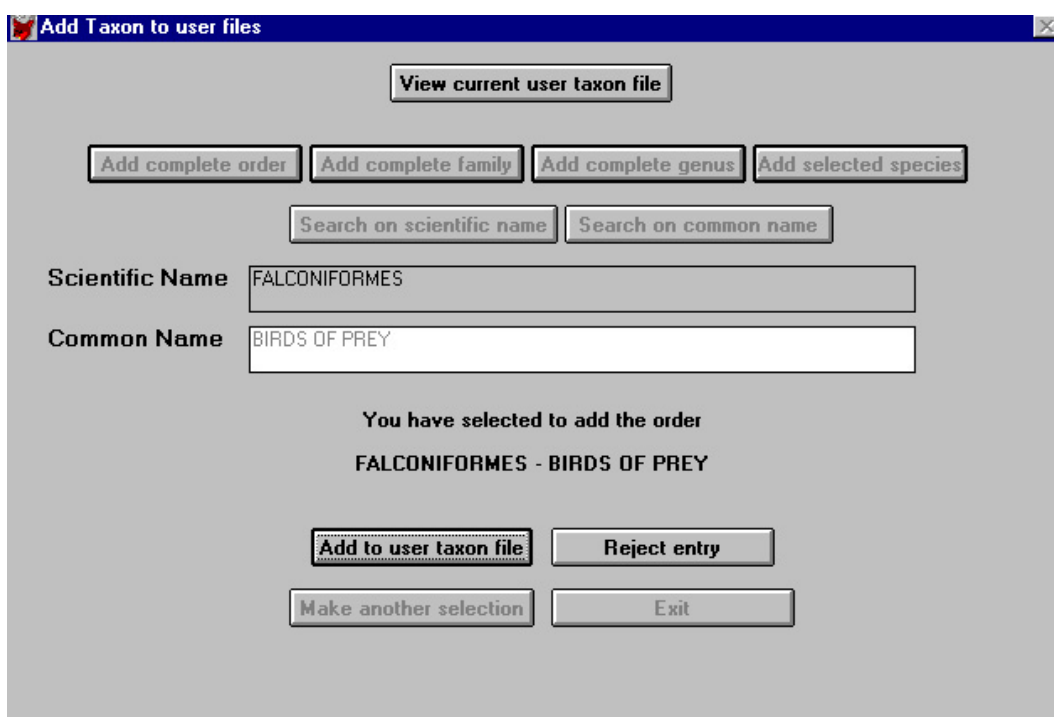
Running AIMS

To run AIMS double click on the AIMS icon on your desktop.

Running AIMS for the first time

When you run AIMS for the first time you will be informed that there are no Taxons loaded in the user Taxon file. The Taxon files contain the names etc. of species and subspecies for each Order of birds.

There are two types of Taxon files in AIMS. One holds all the Taxons and the second holds the Taxons in use. In the add Taxon to user file screen you may view the current user Taxon file and add taxa to your Taxon file. You may add a whole order, selected families, genus's or species.



To move birds over to your user file simple select the Order you want to move, either by common or scientific name and click on the OK button. AIMS will then move the bird's details over to your user file. You can also select to move just certain families, order, genus or species if you wish.

Once you have moved the taxa over to your user file you may use the program for adding stock or eggs.

These screens are also available via the utilities menu option should you wish to add other taxa at a later date.

The list of Taxon names are:

ANSERIFORMES - DUCKS, GEESE, SWANS

APODIFORMES – SWIFTS, TREE SWIFTS, HUMMINGBIRDS

APTERYGIFORMES - KIWIS

CAPRIMULGIFORMES - NIGHTJARS

CASUARAIIFORMES - CASSOWARIES, EMUS

CHARADRIIFORMES - WADERS AND GULLS

CICONIIFORMES - HERONS, STORKS

COLIIFORMES - MOUSEBIRDS

COLUMBIFORMES - SANDGROUSE, DOVES, PIGEONS

CORACIIFORMES - KINGFISHERS, HOOPOES, HORNBILL

CUCULIFORMES - TURACOS, HOATZIN, CUCKOOS

FALCONIFORMES - BIRDS OF PREY

GALLIFORMES - GALLINACEOUS BIRDS

GAVIIFORMES - DIVERS

GRUIFORMES - CRANES, RAILS

RHEIFORMES - RHEAS

PASSERIFORMES - PERCHING BIRDS

PELECANIFORMES - PELICANS, GANNETS, CORMORANTS, DARTERS

PICIFORMES – JACAMARS, PUFFBIRDS, BARBETS, HONEYGUIDES, TOUCANS AND WOODPECKERS

PODICIPEDIFORMES - GREBES

PSITTACIFORMES - LORIES, PARROTS, COCKATOOS

PROCELLARIIFORMES - ALBATROSSES, PETRELS, SHEARWATERS

SPHENISCIFORMES - PENGUINES

STRIGIFORMES - OWLS

STRUTHIONIFORMES - OSTRICHES

TROGONIFORMES - TROGONS

TINAMIFORMES - TINAMOUS

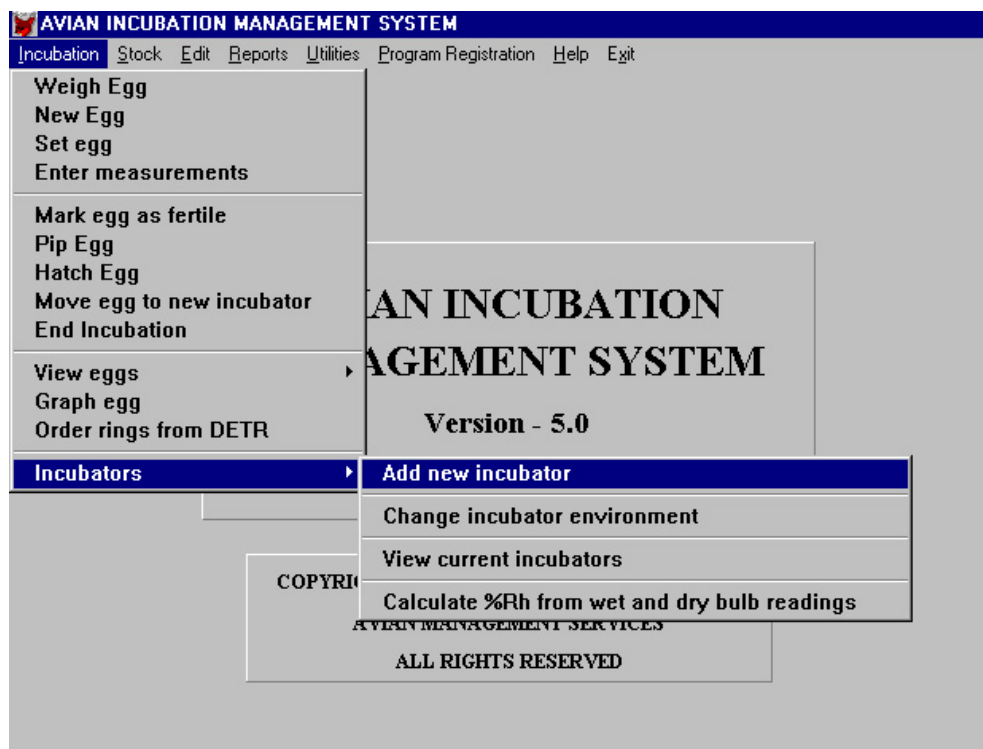
Setting up your system

Incubators

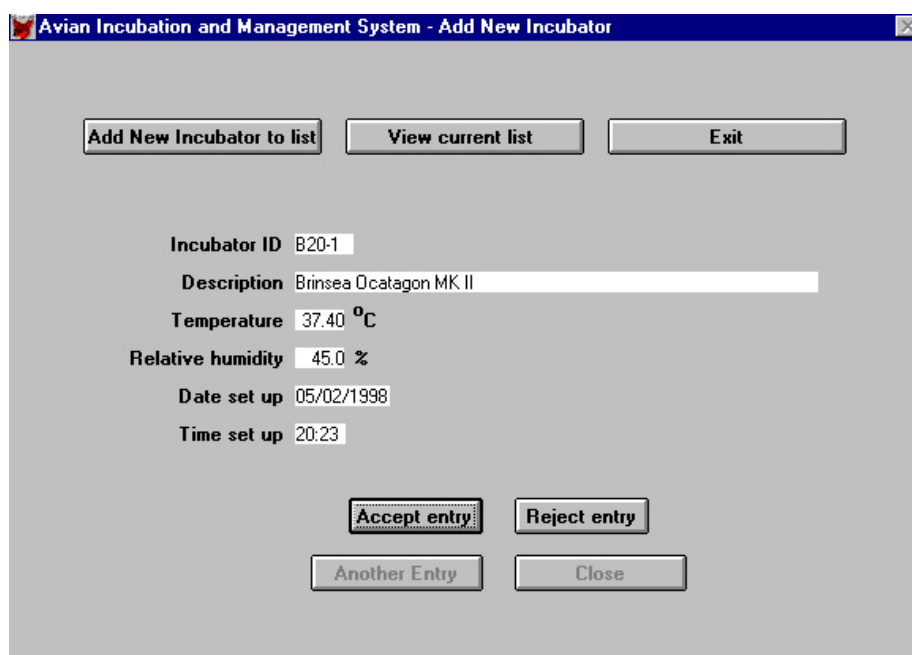
Registering incubators on the system

Before you can use AIMS to incubate eggs you need to set up your incubators on the system.

To do this select from the main menu *Incubation / Incubators / Add new incubator*.



This will bring up a screen where you can enter details of your incubators.



The following information is required:

Incubator ID

This is a unique reference used by the system to track the incubator. It can be up to 6 characters in length.

This could include a letter for the type of incubator, e.g. AB, RX, CU and a number if you have more than one of these machines.

AIMS treats the ID as characters rather than numbers. Any numbers you enter in the ID must be either only 1 number long, or prefixed by 0, or 00, e.g. RX01, RX02. If you just use 1, 2, 3 etc. and you have a lot of incubators, or change them in years to come and use a new number for each machine they would sort as 1, 10, 2, 3, 30, 4, 5.

The program will verify that this ID has not been used before. If it has then you will be asked to enter another ID for this machine.

If you want AIMS to identify hatchers separate from incubators then use HAT as the 1st three characters of the ID. By doing this AIMS will not include these machines in the list of options when moving eggs to different humidities and will show you these when you pip and e.g. and AIMS asks if you want to move the piped egg to a hatcher.

Description

Enter a description for the machine, you can include here details any modifications, etc. The descriptions do not have to be unique.

Temperature.

Enter the temperature, in Celsius. The default is 37.4
Do not enter 0. If you do then the program may not be able to make correct calculations using this machine.

Relative humidity

Enter the % Relative humidity for the incubator.

Date set up

Enter the date you set the machine up. Default is today's date.

Time set up

Enter the time the machine was set up. Default is the current time.

The **Accept / Reject** button will now enable and you can save the entry to file or reject it.

You will then be able to add another machine to the system or return to the main menu.

Changing the environment in an incubator

To alter the temperature or humidity in an incubator select from the main menu

Incubation / Incubators / Change incubator environment.

You will be presented with a list of incubators on file. Use the arrow keys to move to the one you want to change and press ENTER.

You will then be given a screen showing details of the current setting for that machine and you will be able to enter the new temperature and humidity, the date and time of the change.

Current settings	
Incubator	B20-1
Description	Brinsea Ocatagon MK II
Temperature	37.40 °C
Relative humidity	45.0 %

New settings	
Temperature	37.40 °C
Relative humidity	52.0 %
Date changed	10/02/2002
Time changed	20:31

Buttons: Accept entry, Reject entry, Change another Incubator, Close

Select accept if you are happy with the changes, or reject if you want to discard them. Then you can change another incubator or return to the main menu.

Before you weigh your eggs each day you should ensure that the incubator environments are updated to the average for the past 24 hours, or at the very least the mean for the past week.

Viewing the current incubators on file

To see all incubators on file and their current temperature and %Rh select from the main menu ***Incubation / Incubators / View current incubators.***

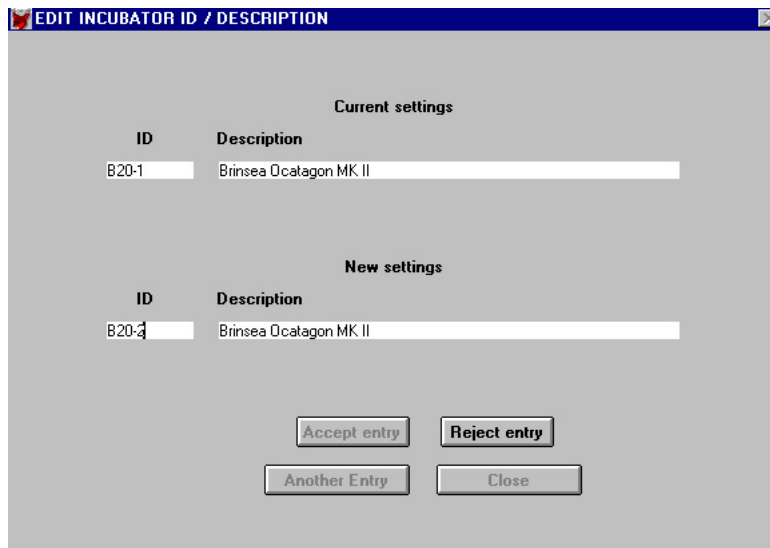
This will bring you up a list of all the incubators in order of the ID showing the ID, description, current temperature and %Rh.

Editing the ID or description of an incubator

If at any time you want to change the ID reference or description for any of your incubators select from the main menu **Edit / Incubator ID / Description**.

Using the arrow keys move to the incubator you want to edit from the list.

You will be presented with a screen showing the current ID and description and you can now enter the new ID and description.



Current settings	
ID	Description
B20-1	Brinsea Ocatagon MK II

New settings	
ID	Description
B20-2	Brinsea Ocatagon MK II

Buttons: Accept entry, Reject entry, Another Entry, Close

AIMS will verify that the ID is not currently in use. If it is then you will be asked to enter another ID.

Press **Accept** to save the new ID / description to file, or **Reject** to discard the changes.

You can then change another incubator or return to the main menu.

Incubating eggs

Step 1 Registering the egg

To register a new egg, or clutch of eggs, select from the main menu *Incubation / New Egg*.

This will bring up the egg registration screen.

The screenshot shows a software window titled "REGISTER NEW EGG". It contains the following fields and controls:

- No. of eggs you wish to enter for this female:
- Egg I.D. Number:
- Mother and Father columns with sub-fields:
 - System ID: Mother (00063), Father (00110)
 - Ring: Mother (DOE13461W), Father (UK89359)
 - Name: Mother (European Peregrine Falcon), Father (European Peregrine Falcon)
 - Scientific name: Mother (Falco peregrinus peregrinus), Father (Falco peregrinus peregrinus)
- Laid between: Date (15/02/2002), Time (17:20) and Date (16/02/2002), Time (06:30)
- No. of days to pip: % Loss you want at pip: Minimum (12.00), Optimum (15.00), Maximum (17.50)
- Method of fertilization: (dropdown menu)
- Comments:
- Buttons: ACCEPT ENTRY, REJECT ENTRY, Another entry, Exit

Enter the number of eggs you want to enter at **this time** for any **one** female and press **ENTER**.

Egg ID number

You are then given the next egg ID number in the sequence.

The egg numbering system used by AIMS is a 6 digit number. The first two digits are the year and the remainder are a sequential number starting from 1. Thus the 1st egg for 1997 would be 970001.

You may change the number if you wish by entering your own number, up to 4 digits. AIMS will add the year and any required 0's to the beginning of you number to make it up to the required 6 digits. If you enter a number larger than 4 digits AIMS will overwrite the first two with the year.

If you have entered your own number AIMS will verify that this has not been used already.

To accept the number press **ENTER**.

Selecting the mother for the egg

AIMS will then take you to a stock screen to select the mother for your egg. If you do not have any stock registered on file then the only entry you will see will be 'Mother not in stock'. If you have stock on file then you will see a list of all females currently in stock. This list is ordered by Species - Ring - Name. Select the mother you want from your current stock, or select 'Mother not in stock' entry if she is a bird not in your current stock.

If you select 'Mother not in stock' AIMS will take you to a similar screen showing you all females recorded on the system, in the same order as before. This is so that you can select a mother who has just died, or been sold, or is not in your stock for what ever reason, but for which you have an egg.

If the mother is not in this list then select 'Mother not in stock' again and you will be shown a message asking you to select the Taxon for the mother from a screen. Press **ENTER**.

You are now presented with AIMS's standard Taxon selection screen.

The screenshot shows a window titled "Select Taxon" with a blue title bar. At the top, there are three buttons: "Select by Common Name", "Select by scientific Name", and "Select from list". Below these is a large rectangular frame containing three text input fields. The first field is labeled "Common Name" and contains the text "Australian Peregrine Falcon". The second field is labeled "Scientific Name" and contains "Falco peregrinus submelanogenys". The third field is labeled "Range" and contains "South West Australia". At the bottom of the frame are two buttons: "Accept entry" and "Reject entry".

You may select the Taxon from this in three ways:

(1) By common name

Press **ENTER** and you will be taken to the common name entry section. Type in part or all of the common name then press **ENTER** and the program will give you a list of all matching entries, down to subspecies level.

Example

If you are using the Falconiformes Taxon database and you entered 'Yellow' you would be given Greater Yellow-headed vulture, Lesser Yellow headed Vulture, Yellow-headed Caracara and Yellow-throated Caracara.

The entry is not case sensitive.

(2) By Scientific Name

Move to the 'Select by Scientific name' button, by using the arrow key or with the mouse, and press **ENTER**. You will be taken to the scientific name entry section.

Type in part or all the scientific name and the program will give you a list of all matching entries, down to subspecies level.

Example

If you are using the Falconiformes Taxon database and you entered 'Falco' you would be given all the Falcon Genus.

As with the common name, the entry is not case sensitive.

(3) Select from list

Move to the **Select from list** button, by using the arrow key or with the mouse, and press **ENTER**.

Select which Order you wish to use. Move to the Order you want and press **ENTER**.

Select which Family from within that Order you wish to select. Move to the one you want and press **ENTER**.

Select which Genus from within that Family you wish to select. Move to the one you want and press **ENTER**.

Select which Species from within that Genus you wish to select. Move to the one you want and press **ENTER**.

Finally select which Subspecies from within that Species you wish to select. Move to the one you want and press **ENTER**.

If there are no subspecies then you will be shown just the species.

If the mother you selected was a stock bird then the program will fill in her ring number. If not then you will be asked to enter a ring number for her so that AIMS can track her in the future.

If she is a wild bird then you can enter WILD or ?. If you have a number of eggs from a wild nest then you can enter a code so that you will know that the chicks are related when the eggs hatch. E.g. WILD1, WILDR3.

If you do not know the ring number you can enter ?.

If the mother has a ring it is important to enter the correct number even though she is not in your stock. This is because the program will then be able to see which chicks in your stock are related and if you should acquire the mother at some point in the future and add her to your stock the program will automatically update all eggs to her system ID and also any chicks from those eggs will have their mothers system ID updated automatically by the program.

AIMS will verify that the ring number is not in use by another bird on the system. If it is then you will be shown details of that bird. If it is the same bird then you need to reject the entry for this egg and enter it again, this time selecting the mother from your stock list.

If the ring is the same as that used by another bird then you should either include some other detail on her ring to make it unique. This could be the size letter e.g. U, V, or re-ring the bird. All ID rings within a facility should be unique, if not then they cannot identify an individual satisfactorily.

Selecting the father for the egg

You will next be presented with a list of males in stock from which you may select the father. If the father is not in this list select ***Father not in stock*** and press ***ENTER***. As with the mother you will then be given a list of all males on the system. If the father is not on this list select *Father not in stock* and you will be taken to AIMS's standard Taxon selection screen.

This time however you will not be given a choice of how to select the Taxon for the father. Instead AIMS will take you directly to the same Taxon as the mother. This list is a full list of the entire Taxon database, ordered by Scientific name. If the father is not the same subspecies as the mother you may use the arrow keys to move up or down the list to select the one you want for the father. Then Press ***ENTER*** to accept the entry from the Taxon screen and you will be taken back to the egg screen. As with the mother, if the father is a non-stock bird you will be asked to enter his ring number.

If you are entering a multi egg clutch and the father was a stock bird for the first egg AIMS will select him by default for subsequent eggs, you may move to another male in the list if you wish or select Unknown and enter a non stock male. This multi choice father has been included for those using AI.

The selection for the parents will not include any birds which are listed as unknown sex. You should therefore ensure that your stock lists are kept as up to date.

Date laid

After this you will be asked to enter the dates and times between which the egg was laid. Here you would enter the date and time you knew the egg was not in the nest and the date and time you first saw the egg. The defaults for the fields are today's date and the current time. Press enter to accept these, or enter the dates and times you wish to use.

Days to pip

AIMS then presents you with a screen from which you can select or enter the number of days to pip you wish to use.

	Mean	Minimum (Mean-SD)	Maximum (Mean+SD)	Sample Size
Female specific pip times	0.00	0.00	0.00	0
Sub-species specific pip times	31.54	30.61	32.47	21
Species specific pip times	31.54	30.61	32.47	21
Genus specific pip times	31.31	29.88	32.74	58
Family specific pip times	31.31	29.88	32.74	58
Order specific pip times	31.15	29.50	32.80	66

Please enter the pip period you wish to use

31.54 days

Accept entry Reject entry

This screen provides you with an analysis of the mean pip periods and a maximum and minimum pip period based on standard deviations for the following:

1. Female specific Pip times. These are calculated from all eggs on the system for the particular female.
2. Sub-species specific pip times. These are calculated from our pip time database.
3. Species specific pip times. These are calculated from our pip time database.
4. Genus specific pip times. These are calculated from our pip time database.
5. Family specific pip times. These are calculated from our pip time database.
6. Order specific pip times. These are calculated from our pip time database.

In earlier versions of AIMS the pip data for Subspecies through to Order used data from our Kw / pip time database and the users eggs.

AIMS no longer do this since some people were not correcting pip times on their system for eggs that they had entered inaccurate start of incubation dates or pip dates and this was producing inaccurate results.

The data sent into us using the data submission system is analysed and any entries that are obviously inaccurate are excluded from the analysis. The accurate data is then used to create an updated pip time database, which is then sent back to users free of charge.

If there are any female specific pip times then the program will select this value, if not then it will select the nearest to it for you. At this point you can press **ENTER** to select the value chosen by AIMS, or enter your own value. Then press **ENTER**.

A number of these entries may be 0. As you pip your own eggs the database will build up. Also when I collate the data from everyone each year and send you out the data the number of species / subspecies pip times on the database will increase.

You can then either accept or reject the entry. If you reject then you will be able to select or enter another value, which must be greater than 0.

% loss you want at pip

You are next able to enter the % loss you want the egg to lose by the time it pips. The entries for this are Minimum, Optimum and Maximum. The defaults that are prefilled for you for the are 11%, 15% and 17%. If you want to use these value just press **ENTER** as you enter each field.

If you want a different % loss at pip enter the values you want and press **ENTER**.

Method of fertilisation

You can now select the method of fertilisation for the egg. This does not indicate if the egg is fertile, simply the method by which it may have been fertilised by. The choices here are:

1. Natural - a pair of birds in an aviary.
2. A.I. Voluntary - Artificial insemination using an imprinted female.
3. A.I. Forced - Artificial insemination using a non imprinted female.
4. None - You just want to record an egg laid, but it will not be fertile, female is by her self.

If you select **Natural** and the parents are in different aviaries you will be informed of this so that you can either reject the entry, because one of the parents are wrong, or you can make a note to move one of the parents on the system, as he or she must have been moved, but this has not been entered in AIMS.

You can then enter any comments you want to make in the comment's section and then press **ENTER**.

The **Accept** button will now enable so that you can accept this entry.

The **Reject** button will have been enabled throughout the entry so that you can reject at any time, except for being in a date entry.

When you press **Accept** you will be asked if you wish to set the egg. If you select yes then you will be taken to a screen to set the egg, (see section on setting eggs later). If you say no then you will be asked if you wish to enter fresh weights and measurements for the egg. If you select yes here you will be taken to a screen to enter the weight of the egg when you first removed it from the bird, and the length and width of the egg if you have measured this, (see section on entering egg weight and measurements).

After this if you have entered more than one egg for the clutch you will return to the Egg ID number. The next Egg ID number will be given to you and if accepted, or edited by you, you will be taken to select the father. The mother is skipped, as she is the same as the last egg in the clutch. If the father was a bird in your stock list then AIMS will take you to him by default. You may move to another of your stock birds if the father from this egg is a different bird, or you can select father not in stock and select his Taxon from AIMS' standard Taxon selection screen as before.

Once all the eggs have been completed for the clutch, or if you select **Reject** for any entry, you can enter another egg or return to the main menu.

Step 2 **Setting the egg**

To set an egg you can either select the **YES** button when asked if you want to set the egg when registering it. Or you can do so from the main menu by selecting **Incubation / Set egg**

SET EGG

Egg I.D. Number 020001

Mother

System ID 00062

Ring DOE7663W

Name

Species European Peregrine Falcon

Father

System ID 00453

Ring UK87388

Name

Species Gyr Falcon

Laid between 01/01/2002 00:00 and 02/01/2002 00:00

Date Set 03/01/2002

Time Set 00:00

Incubator set in BR 2 Brinsea Octagon 20

Is egg Fertile No Yes ?

Comments

ACCEPT ENTRY REJECT ENTRY

Another entry Exit

You will then be presented with the set egg screen. If you have come from the egg registration screen AIMS will complete for you the egg number, parent details and date and time of lay.

If you have come from the main menu you will need to enter the Egg ID number. As before you type in the egg number and AIMS will complete the number up to the required 6 digits and add the year to it for you. AIMS will then get the details of the parents and laid date and time.

You now enter the date and time the egg was set.

If the egg was set under a bird then you will need to enter when you think she started to sit. The defaults are the current date and time. To select these press enter. AIMS will validate this against the date and time laid to prevent errors of data entry.

If you are entering a number of eggs in a single clutch AIMS will use the data for the previous egg of the clutch as the default.

You are then presented with a list of incubators you have registered on the system, including BIRD. Select this if you the egg was set under a bird. To select the incubator you want use the arrow keys to move down the list and then press **ENTER**.

If the incubator you want is not on the list select the *Add new incubator* entry and you will be taken to the add incubator screen. You enter the incubator details and when you leave the screen you will be presented once again with the list of incubators on file, this time including any new entries you have made.

You next select if the egg is fertile or not, by either moving with the right arrow key to the entry you want, or selecting it with the mouse. An entry of Unknown is treated as not fertile. Press **ENTER**.

You can then enter any comments you want about setting the egg and press **ENTER**.

You can now accept or reject the entry.

If you have come from the egg registration screen you will now be taken back to that screen. If you have come from the main menu you can set another egg or return to the main menu.

Step 3 *Entering initial weight and measurements of an egg*

To enter the details of the initial weight and measurement's of an egg you can either select the **YES** button when asked in the registration screen, or from the main menu by selecting *Incubation / Enter measurements*.

Fresh weight	Volume	Surface area	Density	Elongation	Kw
61.76 g	57.20 cm ³	71.95 cm ²	1.08 g/cm ³	1.15	0.000551000000

You will be presented with the egg weight and measurement screen. If you have entered this from the egg registration screen AIMS will complete for you the egg number, parent details and date and time of lay.

If you have entered the screen from the main menu you will need to enter the Egg ID number. As before you type in the egg number and AIMS will complete the number up to the required 6 digits and add the year to it for you. AIMS will then get the details of the parents and laid date and time.

You enter the date and time the egg was **first** removed from the bird for weighing. The default being the current time and date.

You then enter the weight of the egg when you **first** removed it from the bird.

If you measure the egg's length and width you may now enter those, in millimetres. If you do not measure these you can enter 0 in the length. These should be the maximum values not means

If no length is entered for the egg AIMS will calculate the fresh weight of the egg bases on regression. To do this AIMS assumes that the egg has been losing weight under the bird at a rate that would give you the % loss at pip that you have selected for this egg. It then calculates back to get the fresh weight of the egg.

If the egg was measured on the first day you will be asked if you want to use the removed weight as the fresh weight.

If you select **No** AIMS will take into account the time difference between lay and measurement and calculate the fresh weight using this.

If you select **Yes** AIMS will use the measured weight as the fresh weight, with no allowance for time difference. If the time between laying and measuring is only a few hours then for practical purposes you can assume that this is the fresh egg weight.

If you enter a length and width for the egg and the egg was removed on the day it was laid AIMS will inform you of how long since lay it was taken and asks you if you want to use that weight as the fresh weight, or calculate the fresh weight. If you select **No** AIMS will use the removed weight as a fresh weight. If you select **Yes** AIMS will present you with a screen of Kw values. As with the pip times these are the mean, minimum and maximum Kw values for the egg at the following levels:

SELECT KW TO CALCULATE FRESH WEIGHT OF EGG

Weight when removed from bird = 60.23 g

	Kw x 10 ⁷			Fresh Weight	Sample Size
	Mean	Min	Max		
Female specific Kw	0	0.00	0.00	0.00	0
Sub-species specific Kw	5507	5424.84	5589.15	61.76	148
Species specific Kw	5505	5415.10	5594.89	61.74	157
Genus specific Kw	5528	5419.53	5636.46	62.00	464
Family specific Kw	5528	5419.53	5636.46	62.00	464
Order specific Kw	5523	5411.46	5634.53	61.94	535
General avian Kw	5480			61.46	
Fresh egg weight bases on regression				60.52	
Kw you wish to use	5507	Calculated fresh Wt.		61.76	

Accept entry Reject entry

1. Female specific Kw value. These are calculated from all eggs on the system for the particular female.
2. Sub-species specific Kw value. Data is taken from our Kw / pip database.
3. Species specific Kw value. Data is taken from our Kw / pip database.
4. Genus specific Kw value. Data is taken from our Kw / pip database.
5. Family specific Kw value. Data is taken from our Kw / pip database.
6. Order specific Kw value. Data is taken from our Kw / pip database.

As with the pip times, AIMS will select the highest in the list that is not 0. You may enter your own value if you wish.

As the databases of Kw values increases, because you have entered your own eggs, or I have sent you a data update, then less of these will be 0.

AIMS will validate any entry to ensure that the calculated fresh weight is equal to or greater than the weight of the egg when it was removed from the bird.

What is a Kw value?

The fresh weight of an egg may be calculated by using the formula:

$$Fw = Kw \times (L \times B^2)$$

Where

- Fw - Fresh weight of the egg
- Kw - Species or subspecies weight coefficient
- L - Length of the egg in mm
- B - Width of the egg in mm, at it's widest point

This formula is usually accurate to about 2% of the fresh weight for most eggs. If using the female specific Kw from AIMS then it should be more accurate than this.

Example

You remove a Lanner Falcon's egg for the aviary.
It measures 48.45 mm by 40.56mm.

Using a Kw value of 0.00055647 for the Lanner Falcon from AIMS' database, based on a sample of measurements from a sample of 58 fresh laid eggs, the fresh weight of this egg would have been:

$$Fw = 0.0005564 \times (48.45 \times (40.56 \times 40.56))$$

$$Fw = 0.0005564 \times (48.45 \times 1645.1136)$$

$$Fw = 0.0005564 \times 79705.75392$$

$$Fw = 44.35g$$

AIMS shows you the Kw as 5564 to allow easier entry for you when typing in your own Kw value if you do not want to use that selected by AIMS, or there is no data on the database for the species you are dealing with.

If you enter a Kw of 0, or if by using the Kw you have chosen the calculated fresh weight is less than the weight of the egg when it was removed from the bird AIMS will ask you if you want to enter a new Kw. If you select **NO** then AIMS will calculate the fresh weigh using regression, show you the result and you then accept or reject the entry.

You then select **Accept** to use the entry or **Reject** to make another entry.

Once you have accepted an entry for the calculation of the fresh weight AIMS Returns you to the previous screen.

It will show you the Fresh weight of the egg, volume, surface area, density, elongation and Kw.

If you have calculated the fresh weight then a look at the density is a useful indicator of it's accuracy. This is normally in the range of 1.02 - 1.07. The higher value being for eggs with thicker shells. If it is outside this range then it may be worth looking at the date again and trying to calculate more accurately the fresh weight for the egg. You can do this by rejecting the entry at this stage and re-entering the measurements for the egg and calculating a new fresh weight.

If you enter an egg and it is set when fresh AIMS will calculate the Kw for the egg and add it to the database. However if this is larger than 0.000999, because you have entered data that is inaccurate, the AIMS will warn you of an impossible Kw value and reset it to 0.

If you are happy with the fresh weight of the egg press **ENTER** and the data will be saved to file.

If you have come into the measurement screen from the egg registration screen then you will be taken back to that screen and may register another egg or return to the main menu.

If you have come into the measurement screen from the main menu then you may enter the measurements for another egg, or return to the main menu.

Weighing eggs on a regular basis.

By weighing eggs on a regular basis and controlling their weight loss you will optimise your hatch.

With hand drawn graphs one has to weigh the eggs at the same time each day to ensure accuracy of the calculations. With spreadsheets one needs to program them for weight at set intervals, each day or three days.

AIMS allows you to weigh your eggs whenever you want. There is no restriction on having to weigh them every day or three days and you may weigh them at any time of the day you wish. AIMS takes full account of the time in it's calculations, down to the nearest minute.

To weigh your egg select from the main menu *Incubation / Weigh egg*. This will bring up the egg weighing screen.

AVIAN INCUBATION MANAGEMENT SYSTEM

View history Graph egg Mark as fertile Pip egg Hatch egg Move to new Incubator End Incubation

ENTER EGG WEIGHTS

Egg ID	System ID	Name	Ring	Species
970051	Mother 00171	Not recorded	AMS171	Saker Falcon
	Father 00172	Not recorded	AMS172	Saker Falcon

Loss at pip 15.0% Days to pip 31.5

Last weighing	Date	Time	Day of Inc.	Weight	Error weight	% loss at pip
	07/04/1997	12:19	9	49.00		35.62
Current weighing	09/04/1997	15:30	11	48.60	00.00	18.65

Comments for last weighing

% rh required	ID	Temp °C	% rh	If egg is moved to this incubator now weight loss at pip should be.....
71.30	Current incubator CUR8	37.30	40.00	
	Recommended incubator CUR5	37.30	70.00	15.15 %

Fertile Yes

Comments

Accept entry Reject entry Another egg Exit

The first item in the screen is the Egg ID number. If at this point if you want to return to the main menu enter 0 and you will be taken to the *Another egg / Exit* buttons. Selecting Exit will take you back to the main menu.

Enter the number of the egg you want to enter data for, as before you can enter just the main number and AIMS will fill in the year and 0's to make it up to the full ID number. The exception to this would be for eggs laid in say December of one year

and being weighed in the early part of the following year. For these you need to enter the full number.

Example

An egg laid on December 23rd 1996 has an Egg ID number of 960123. You would need to enter the full 960123.

For an egg whose Egg ID number is 970123 and being weighed in 1997, you would enter just 123 and AIMS would add the 970 to the beginning of it for you.

AIMS will verify the egg number and ensure that incubation for that egg has not been terminated. If the egg ID is valid and the egg is still being incubated AIMS will give you the details of the parents, the % loss at pip you have selected for this egg, the number of days to pip you have selected for this egg and details of the last weighing.

You will now be in the entry for the date of the current weighing. This by default will be today's date. You can select this by pressing **ENTER**. If you want to enter another date you may type it in.

You then enter the entry for the time of the weighing. This by default is the current time.

AIMS then shows you the current day of incubation and takes you into the entry for the weight. You enter the weight for the egg and press **ENTER**.

You are now taken into an entry called **Error weight**. The error weight is used if you have added material to the egg to reduce its weight loss, e.g. sealed an area of the air cell, or removed material from the egg to increase its weight loss, e.g. sanded an area of the shell. To get the error weight you must weigh the egg before you add material to it or remove material from it and then weigh it again afterwards. The difference is the error weight. You enter the weight and press **ENTER**. AIMS will now bring up a box asking if the error weight was caused by adding material to the egg, or removing it from the egg. Use the mouse or arrow key to select the option you want and press **ENTER**. The error weight only needs to be entered once each time you add material to or remove it from the egg. AIMS stores the error weight and includes it in its calculations next time you weigh this egg.

AIMS will now calculate the % loss the egg is heading for at pip. If you have no incubators able to keep the weight loss between Minimum and Maximum you have set for this egg you will be shown a warning message. In this case you would need to either alter the environment in one of your incubators, or do something to the egg to increase or decrease its weight loss.

AIMS will show you:

1. The required humidity the egg needs to be placed in to achieve the % loss at pip you have set for this egg.
2. Details of the current incubator the egg is in.
3. The nearest incubator you have to the required humidity.
4. The % loss the egg will achieve at pip if placed in that incubator.

If you have a number of incubators, all of which have the same %Rh, and these match the nearest %Rh, AIMS will inform you of this and show you a list of these machines.

You can now enter comments for the egg, candling notes, etc., up to 50 characters, and press **ENTER**.

If you are using the computer in the incubation room and need to darken the screen for candling you can press F9 to give you a black screen. Pressing **ENTER** again will take you back to the previous screen.

At this point you can **Accept** or **Reject** the entry.

If you **Accept** it the AIMS will bring up a new menu at the top of the screen.

This allows you to do the following:

1. View the egg weight history for the egg. This shows you the day of incubation, the date and time of the weighing, weight, error weight, % loss at pip the egg was heading for on that day and the notes for that entry. Press **ENTER** to return to the main screen.
2. Create weight loss graph. This can be printed from the graph screen.
3. Mark an egg as fertile. If the egg is already fertile this option will not be available to you.
4. Pip egg. If the egg is not marked as fertile this option will not be available to you.
5. Hatch egg. If the egg has not yet been entered as having piped this option will not be available to you.
6. Move egg to a new incubator.
7. End incubation. This option will allow you to end the incubation for infertile or dead eggs.

See below for a fuller explanation of these features.

You can now either weigh another egg or return to the main menu.

Viewing the incubation history of an egg

From the main menu select **Incubation / View eggs / Daily weights**, or from the weigh egg menu select **View History**.

If you come from the main menu this will bring up a list of eggs on file, you will be positioned on the last egg. I have done this so that you will always be nearest the eggs still running at any time. Use the right arrow key to view dates etc. for the egg and the up / down arrow keys to move to the egg you want to use and press **ENTER**.

If you are coming from within the egg weigh screen the AIMS will select the egg for you, the one you are currently weighing.

This will show you daily weight details for that egg. The following information is provided:

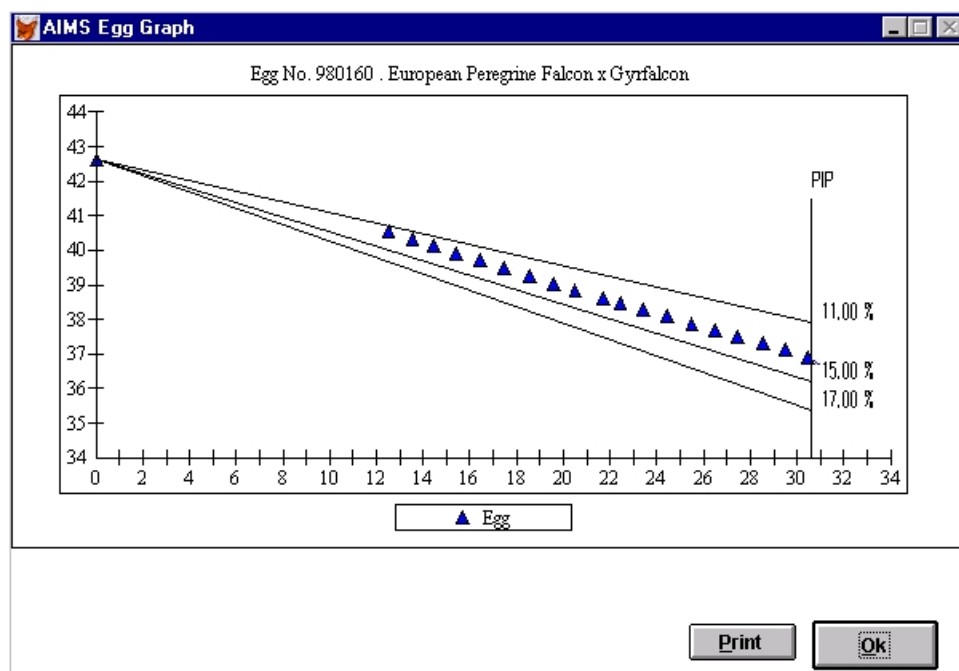
1. Day of incubation.
2. Date of weighing.
3. Time of weighing.
4. Weight.
5. Error weight.
6. % loss at pip the egg was heading for then.
7. The incubator the egg was in then.
8. The comments for that weighing.

Press **ENTER** to return to the main menu.

To view details for all eggs on file running select from the main menu **Incubation / View eggs / Dates etc. for all eggs on file.**

This will bring up a list of egg. You will be positioned on the 1st egg on the file. Use the right arrow key to view dates etc. for the egg and the up / down arrow keys to move between eggs.

Creating a weight loss graph



To create a weight loss graph for the egg click on the **Graph egg** menu option. If you are coming from the main menu the you will be given a list of eggs and asked to select the one you want to graph. If you are in the weigh egg menu then it will graph the current egg.

AIMS will create the graph and display it to you as a line graph with the Minimum, Optimum and maximum % loss lines plotted on it. The egg weight is shown as an X at each point.

For any days you have not weighed the egg AIMS calculate the weight for those days based upon the weight before and after that date. If this were not done then there would be 0 points plotted for those days. It also uses the fresh weight of the egg for the weight at day 0, not the weight of the egg when incubation was started. This is because you want to lose an optimum % of the fresh weight of the egg rather than that when incubation began.

Marking an egg as fertile

Marking an egg as fertile can be done from the main menu *Incubation / Mark egg as fertile* or from the menu in the weight egg screen after you accept the weight entry, *Mark as fertile*.

If you do this from the main menu you enter the egg number, in the same way as described earlier. AIMS will then show you the details of the parents and you can enter any comments. You select *Accept* to save the data to file, or *Reject* to reject the entry. You can then mark another egg as fertile or return to the main menu.

If you mark the egg as fertile from the weigh egg screen AIMS will enter the egg number for you automatically and when you accept or reject the entry you will be taken back to the weigh egg screen.

Pipping an egg

To pip an egg from the main menu select *Incubation / Pip Egg* or from the menu in the weigh egg screen after you accept the weight entry *Pip Egg*.

The screenshot shows a software window titled "PIP EGG". It contains the following fields and buttons:

- Egg I.D. Number:** 990013
- Mother:**
 - System ID:** 00072
 - Ring:** DOE5301W
 - Name:** BLACKY
 - Species:** European Peregrine Falcon
- Father:**
 - System ID:** 00069
 - Ring:** UK75275
 - Name:** ODIN
 - Species:** Gyr Falcon
- Egg Pipped between:**

Date	Time	and	Date	Time
13/02/1999	16:36		14/02/1999	06:30
- Comments:** Normal pip. Chick strong and vocal.
- Buttons:** ACCEPT ENTRY, REJECT ENTRY, Another entry, Exit

If you come from the main menu you enter the egg number, in the same way as described earlier. AIMS will then show you the details of the parents. If coming from the weigh egg screen AIMS will do this for you automatically.

You enter the dates and times the egg piped between. If you know the exact time, enter the same date and time for both.

The 1st date and time are when you last checked the egg and it had not piped. The 2nd is when you first saw the pip.

You can then enter any comments.

You select *Accept* to save the data to file, or *Reject* to reject the entry.

You will be asked if you want to move the egg to a hatcher. If you select YES then AIMS will give you a list of incubators, or if you have hatchers specifically marked, by using HAT as the 1st three characters of their ID, it will show you these. You move to the machine you want and press ENTER.

If you have come from the main menu you can then mark another egg as piped or return to the main menu. If you have come from the egg weigh screen then AIMS takes you back to that screen after you accept or reject the entry.

AIMS uses the data for your own piped eggs to provide you with female specific pip times and adds them to the main Taxon databases. So accurate data entry here is very important.

Hatching an egg

To hatch an egg from the main menu select *Incubation / Hatch Egg* or from the menu in the weigh egg screen after you accept the weight entry *Hatch Egg*.

The screenshot shows a software window titled "HATCH EGG". It contains the following fields and options:

- Egg I.D. Number:** 990111
- Parent Information:**
 - Mother:** System ID: 00171, Ring: DOE4728W, Name: NONE GIVEN, Species: Saker Falcon
 - Father:** System ID: 00172, Ring: DOE3460W, Name: NONE GIVEN, Species: Saker Falcon
- Hatch Times:** "Egg hatched between" with Date/Time: 12/02/1999 16:25 and 12/02/1999 18:40
- Chick ID:** "Initial ID for chick" with text: Red Mark On Left Wing
- Rearing Method:** "Method chick is to be reared by" with a dropdown menu set to "Imprinted"
- Comments:** "Comments" with text: Normal Hatch, Chick Into Brooder 2
- Buttons:** "ACCEPT ENTRY", "REJECT ENTRY", "Another entry", and "Exit"

If you come from the main menu you enter the egg number, in the same way as described earlier. AIMS will then show you the details of the parents. If coming from the weigh egg screen AIMS will do this for you automatically.

As with the pip you enter the dates and times the egg hatched between. If you know the exact time then enter the same date and time for both.

The 1st date and time are when you last checked the egg and had not hatched. The 2nd is when you first saw the hatched egg. If from looking at the chick you can see that it has only just hatched, even though you last checked it several hours ago, or the night before, you can enter an estimate of when you think it hatched from.

You then enter a temporary ID for the chick. This could be a colour you mark the head or body with or a temporary plastic ID ring.

You can then select the type of rearing the chick is to have, the main overall type.

You can then enter any comments.

You select *Accept* to save the data to file, or *Reject* to reject the entry.

When you accept the entry AIMS gives you a list of aviaries and you select where you want to place the chick.

You may set up an 'aviary' called rearing house if the chick is to be reared indoors for the first few days before being returned to it's parents. If the aviary you want to place the bird in is not on the list then select the entry marked **ADD - ADD NEW AVIARY** and AIMS will take you to the screen to add the new aviary, taking you back to the list, with the new aviary on it afterwards.

You will then be asked if you own the chick. If you select **No** you will be given an address file from which you can choose the owner, or add him / her to the address list if they the owner is not already on that list, select the entry marked **NEW ENTRY** to add a new address to the file.

Aims will calculate the generation captive bred of the chick. This is based on the parents. If both are stock birds AIMS will set the chick at one higher than the lowest parent value. If the mother were F2 and the father F5 the chick would be F3. If only one parent is in stock AIMS will set the chick at one higher than that parent. You can later edit this in the edit stock screen if you wish. If neither parent is in stock AIMS will set the chick at F1, again you can edit it later in the edit stock screen if you wish.

If you have come from the main menu you can then mark another egg as having hatched or return to the main menu. If you have come from the egg weigh screen then AIMS takes you back to that screen after you accept or reject the entry.

When you hatch an egg AIMS will add the chick to your stock automatically.

Moving an egg to a new incubator

To move an egg to a new incubator from the main menu select **Incubation / Move egg to new incubator** or from the menu in the weigh egg screen after you accept the weight entry **Move to new incubator**.

MOVE EGG TO NEW INCUBATOR

Egg I.D. Number

Mother		Father	
System ID	<input type="text" value="00072"/>	<input type="text" value="00069"/>	
Ring	<input type="text" value="DOE5301W"/>	<input type="text" value="UK75275"/>	
Name	<input type="text" value="BLACKY"/>	<input type="text" value="ODIN"/>	
Species	<input type="text" value="European Peregrine Falcon"/>	<input type="text" value="Gyr Falcon"/>	

Current incubator

Temp %Rh

Move egg to

Temp %Rh

If you come from the main menu you enter the egg number, in the same way as described earlier. AIMS will show you the details of the parents. If coming from the weigh egg screen AIMS will do this for you automatically.

Once you have entered the egg number and AIMS has verified that the egg is still running, it will fill in the details of the parents and show you a list of the current incubators on file with their current temperatures and humidities. The cursor will be located on the machine the egg is currently in. You can then use the mouse, or up / down arrow keys to move to the incubator you want to move the egg to and press **ENTER**. You then accept or reject the entry.

As before, if you have come from the main menu you can then move another egg or return to the main menu. If you have come from the egg weigh screen AIMS takes you back to that screen after you accept or reject the entry.

End incubation for an egg

To end incubation for an egg from the main menu select **Incubation / End Incubation** or from the menu in the weigh egg screen after you accept the weight entry **End Incubation**.

Mother		Father	
Egg I.D. Number	990013		
System ID	00072	System ID	00069
Ring	DOE5301W	Ring	UK75275
Name	BLACKY	Name	ODIN
Species	European Peregrine Falcon	Species	Gyr Falcon
Incubator	BR 3 - Brinsea Octagon 20		
Date terminated	13/02/2002		
Reason	Died 4th 1/4		

ACCEPT ENTRY REJECT ENTRY

Another entry Exit

If you come from the main menu you enter the egg number, in the same way as described earlier. AIMS will then show you the details of the parents. If coming from the weigh egg screen AIMS will do this for you automatically.

You enter the date incubation was terminated.

You then select from a list the reason incubation was terminated. The options here are:

1. Infertile.
2. Hatch - If you select hatch you will be asked to use the hatch egg from the main menu, as this contains all the stock updating and other features, and you will be taken out of the end incubation screen.
3. Broken.
4. Died 1st ¼ of incubation.
5. Died 2nd ¼ of incubation.
6. Died 3rd ¼ of incubation.
7. Died 4th ¼ of incubation.
8. Died after internal pip.
9. Died before external pip.
10. Died just after external pip.
11. Died during hatch.

By selecting standard reasons for termination rather than allow the user to enter comments for this I will, in future updates of AIMS, be able to provide sophisticated analysis of cause of death of eggs during incubation.

You use the arrow keys to move the entry you want to select and press **ENTER**.

You can now accept or reject the entry.

As before, if you have come from the main menu you can then end the incubation of other eggs or return to the main menu. If you have come from the egg weigh screen then AIMS takes you back to that screen after you accept or reject the entry.

Calculating the %Rh from wet and dry bulb readings

Using wet and dry bulb thermometers to measure %Rh

The %Rh in an incubator can be measured by comparing a pair of wet and dry bulb thermometers. These are a pair of thermometers that have been calibrated against each other. One of these has a short length of cotton wick attached to cover the bulb and this dips into a pot of distilled water inside the incubator. Water will travel up the cotton by capillary action and will evaporate off. This evaporation cools the thermometer thus giving a lower reading on the wet bulb than on the dry. By comparing these, one is able to calculate the %Rh in the machine.

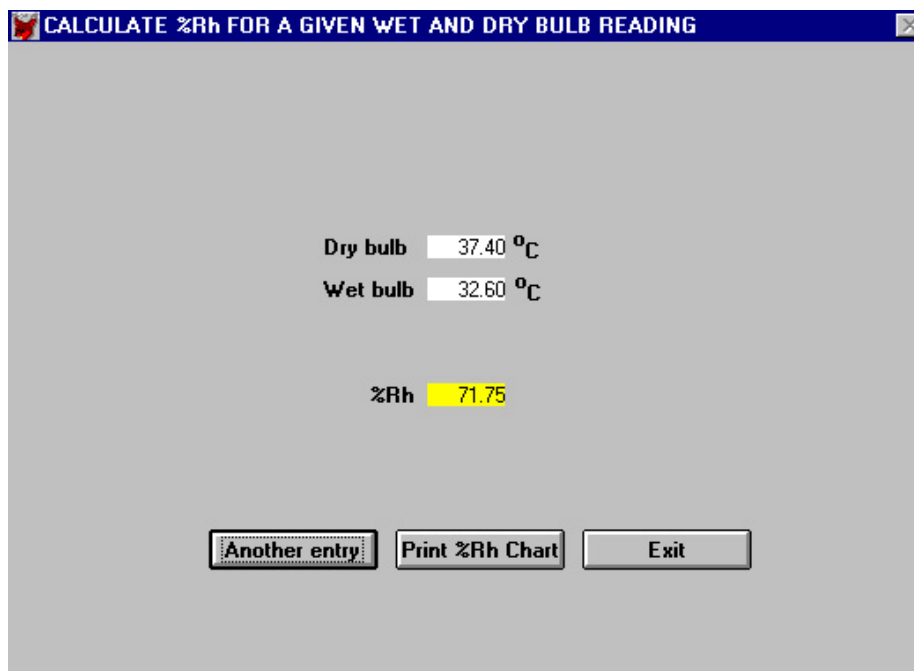
This method is very accurate and if set up properly is normally accurate to 2%. The following should be taken into account when using this method:

1. The thermometers need to be calibrated.
2. The airflow in the machine needs to be a minimum of 3.2m/s. Thus it will not work in still air machines.
3. The wick needs to be no more than 1 inch long from the water pot to the bulb.
4. One needs to ensure that the wick does not become soiled.
5. Only distilled water should be used, or the wick will become clogged with minerals from the water.

AIMS makes it easy for you to calculate the %Rh from wet and dry thermometers and will print out a chart for you in 0.1 degree steps for any temperature.

Select from the main menu ***Incubation / Incubators / Calculate %Rh from wet and dry bulb readings.***

This will bring up a screen in which you enter the dry and wet bulb temperatures and AIMS will give you the %Rh based upon those readings.



Printing %Rh charts for a selected dry bulb temperature

To print out a chart for the dry bulb temperature you have entered select the ***Print %Rh chart*** button and AIMS will print the chart for you. This is in 0.1 degree steps, so for a chart for 37.5 degrees would run to about 7 pages.

Please note that these charts are for your own use only and may not be distributed or copied, in part or whole.

Stock

ADD BIRD TO STOCK

System ID number	00519	Date acquired	01/06/2001		
Mothers system ID	00017	Mothers ID ring	DOE4369R		
Fathers system ID	00201	Fathers ID ring	UK88260		
Species scientific name	(Falco rusticolus x Falco columbarius aesalon)				
Species common name	(Gyr Falcon x Merlin)				
Name	Fred	Rings ID	AMS12345	Other	PHONERING
Micro chip #	ART78-UIY67	Reader type	Identichip	Sex	Male
Captive bred	Yes				
Date hatch	01/06/2001	Rearing	Imprinted		
Acquisition type	Gift	Generation captive bred	F	2	
Price paid / Value	0.00				
Acquired from	Mr Ceri Griffiths, Welsh Hawking Centre				
Owner	Avian Management Services				
Article 10 #	123456				
Current location	BS25	Back seclusion			
Comments					

ACCEPT ENTRY **REJECT ENTRY**

Another entry Exit

Adding a new bird to stock

To add a new bird to stock select from the main menu *Stock / Add new bird to stock*. This will bring up the Add stock screen.

System ID

AIMS will provide you with a system ID number for the bird. This is a 5 digit number with leading 0's. AIMS uses this system ID to track the bird on the program. This allows you to change rings easily and still keep all the data on the bird up to date. You cannot change this number yourself.

Date acquired

You are then asked to enter the date you acquired the bird, the default being today's date.

Parents

If there are females recorded on the system with a hatch date before the date you acquired the new bird, you are given a list of these from which you can choose the mother by moving down the list using the down arrow key until you reach the bird you want and then press **ENTER**. This list is ordered by name, aviary, ring. AIMS will then fill in the details of the mother for you on the main screen.

If there are no mothers with a hatch date before the date you acquired the new bird, or if you select Mother not in stock from the top of the stock list you are taken to AIMS'

standard Taxon selection screen. As before you select the Taxon you want for the mother and then enter her ring number.

You then repeat this process for the father. The only difference being that if you go into the Taxon selection screen AIMS will take you automatically to the same species / subspecies as the mother. You may then use the arrow keys to move to a different species / subspecies if you wish and then press **ENTER** to accept the entry.

If any of the parents are wild birds that are not in stock you can enter WILD or ? as before for their rings.

Name

You then enter the in house name for the bird, if it has one.

Rings

You then enter the birds primary ID ring details. AIMS then verifies that this has not been used before on the system. If it has you are shown details of the bird for which this ring has already been used. All rings must be unique. A number of people have asked what they should do about un-rung birds. Ring them! An un-rung bird in a collection is a disaster waiting to happen. Sooner or later someone will move it to the wrong aviary or something similar and you won't be able to identify it. You **must** be able to identify all birds in your stock. If you really do not want to ring the bird then you can enter ? for the ring number.

You can then enter details of a second ring.

Microchip

You then enter details of any microchip implant the bird may have. If you do this you are taken to the reader type from which you can select the type of reader for the microchip. If the bird does not have a microchip press **ENTER** in the microchip entry section to put in a blank entry.

Sex

You then select the sex of the bird from a pick list.

Captive bred

You then select if the bird was captive bred or not.

Date hatched

Then you enter the date the bird hatched.

AIMS allows you to record estimates of the day or month a bird hatched. If you enter 01 for the day, AIMS will ask you if you want to estimate the day. If you enter 01 for the month, AIMS will ask if you wish to estimate the month in which the bird hatched.

This would be used where you obtained a bird and were not sure of its hatch date. You can enter 01/01/60 for a bird that you knew hatched in 1960, but you did not

know when in 1960. You have to put a year; if you enter 01 for the year then the reports for the bird's age will look a little strange to say the least.

Rearing method

You can now select from a list the type of rearing method this bird had. If it was raised by a mixture of these you will need to select the one that best describes its overall method to be able to assess its breeding potential in the future.

The choices are:

1. Parent - own species
2. Parent - other species
3. Imprinted
4. Hand reared in a group
5. Hand reared by itself - this is not the same as imprinted. An imprinted bird is one that is deliberately imprinted to breed with staff later in life using A.I.
6. Unknown

Acquisition type

You now select from a list the acquisition type. These are:

1. Hatch here
2. Purchased
3. Loan
4. Wild disabled
5. From wild
6. Imported
7. Gift
8. Other

If you select Hatch here and your acquisition date is not the same as the date the bird hatched AIMS will inform you that there must be an error here and you can elect to have AIMS alter the acquisition date for you so that it matches the hatch date.

You move to the one you want using the arrow keys and press **ENTER**.

Generation captive bred

This describes the number of generations from wild stock the bird is, 0 being a wild bird.

If the parents are both stock birds AIMS will complete this for you based upon the generation of the parents. It is one higher than the lowest of the parents. So if the mother were F2 and the father F4 the chick would be F3, not F5.

If one or both of the parents are not in stock AIMS allows you to make this entry. It will validate it against any parent in stock and will not allow it to be more than one higher than that parent. It can be lower as one of the parents may be a wild bird.

Price paid / value

If you want to record the price you paid for a bird, or its current value, you can now enter this. I intend to add in future editions of AIMS a stock valuation report feature.

Acquired from

If the bird was not hatched at your location, you are then asked to select from the address list the person from whom you acquired the bird.

If that person is not on the list select the 1st entry on the address list, NEW ENTRY, and you can add the name and address to the file.

Owner

You are then asked if you own the bird. If you select No you are again taken to the address screen to select or add the name and address of the owner. If you select YES it will enter your details as the owner.

Article 10

If your bird requires an Article 10 Permit you can enter the permit number here. This will then be used to print on DEFRA ring request forms if the bird is a parent of any eggs.

Location

You are then given a list of aviaries from which you select the aviary you want to place the bird in. If it is not on the list then select the top entry 'ADD NEW AVIARY' and you will be taken to the screen to add aviaries to the system and then returned to the list, including the new entries, for you to select the aviary to place the bird in.

You can then enter any comments and then either accept or reject the entry.

You can then add another bird to stock or return to the main menu.

Move bird to a new aviary

To move a bird to a new aviary select from the main menu **Stock / Move bird to new aviary**. This will bring up a standard specimen selection screen from which you can select the bird you want to move.

Select bird to work with

Enter data you wish to use to select bird by.
You may enter just partial details and not all fields need to be filled
If you leave all the fields blank you will be shown all birds on file

Common name contains

Scientific name contains

ID ring contains

Location ID contains

In house name contains

System ID contains

Sex **Female** ▼

Order search by

Common name

Scientific name

Ring

Location

In house name

You can select the bird by the following:

1. Entering any part of the common name.
2. Entering any part of the scientific name.
3. Any number or letter contained in the ID ring of the bird.
4. Any number of letters contained in the Location ID of the bird's aviary.
5. Any part of the birds in house name.
6. Any number contained in the birds system ID.
7. You may also select the sex.

You can order the search results to be listed by:

Common name.
Scientific name.
Ring.
Location
In house name.

You may enter details into any one, or all, or any number of the above.

E.g.

Entering the following.

Common name contains	-	'Per'
ID ring contains	-	'1'
Sex	-	'Female'

would give you a list of all female peregrines with the number 1 contained in their ID ring.

If you leave all the selection criteria blank then you will be presented with a complete stock list.

You are presented with the list. You move to the bird you want to select and press enter.

Once you have selected the bird you want AIMS shows you the following details for the bird:

- System ID.
- Ring.
- Sex.
- Common name.
- Scientific name.
- Current location.
- Date and time of last movement.
- Reason for last movement.

You select if this is the correct bird or not. If it is the correct bird you are given a list of aviaries and you can select the one you want to move the bird to. Move to the one you want and press **ENTER**.

You then enter the date and time of the movement and the reason. If the date is before the date of the last move, AIMS will record the location but not move the bird. This is to allow you to build up a history of aviary movements if you wish.

When you accept the entry you will be shown a list of all birds in the aviary where you have moved the bird to. This allows you to check that all movements out of this aviary have been recorded. Press ENTER to return to the main screen.

You can now move another bird or return to the main menu

Remove a bird from stock

To remove a bird from stock select from the main menu **Stock / Remove bird from stock**.

You will now see AIMS' standard specimen selection screen. This is used throughout the program to select a specific bird to work with. As with the move bird screen you can select the bird by Name, Ring, Aviary or Species.

You are shown the details of the bird and asked if it is the correct bird. If it is, you select **correct bird** and are given the removal screen. If you select **Wrong bird** you can select a bird again.

Remove bird from stock

System ID number 00386

Species latin name Falco peregrinus peregrinus

Species common name European Peregrine Falcon

ID Ring UK88438

Sex Female

Name

Micro chip #

Date hatch 01/01/199

Current location B506 Back seclusion

Date acquired 01/12/1999

Date removed 13/02/2002

Reason removed Loan

Sale price 0

Passed on to Mr David Le Mesurier

Comments On Breeding Loan

ACCEPT ENTRY REJECT ENTRY

Another entry Exit

When you enter the removal screen you enter the date on which the bird was removed from stock. You then select from a list the reason for removal. These are:

1. Sold
2. Loan
3. Exchange
4. Died
5. Released
6. Theft
7. Exported
8. Gift
9. Other

If the bird was sold you can enter the sale price.

If applicable for your removal type you are then taken to the address screen to select who the bird was passed on to. You select the name and address you want, or enter a new one by selecting NEW ENTRY from the top of the list.

You can then enter any comments for the removal.

Press **Accept entry** to remove the bird from stock or **Reject entry** to reject it.

If your removal type is not Died and the bird is captive bred you will be asked if you wish to print a certificate of captive breeding. Select YES to print out the certificate, which you can pass on with the bird.

You can then remove another bird from stock, or return to the main menu.

RINGS

Changing a birds ring

To change a bird's ID ring select from the main menu ***Stock / Rings / Change birds ID ring.***

As before you select the bird you want to work with by Ring, Aviary, Name or Species.

You then enter the new ring details and AIMS will validate it.

You then enter the date rung and the reason.

You can then accept or reject the entry and then re-ring another bird or return to the main menu.

Ringling chicks

To ring a chick for the first time select from the main menu ***Stock / Rings / Ring chick.***

This will bring up a list of all un-rung chicks. Use the arrow keys to move to the bird you want and press ***ENTER.***

You will be shown details of the bird, date hatched and current location.

You enter the new ring and AIMS will verify it. You then accept or reject the entry and may then ring another chick or return to the main menu.

Change chicks temporary ID

To change a chick's temporary ID select from the main menu ***Stock / Rings / Change temporary ID.***

You then select the chick you want from a list of all un-rung chicks. AIMS shows you details of the chick and you then enter the new temporary ID.

You can then accept or reject the entry and then change another temporary ID or return to the main menu.

View stock

To view details of your stock select from the main menu Stock / View stock. You can now view either birds **in stock** or **all birds on the system**.

These can be ordered by:

1. Species / Sex / Ring.
2. System ID.
3. Ring.
4. Aviary

Select which Order you want and press **ENTER**.

AIMS will display a list of the stock orders according to your selection. If the display does not fill the screen, click on the up facing arrow on the corner of the display screen.

You can move around the list using the arrow keys to view all the details of the birds you are interested in.

Press **ENTER** to return to the main menu.

Adding aviaries

To add new aviaries to the system, other then from within screens as described earlier, select from the main menu **Stock / Add new Aviary**. This will bring up the screen to allow you to enter a new aviary and view ones currently on file.

ADD NEW AVIARY

Add new aviary to list

View current list, by ID

View current list, by Description

Exit

Aviary ID M-IMP-6

Description Imrint Block Room 6

Accept entry Reject entry

Another Entry Close

To add an aviary select the add new aviary button and then enter the aviary ID and description. AIMS will verify that the ID is unique and then you can add another aviary or return to the main menu.

You can also this screen to view all of your aviaries.

Editing

Eggs

Laying details for an egg

In this menu option you can edit the following:

Parents for an egg.

Date and times for laying.

Number of days to pip.

% loss you want at pip

Method of fertilisation.

Comments for the lay.

From the main menu select *Edit / Eggs / Laying details for an egg*.

You will be given a list of eggs and you can move through this using the arrow keys until you reach the egg you want to edit. Press **ENTER** and you will be taken to the edit screen with the details of the egg showing.

The screen looks the same as that used to enter the laying details for the egg. On entry into the screen you will be positioned in the date laid from entry.

If you want to accept the current entry for the date press **ENTER**.

If you want to alter the entry type in the date you want.

You will then move through each entry in turn. Press **ENTER** to accept the value shown or enter the value you want to change it to.

AIMS will validate any changes you make.

If you want to edit any of the parents for the egg, use the mouse click on the entry for the System ID of the parent you want to edit. You will be taken through the stock list as you were for the original entry for the egg.

On accepting the entry you will be taken to the edit weight and measurement screen. You move through the entries on this screen, changing any of the values if you want to. This is done to recalculate the fresh weight of the egg based upon your edited lay dates. When you reach the bottom of the edit weight screen select exit and you will be

returned to the edit laying details screen where you can edit another egg or return to the main menu.

Date and time set

From the main menu select ***Edit / Eggs / date and time set.***

As before you will be given a list of eggs and you can move through this using the arrow keys until you reach the egg you want to edit.

Press ***ENTER*** and you will be taken to the edit screen with the details of the egg showing.

You will now be in the edit screen and be positioned on the date set.

As before you move through the entries by changing any you want to edit and pressing ***ENTER***. If you want to accept the value already in the entry press ***ENTER***.

When you enter the entry for the incubator set in, you will be shown a list of the incubators on file and you will be positioned on the one the egg was set in. If you wish to change this use the arrow keys to move up or down the list and then press ***ENTER***.

When you have finished you select the ***Accept*** button to save the changes or ***Reject*** to reject them.

As with the edit lay screen, if you select the ***Accept*** button you will then be taken into the edit weights and measurements screen to ensure that the fresh weight of the egg is correct for any changes you may have made in the edit set screen.

Initial weights and measurements

Unless you are entering from another screen, when AIMS will complete the egg details for you, select from the main menu select ***Edit / Eggs / Initial weight and measurements for egg.***

This will bring you up a list of the eggs on file. Use the arrow keys to move to the one you want to edit and press ***ENTER***.

You will be positioned in the date and time entry. As before you move through the entries editing the values or accepting the current values by pressing ***ENTER***.

The screen behaves exactly as the one you used to originally enter the weights and measurements.

If you are coming from another screen, after you accept or reject the entry, select exit and you will be returned to the previous screen.

Daily weight entries

From the main menu select ***Edit / Eggs / Edit daily weights.***

You will be given a list of eggs on file, but this time you will be positioned on the last egg. I have done this as I feel that you are more likely to want to edit weights for the most recent eggs and it will save you having to go through a list of hundreds of eggs in the future.

Select the egg you want to edit by moving through the list using the arrow keys and press **ENTER**.

You are then shown a list of the weights for that egg. Again move to the one you want to edit and press **ENTER**.

If the entry you have selected is the fresh weight or the weight of the egg when removed from the bird, you will be asked to use the edit initial weights and measurements menu.

As before you move through the entries and make any changes you want to, or press **ENTER** to accept the value already there.

AIMS will validate your edited weight details and if it is okay AIMS will save the new values or dates, etc. to file. If there is a problem with your entry you will be informed why the entry is not acceptable and the changes will not be saved to file.

Remove an egg from the system

To remove **ALL** reference of an egg from the system, because you have entered it wrongly and wish to re-enter it, select from the main menu **Edit / Eggs / Remove egg from system**.

This will bring up a list of all eggs on file. Move to the egg you want to remove using the arrow keys and press **ENTER**

You will be given two opportunities to cancel the removal of the egg.

If the egg has hatched you will have to remove the bird from the system first.

When you come to re-enter the egg you can use it's Egg ID number again by typing it in when AIMS provides you with a default number.

Stock

For stock you can edit the details for a single bird or remove a bird from the system.

Edit detail of a single bird

Select from the main menu *Edit / Stock / Edit single bird details*.

You will be presented with aims standard specimen selection screen to choose the bird you want to edit.

Once you have selected the bird you want to edit you, will be presented with a screen that looks like the add bird to stock screen. You are positioned on the accept button.

To edit any details select the item you want to edit using the mouse and make the changes you want to. The items behave as they did in the add stock screen, except that as you leave the entry you are returned to the accept button.

If you alter details for any of the parents you will be taken through both parent details. If the parents are not in stock you will need to edit their ring numbers separately if you need to change them.

To select some of the items in the screen you will need to place the mouse to the right of the entry, hold down the left mouse button and drag it across the entry until it is blue. You can then type in the new value.

Remove a bird from the system.

From the main menu select *Edit / Stock / remove Bird from system*.

Again you will be presented with AIMS's standard specimen selection screen to choose the bird you want to remove.

You will have two chances to cancel the removal.

If the bird is the parent of a bird that hatched from an egg recorded on the system you will have to remove the eggs first.

If it is the parent of a bird in stock that did not hatch from an egg recorded on the system AIMS will reset that birds parent system ID to 00000.

Addresses

To edit an address select from the main menu *Edit / Address*.

You will be given a list of the addresses on file, excluding you own. Using the arrow keys move to the address you want to edit and press **ENTER**.

You can then go through each entry and make any changes you want to.

You the either accept or reject the entry.

You can then edit another address or return to the main menu.

Aviary ID / Description.

Select from the main menu *Edit / Aviary ID / Description*.

You are presented with a list of all aviaries on file in order of their ID. Move to the one you want to edit using the arrow keys and press **ENTER**.

You are taken to the edit screen in which you can see the current ID and description and you can enter a new ID or description. If you alter the ID AIMS will validate the entry to ensure that it is not in use. If not, it will update all references to it throughout the system.

You can then edit another aviary or return to the main menu.

Incubator ID / Description

Select from the main menu *Edit / Incubator ID / Description*.

This works in exactly the same way as the edit Aviary ID / description option.

Reports

Stock

Specific bird

Select from the main menu **Reports / Specific bird**.

Select the bird you want from AIMS's standard specimen selection screen.

You will be given a printer dialogue box from which you can alter the printer settings. Press the OK button and AIMS will print the report for you.

This will give you all the basic data concerning that bird.

Specific Species

Select from the main menu **Reports / Specific species**.

You can then select between current stock and all birds on file.

You will be given a list of species to select from. Move to the one you want and press **ENTER**

Again you will be given the printer dialogue box from which you can alter your printer settings.

Select OK and AIMS will print the report for you.

This will print a report of the chosen species, or subspecies, in order of Aviary, Sex, Ring.

The report details the System ID of the bird, it's sex, name, ID ring, Date hatched and current location.

Current stock

Select from the main menu **Reports / Current stock**.

You can select to print this report ordered by:

1. Species / Sex / Ring
2. Aviary / Species / Ring.

Select the order you want and press **ENTER**.

You will get the printer dialogue box and on pressing the OK button AIMS will print your stock report.

This shows all your stock grouped by species and includes:

1. System ID number.
2. Sex.
3. Name.
4. ID ring.
5. Date Hatched.
6. Current location.
7. Total number of birds on file.

All birds on file

Select from the main menu **Reports / All birds on file**.

This is the same as the current stock, except that it shows all birds registered on the system.

7 Column Checklist

This is a standard report used by zoos and allows you to produce a report, which shows the following for the report period you select.

Birds in stock at start of report period

Birds arriving in your stock during report period, excluding hatches.

Hatches during report period.

Bird that hatched and died before they were 31 days old.

Other deaths.

Departures from your stock, other than deaths.

Closing stock on end date of report.

The report would show each subspecies, scientific and common name, and under this would be counts for each item for each sex.

From this report you can easily see how many males, female and unknown sex birds you had at the start, obtained, hatched etc.

Eggs

Print out weighing sheets.

If your computer is not situated in your incubation room AIMS can produce for you a record entry sheet to take to the incubation room to write down the weights and comments as you weigh your eggs. You then return to the computer, enter the data and note where AIMS tells you to move the eggs to. Return to your incubation room and move the eggs.

To print out the sheets select from the main menu **Reports / Eggs / Print out weighing sheets**.

You will be shown the normal printer dialogue box and on selecting the OK button AIMS will print out the report for you.

This is in order of incubator and then all eggs in that incubator listed in order of Egg ID number.

The report shows the following:

1. Date of weighing, the date on which the report was printed.
2. Time of weighing - left blank for you to complete for each incubator as you weigh the eggs in that incubator.
3. Incubator ID and description.
4. Egg ID number.
5. Details of the mother of that egg.
6. Its current day of incubation.
7. The number of days left to pip.
8. A space for you to fill in the weight and comments
9. A box for you to tick to show that you have entered the data into AIMS.

Incubation history of an individual egg.

From the main menu select **Report / Eggs / Print egg sheet for an individual egg**.

You will be shown a list of eggs on file and you move to the egg you want to print the data for using the arrow keys. When you reach the egg you want press **ENTER**.

You will be shown the normal printer dialogue box and on selecting the OK button AIMS will print out the report for you.

This shows the following:

1. Details of the parents.
2. Date and times of lay.
3. Date and times of set.
4. Date and times removed from bird.
5. Weight when removed from bird.
6. Length and width
7. Fresh weight of egg, and if this is a calculated weight it will tell you.
8. If fertile and method of fertilisation
9. Number of days you have entered for pip
10. Optimum % loss you have entered for pip
11. If the egg has piped it will show you details of this
12. If the egg has hatched it will show you details of this.
13. If incubation was terminated it will show you when and why.
14. You then have the entries for weights with the date, time, day of incubation weight, error weight, incubator and comments.

We suggest that you print a copy of this report for each egg once incubation has ended for it and file this for future reference.

List of eggs and females

From the main menu select **Report / Eggs / Print list of egg and females**

This will produce a report, for a period selected by the user, of eggs with details of the following:

Egg number - report is ordered by this.

Current incubator.

Date and time piped.

Date and time hatched.

Mother' name and ring number, mother's species.

Breeding statistics

From the main menu select **Report / Eggs / Produce breeding statistics**

This will produce a statistical report for breeding during the period you select. This is divided at subspecies level and includes:

Number of eggs laid.

Number and percentage fertile.

Number of eggs piped and percentage piped, this is the percentage of fertile eggs, as infertile eggs do not have the potential to pip.

Number of eggs hatched and percentage hatched, again this is of fertile eggs.

The percentage of eggs that piped which hatched.

It also includes an overall analysis of the above for all the subspecies included in the report.

Incubators

Environment history

To print out an environment history for an incubator select from the main menu **Report \ Incubators \ Print incubator environment history**.

You will be presented with a report start and end date. This is a standard entry screen and is used to enter the start and end date for a number of reports in AIMS.

Enter the date you want the report from, the default being 1st January in the current year. If you want to have all data then enter 01/01/01.

You then enter the end date for the report, the default being today's date.

Accept the entry and you will be presented with a list of incubators. Move to the one you want the report for, using the arrow keys, and press **ENTER**. You will be presented with the printer dialogue and on pressing the OK button AIMS will print out the report for the period you have specified.

Aviaries

Birds currently in a specific aviary

From the main menu select **Reports \ Aviaries \ Birds in a specific aviary now**.

Aims will present you with a list of aviaries, in order of ID. Move to the one you want to report on, using the arrow keys and press **ENTER**.

On selecting the OK button from the printer dialogue AIMS will print the report for you.

This report lists the system ID, Sex, name, ID ring and species of all birds in the aviary you have selected.

Aviaries records on file, ordered by ID

From the main menu select **Reports \ Aviaries \ All aviaries on file ordered by ID**.

On selecting the OK button in the printer dialogue AIMS will print the report for you.

This lists all the aviaries on file in order of their ID.

This is useful for marking aviary IDs on them or for making a site map for your facility.

Aviaries records on file, ordered by Description

From the main menu select **Reports \ Aviaries \ All aviaries on file ordered by description**.

On selecting the OK button in the printer dialogue AIMS will print the report for you.

This lists all the aviaries on file in order of their description.

CITES permits

As your stock is already recorded on AIMS I have included the facility for AIMS to print out for you UK CITES application forms. These are for importing / exporting birds into / out of the EU. For movements within the EU use the Article 10 certificates.

If you are in another country and would like AIMS to do this for you please send us an original of the application form from your CITES authority and if I can obtain their permission to reproduce the form from within AIMS I will do my best to program this in.

We would like to thank the UK CITES authority for their permission to reproduce the CITES application forms within AIMS.

From the main menu select **Reports \Permits \ European CITES permits**.

Then select the type of permit you wish to apply for:

Import

Export

Re-export

If the program is registered with a company and a person you will be asked if you wish to include the name as well as that on the company on the application.

You then select the details of the person you are exporting the bird to / importing it from. This is done from the address file. If it is not on the file you may add it at this time by selecting NEW ENTRY.

The screenshot shows a dialog box titled "PRINT EEC CITES APPLICATION FORM". The form contains the following fields and values:

Species	Falco peregrinus peregrinus - European Peregrine Falcon		
EC Annex	A	CITES Appendix	I
Source code	D	Purpose code	B
Sex	Male	Microchip	
Ring	DOE13461W	Weight	1.00 K.g.
Date hatch	01/01/1996	Country of (re) -export	United Arab Emirates
Permit #	123456	Date of issue	01/01/2001
Country of origin	United Kingdom	Country of last (re) - export	United Kingdom
Permit #	7891011	Date of issue	01/01/2001

At the bottom of the dialog box, there are four buttons: "Print permit", "Cancel", "Another entry", and "Exit".

You then select the species you want to use. If it is an export / re-export this will be from a list of your stock. If it is an import you select the species from the standard Taxon selection screen.

You then select the EC Annex for the species, select ? if you do not know what this is.

You then select the CITES Appendix for the species, select ? if you do not know what this is.

You are then asked to select the source of the bird.

Description of Source of bird

Tick the box(es) which apply to the source of this bird

- Specimen was taken from the wild
- Specimen originated from a ranching operation
- Annex A animal bred in captivity for commercial purposes in accordance with the Commission Regulation.
- Annex A animals bred in captivity for non-commercial purposes and Annexes B and C animals bred in captivity in accordance with the Commission Regulation.
- Animals born in captivity, but for which criteria of the Commission Regulation are not met.
- Confiscated or seized specimen. *
- Pre-Convention. *
- Source unknown (must be justified).

OK

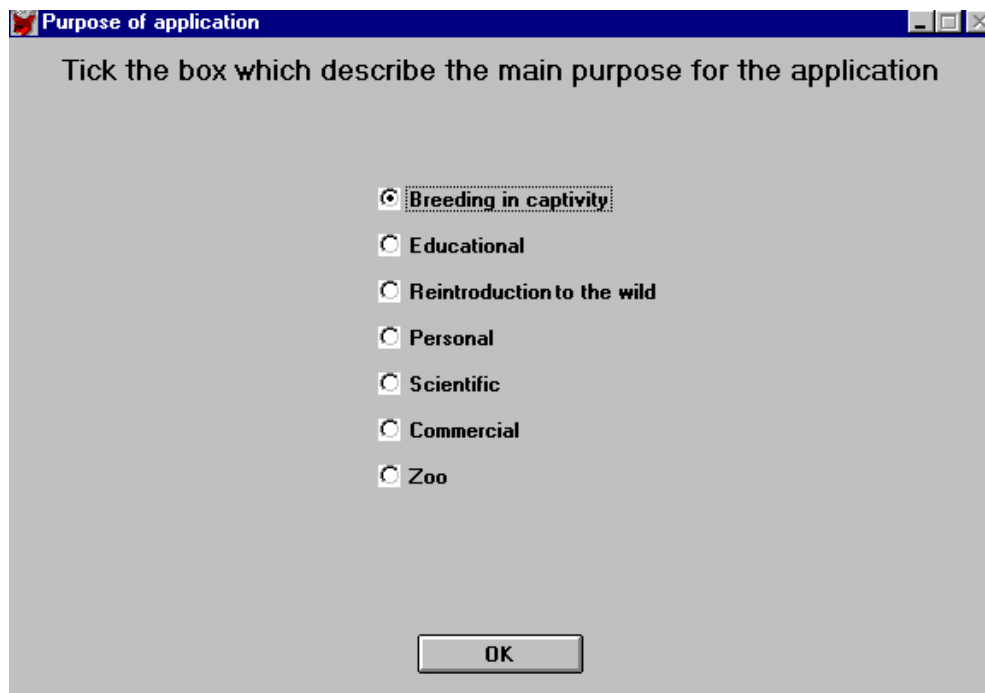
* To be used only in conjunction with another source code

The choices here are:

1. Taken from wild.
2. Originated from ranching operation.
3. Annex A, bred by in captivity for commercial purposes in accordance with the Commission Regulations.
4. Annex A bred in captivity for non-commercial purposes and Annexes B and C animals bred in captivity in accordance with the Commission Regulations.
5. Animals bred in captivity, but for which criteria of the Commission Regulations are not met.
6. Confiscated or seized bird.
7. Pre-Convention.
8. Source unknown.

If the specimen is wild taken and Annex A you will be asked for the address where it will be kept. You select this or add it to the address file.

You then select the purpose of the import / export.



The choices here are:

1. Breeding.
2. Educational.
3. Reintroduction to the wild.
4. Personal.
5. Scientific.
6. Commercial.
7. Zoo.

If you are applying for an import permit you will then enter Sex, ring, microchip, if any, date hatch, or estimate of this.

You then enter the weight of the specimen.

You then enter the country of export / re-export, country of origin. If the Country of origin is not the same as that of export you will be asked to enter the permit number and date of issue of the original export permit from the country of export.

If it is a re-export you will then be asked to enter the country of last export / re-export and the permit number and date of issue of the export permit number.

You can then print the permit application, or cancel.

AIMS then asks if you would like to print a copy for your files.

You can then complete another permit application or return to the main menu.

EU Article 10 Certificate applications

From the main menu select ***Reports \ Article 10 Certificates.***

If the program is registered with a company and a person you will be asked if you wish to include the name as well as that on the company on the application.

You then select the bird from your stock for which you are applying for the permit.

You then select the EC Annex and CITES appendix for the species. Select ? if you do not know these

You then select the source and purpose codes as for the CITES permit.

You then enter the weight of the bird, Country of origin Permit number and date of issue of the Country of origins export permit if applicable and the details of the country of import into the EU and the import permit number and date off issue is applicable.

You can then print the permit application.

Certificate of captive breeding.

It is now a legal requirement for many species that when you pass on a captive bred bird you provide the new owner with a documentary evidence that the bird was bred in captivity.

AIMS provides this for you from it's report menu.

Select ***Report / Certificate of captive breeding.***

You will be presented with the standard specimen selection screen from which you can select the bird you want to print the permit for.

If the bird you select is not captive bred then AIMS will not allow you to print the certificate.

The certificate states that the bird was bred in captivity and that it's parents were held legally in captivity at the time the egg was laid. It then gives details of the bird and it's parents ring numbers.

You sign the certificate and pass this on with the bird. You might also like to pass on with it an egg report if it hatched from one of your eggs and a specimen report for the bird as well.

Utilities

Add address to file

This allows you to add new addresses to the address file. You are given the list of addresses on file, so you can check if the one you want is not already on there. To add a new one select the first entry, 'NEW ENTRY'.

You can then enter the new address details and save them to file, or reject the entry.

If you already have the address on file select an entry other than 'NEW ENTRY' and press the accept.

If you press the reject button you are taken back to the address list to make a new entry.

Rebuild indexes

To maintain the indexes properly AIMS rebuilds them each time you start the program. If during a session of using AIMS you make many entries you may rebuild the indexes from within the Utilities menu option. This will ensure that your data files are organised properly.

View user Taxon file

This allows you to view the species you have on your user Taxon file. As explained in the section 'Running AIMS for the first time'

Move Taxon to user file

This allows you to move orders, families, genus or species to your user Taxon files. As explained in the section 'Running AIMS for the first time'

Remove unused taxa from user file

On some slower computers you may wish to remove all species which you are not using from your user Taxon files in order to speed up the system. This menu option will remove those species, genus, families and orders which are not used in your stock or egg files. Should you want to add another species later you may do so from the *Move Taxon to user file* option.

Add species / subspecies

The Taxon databases contain entries down to the subspecies level for most species .

This screen allows you to add species and if you wish subspecies to the Taxon files.

You select the family for the list in the upper box by using the scroll bar on the right to move down through the list. Click on the Family that you want.

The Genus's for that Family will then appear in the lower box. Select the Genus in the same way you did for the Family.

Enter the scientific and common name for each species, and then subspecies if you wish. These will then be added to the master Taxon file. You will need to move them over to your user Taxon file to be able to use them for your stock or eggs, the program

will ask you is you want to do this and take you to the screen to move the Taxons.

Create hybrid taxons.

If one of the parents of a bird you want to add to stock is a hybrid, or a cross at subspecies level, then you can add that Taxon to the databases using this option.

You select the species, or subspecies, for the father and then that for the mother.

AIMS will show you the cross and you can accept or reject the entry. If you accept the entry it will be added to the main Taxon database.

You can then repeat the process or return to the main menu.

The common or scientific name of hybrid, and crosses at subspecies level, are in brackets in the database. If you wish to view or select them, you either enter (or press **ENTER** with a blank entry in the selection item for the common or scientific name. A blank entry for the name will bring up the complete list.

Load saved hybrids to main Taxon database.

When you create a hybrid, or cross at subspecies level, AIMS saves it to the main Taxon database and to a second hybrid Taxon database.

When you back up your data there is no need to back up the main Taxon database, named USERTAX.DBF.

If you should then need to rebuild your data from the back-ups because of some problem with your computer, you load all your main Taxon databases and then **IMMEDIATELY** use this option to load the hybrids back on. **DO NOT** create any hybrids before you reload your old ones back on. If you do, then the numbering system AIMS uses to track birds may become corrupted.

Overwrite Taxon

If you have listed all your specimens of say Merlins as Falco Columbarius and later wish to change **ALL** of them to Falco columbarius aesalon you can do so using this menu option.

You select the specimen you want to replace and that which you want to replace it with and accept the entry. AIMS will then overwrite **ALL** occurrences of the 1st Taxon with that of the second in the egg and stock databases.

You will need to alter any hybrids of the changed Taxon by hand.

Data submission

Considering how many birds are being bred each year around the world it is amazing how little accurate information there is available on the pip periods and Kw values for the majority of species.

Pip periods and Kw values on the Taxon databases are built up from real data I have accumulated from breeders. It is only by you submitting this data to us that I can help you and other breeders with this vital information.

Any information you submit to us will be treated in the strictest confidence and no data on any individual breeder will be disclosed to **ANYONE**.

The information you submit to us consists of:

1. Your program serial number, so I know who has submitted the data to me.
2. The egg number, so I can refer to it should I need to contact you with any queries.
3. The dates and times for lay, set, removal from the bird, pip and hatch.
4. The width, length, and weight of the egg when removed from the bird.
5. Fertility
6. Female system ID so we can analysis clutch sizes.

Using this I can validate the accuracy of your data and then hold it on our central incubation database.

We will then calculate mean and standard deviations for the pip period and Kw for each species, or subspecies, and redistribute these to everyone who submits data to us. In this way you can benefit from the pooled data from everyone using AIMS. Only the means are sent out, there is NO information on your individual birds that is sent out.

Sending data to us

To submit your data place a blank disk in drive A and from the utilities menu select **Data submission / Send in new data files**.

You will be asked if you want to submit data only for eggs added since your last submission.

If you select **YES** then only the data not already sent into us will be included.

If you select **No** then data on all the eggs on file will be submitted. This is used if the data you send us is corrupted in transit or something similar.

This will create a file on the disk containing a set of numbers, AIMS strips out all the / in dates and points in numbers to save space. From these I can extract the data needed to create the main data files for analysis.

You can post us the floppy disk, or we would prefer if you could email this file to us as an attachment. Please be sure to place the word AIMS DATA SUBMISSION into the subject of your email and send it to datasubmit@avianmanagement.com

Updating your data files

We will email you, or you can download from our web site, the new file. Simple place this into your AIMS directory to replace the old one.

Please note that for the new Visual AIMS program if you do not send in data returns then it will not load new ones for you. I think this is only fair, if you take part in the scheme you will benefit from it.

Run external module

We are able to customise AIMS to clients specific requirements by adding menus, reports, etc. required for specialist tasks.

To run these customised programs select the ***Run external modules*** from the ***Utilities*** menu option.

You will be shown a list of your external modules and can select the one to run.

In this way I are able to create customised versions of AIMS, whilst still keeping them current with the latest updates within the main AIMS program.

Move Data From Earlier Version

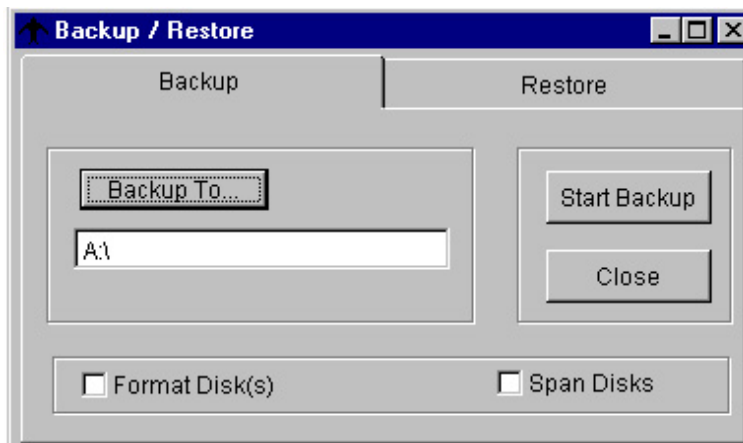
Use this menu option to rebuild your data files from a backup made with a version earlier than 5.0. It can also be used to move data from an older installation to a new one on your computer.

This menu option will overwrite ALL your data files.

You can backup from data stored in any location, not just a floppy disk in drive A. Be VERY CAREFUL not to select your current AIMS directory as the source of the update or you will loose all the data in it. We are currently coding to check for this.

The program will also give you the option of validating the restored data. We suggest that you do this.

Backup / Restore program



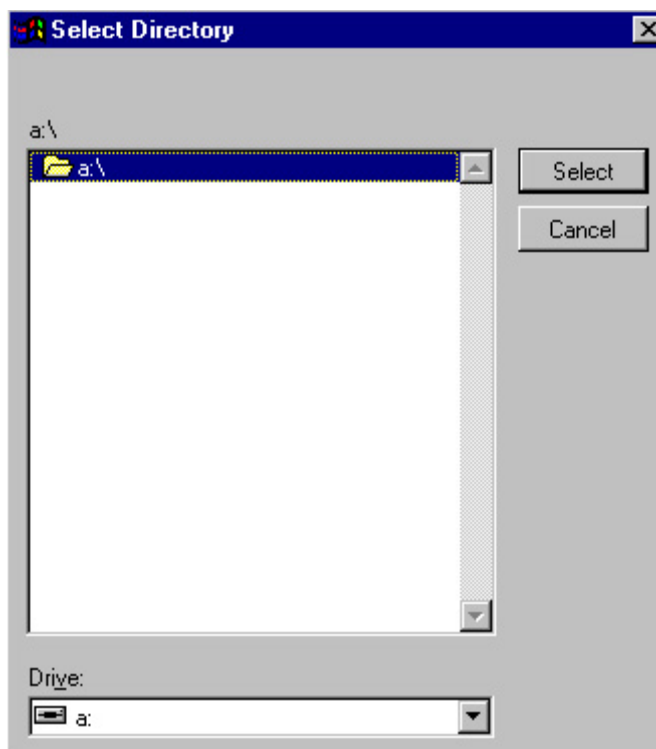
AIMS has it's own backup / Restore program

It provides a high data compression rate and compresses the data into a format that is compatible with WinZip.

It will save all your data onto one floppy disk.

Backing up your data

1. Insert a floppy disk into your disk drive.



2. Click on the Backup To button. This will bring up a list of drives on your computer. Select the drive you want to back up to.

3. If it is a floppy disk you can tick the Format Disk(s) box and the program will format the disk before saving data to it. This will only work if the drive is A or B. It will NOT format hard drives.
4. If you have a very large data set that will create a file larger than 1 floppy disk you can tick the Span Disks box. This will create a floppy disk set over multiple disks and the program will ask you to insert a new disk as needed.

We have not yet reached the point that any users who need this option, even with hundreds of birds and thousands of eggs on the system, but you never know.

5. Click the Start Backup button. The program will now create a file named AIMS50.zip. If the file already exists on the disk you will be warned and shown the date and time it was created. You then have the option to overwrite the file or abort the backup.
6. You can backup to any location you choose, except the directory in which the program is located. We do not recommend that you backup to your hard drive since if the drive becomes corrupt you will lose all of your data.
7. We suggest that you use a system of 4 floppy disks, A, B, C and D. On day 1 back up onto A, the next day B, the next day C and then on the next day go back to A again. Once a week backup onto D and store this disk off site so that you will have a copy of last weeks data if your other disks were damaged by fire or stolen.

Restoring up your data from a Backup

1. To restore your data select the Restore page on the Backup / Restore program and select the drive containing the backup file. This can either be done when exiting AIMS, or you can run the backup.exe program, located in the \aimbu directory in your AIMS directory, by using explorer to go to the directory and double clicking on the file.
2. Click on the Start Restore button and the program will restore your data.
3. Please note that this will overwrite ALL of your data.
4. After restoring you should run AIMS and use the Utility menu option of Validating Data.

On exiting from AIMS you will be asked if you want to backup.

Validate data.

This menu option allows you to run the data validation routines at any time. Updates for these can be obtained from our web site. Please ensure that you download the validation routines applicable to your version of AIMS.

Help files

AIMS has an extensive help file. This works as any other windows help file. You can select it from the main menu, or by pressing F1.

There is a list of contents to help you find the item you need quickly and in many instances if you are in a data entry section and you press F1, AIMS will take you to the related section in the help file.

Please note that this manual is more up to date than the help file. It has not been possible to keep the help file right up to date as we have moved over to a new help file building system for Visual AIMS and it was not compatible with the old program we were using and so this had to be removed from our development computers.

Exiting from AIMS

To exit from AIMS click on the *Exit* option in the main menu.

You will be asked if you really want to exit.

If you select *YES* AIMS will close down all files before returning you to windows.

Before it closed it will show you when you last backed up your data files and will ask you if you want to make a backup now.

Please use this as the only method of closing down AIMS. If you crash your way out of the program the data files will not be closed down properly and you may lose data.

Using AIMS on a network

Starting with Version 5.3 AIMS is network enabled, for single user use.

You must install a server version of AIMS and then the Workstation versions. Please refer to the program installation guide for details on installing Server and Workstation versions.

The directory on the server must be in DOS format, i.e. no more than 8 letters and no spaces in the name.

'C:\Nadaims' would be valid

'C:\Nad aims' would not be valid

Networking AIMS allows you to have a computer in your incubation room for weighing eggs and another in your main office for data entry and analysis.

As AIMS was not originally designed to be used on a network we have had to set the network use of AIMS to a single user at a time. This means that only one copy of the

program can be running on the network at any one time. The program will detect any other copies running and tell you before shutting down.

As we have made this a single user network use we are not making any charges for the workstation versions installed on your network.

Other items

Viewit.exe

This file is a small self-contained program in the main AIMS directory. It allows you to view the raw data files. To run the program close down AIMS and using explorer select the viewit.exe file and double click on it. This will open a dialogue box, which will allow you to select the .dbf file you wish to view. When you have finished viewing the file simple press the ENTER button to select another file to view or exit from the program.

We have now added the facility to enable you to use this program to make changes to data outside of AIMS.

This is really for our support staff.

If your program is used by a number of different staff then I suggest that you delete this program, or move it to another directory to prevent them altering any data. Please do not use this to edit any data unless you have spoken to our support staff first.

APPENDIX A

Bug report sheet

This version of AIMS contains over 200,000 lines of code.

Whilst I have done my best to test every section of the program as extensively as possible there may be a bug lurking in there somewhere. Should you encounter any problems whilst using AIMS please complete the following report and send a copy to me so that I may look at the problem. It is very difficult for us to locate bugs and fix them if I have someone telephone us and say that they encountered a problem when entering an egg, without being able to give us specific details. I need to know the information on the bug report to be able to track down any problem. A backup of your data would also greatly help us in this.

BUG REPORT

Serial number of your program _____

Version of program _____

Date problem occurred _____

Screen you were in when problem occurred _____

Item in screen you were in when problem occurred _____

Error message you received, if any _____

Details of problem _____

Re-registration form

Program re-registration form

Please use this form if you pass on your ENTIRE copy of AIMS to someone else, or need to install the program on a new computer at your facility, or re-install it on your current computer.

I _____ as a representative of _____

require to re-register AIMS serial number _____ and confirm that the previously registered copy of AIMS has been completely removed from its installed location.

The reason for this re-registration request is

Program registration confirmation code _____

I understand that failure to disclose all registered copies of AIMS or making false statements with regards to installed copies of AIMS is contrary to the copyright laws and may lead to legal action being taken against the person making such statements.

Signed _____ Dated _____

Please complete all sections and return it to us together with a copy of your new registration document.

Incomplete requests will cause delays in the re-registration process.

Please return this form when completed to
Avian Management Services
c/o Nad Al Shiba Avian Reproduction Research Centre
PO Box 5715
Dubai
United Arab Emirates.
Fax +971 4 3357273