

Beewings morphometry program

Some of you will have already received the instructions from me on how to use the Beewings program. The attached file is an updated version with corrections and additions based on the use of the program over the last few days.

Those of you that are wondering what the Beewings program can do. It is a computer program demonstrated at our conference at Sheffield by Cecilia Costa, and carries out measurements on bee wings.

A demo copy of the program can be obtained from Beedol in Czechoslovakia by requesting a copy by E-mail. It is better to ask for a copy to be posted to you rather than have one attached to E-mail as it can create 'timeout' problems during downloading.

This version will limit you to 5 wings per session, but you can repeat this ad infinitum.

There are virtually no instructions or a help file, and for that reason I have written the instructions below.

You can obtain a demo copy, or a full version with a license disk from:- Dalibor Titera at the Beedol research Institute at Dol in Czechoslovakia by sending an E-mail to:- dalibor@beedol.cz The full version costs 90 Euro and you pay by credit card, it is not charged to your account until you E-mail back to say you are satisfied.

Albert Knight

Instructions for use

Load the Beewings program onto your hard disk.

You can either use the wing files on the floppy disk or create your own using a film scanner.

If you decide to use a film scanner to scan your own wings, do this before opening the Beewings programme. Skip the next section in italics if you are not going to use the film scanner.

Scan a slide of wings using a film scanner, create a file for each of the wings by drawing a frame around the first one and saving it with a file name to a location you will remember, for example:-

My Documents/Mywings1

pull the frame down over the next wing and save it as:-

***Mywings2** and so on.*

Now open the Beewings programme by clicking on **Start/Programmes/Beewings**, click on **Sprache** and select **English**.

Click File/create wing set. A panel will appear called **Input Dialogue**

Type in the name you are calling this set of wings, say, **Mywings** and click **O.K.**

On the screen of **Wing Set Description** click on the number of points: **3, 4, 7, 8, or All points.**

(If you want to get Cubital Index and discoidal shift readings you must select 7 points at least).

Click on the **Identification tab** near the bottom of the panel and fill in the details of the colony, beekeeper etc if you want to record this information and have it printed out on the report..

Click on Properties and hit the **ADD** button and browse to find your wing images. **C:\My**

Documents. (If you want to use the wing samples on the floppy disc put the floppy in A: drive and select A:\ if you are going to use those) the files will appear in the left-hand side of the browser box once you have located them.

Click on the first one then click **O.K.** Then click the **ADD** button again and the browser panel appears with your wing images. **Click on the 2nd one** and then on **O.K.**

repeat this for five wings, then click on **Save and lock set for making wings.**

Get rid of the **Wing set Directories** panel by **clicking on the X** in the right hand corner of the panel.

Click on File/run wing set

Then a box will appear with:- start your session with this wing, **click OK.**

Click View/Marking Scheme

Below your wing a map of a wing will appear showing the sequence of marking.

It starts at 0 and goes up to 17 (if you selected All points)

Mark the wing in the sequence as indicated. Each time you mark a point a red spot will appear in the **Marking Scheme panel** showing you where the next point to be marked is located.

If you find you have made a mistake and your cross mark is not exactly in the correct place you have two options, clear all marks in **Wings/Clear all marks**, and start again from the point marked 0, or click on the cross and it will turn red, move your cursor away from the place by a few inches and click again, now put your cursor back in the correct place and click again, the red cross will disappear and your new blue cross will be in the correct spot.

When all the points on a wing have been done

Click on wings/save marked wing

Click on the right-hand green arrow on the Tool bar and the next wing will appear.

Mark and repeat as above.

When the fifth wing has been marked, as you click on **-Save marked wing**, you will get the message, "you have completed, etc. and can generate results"

Click on the cross on the top right-hand of the screen to get rid of that panel and

Click on File/generate results.

Print out the page and click close, a second report page will appear if you selected All Points, but if you selected any other option only one report will be produced, click on print to print out the second report.

If you want to delve more deeply into the data you can create graphs from some of the data that is stored in **C:\Programs\beewings\wingsets\filename\csv**

By clicking on the file you will import this file into Excel and you will find something like a 104 columns of data if you chose the All Points option, otherwise many of the columns will contain zeros.

You can if you wish create graphs from this data.

One can for instance copy and paste the data for cubital index and discoidal shift into the BIBBA Morphometry spreadsheet and let it create the graphs for Cubital Index and Discoidal shift, You will need to convert the Descoidal shift readings by multiplying by 10 (see below).

I have compared the results of Beewings with carrying out Morphometry readings using the wing venation measuring devices supplied with the 'Breeding Better Bees' book, these are listed below:-

Beewings Results

BIBBA Venation tools

Cubital Index Discoidal Shift
1.65 -0.16

Cubital Index Discoidal Shift
1.7 -1

This was done using one wing as this made it possible to determine exactly the wing in question, whereas using several wings in a wing set one cannot see which result in the Beewing program refers to one particular wing.

After measuring several sets of wings I realised the discoidal shift reading given by the Beewings program is 10 times smaller than the reading given by the conventional method, therefore by moving the decimal point one place to the right we have the comparable result.

The method of marking using the Beewings programme appears to be more accurate than using the conventional method, and sitting at a computer is less tiring than measuring wings with a projector.

I hope to find out more about how to interpret the host of data produced by the program, as this may lead us being able to use one or two of these in the selection process.

If you can add anything to the instructions I've put together, please let me know and I will modify the instructions if necessary.