Training Manual for Beekeepers in Developing Countries

Gay Marris, PhD, and Pam Gregory, MSc, NDB

This manual is freely available to anyone working in developing countries

APICULTURE IS an important agricultural activity in rural Africa, where honey, wax and other bee products are vital sources of food and income in poor communities. Honey has a high cash value and is very nutritious. It also has useful medicinal properties and is often used as a traditional remedy for infections and minor injuries where no other treatments are available. Wax is a basic ingredient of a variety of goods, including candles, skin creams and polishes, all of which can be sold or traded to enhance livelihoods.

CHEAP, SUSTAINABLE, LOW-TECH

Advantages of tropical beekeeping include the facts that it is a cheap, sustainable, relatively low-tech activity that is compatible with local crop production systems and it can be carried out by small-scale farmers, women's groups, youth associations and cooperative societies. In addition, as pollinators, bees also play a crucial role in the conservation of biodiversity in many vulnerable ecosystems.

African forests contain a rich array of trees and plants, providing excellent foraging habitats for honey bees. A further range of commercially important crops, including coffee, tea, fruit, oil seed, maize, sorghum and various vegetables, relies to some extent on the pollination services provided by honey bees.

THE NEED FOR APICULTURE TRAINING TOOLS

Although it is well accepted that beekeeping can offer people in rural communities a way of generating additional income, appropriate training tools to help people get started are hard to find. Available materials need to be affordable, accessible and in a format that those who need to use them can easily understand.

Pam Gregory is the author of the *Basic Beekeeping Manual*, produced in collaboration with Gay Marris of the National Bee Unit (Food and Environment Research Agency (Fera)).

The next generation – some of those who will benefit from beekeeping projects in developing countries

This manual is specifically designed for use by field-based trainers developing apiculture initiatives in sub-Saharan Africa and covers all the basic techniques needed to start a beekeeping business.

THE BASIC BEEKEEPING MANUAL

Since we recognise that many of the people likely to be interested in using this manual will not necessarily be literate, the *Basic Beekeeping Manual* is comprised of colour photographs collected in real field situations. It offers ideas to help beekeepers become independent by making their own equipment from local materials.

Divided into nine short sections, the manual begins by outlining 'The life of the bee' and provides illustrations of all key life stages. The first chapter should allow the user easily to identify the queen bee,

(above) The Manual is copiously illustrated, here with an emerging worker bee

(far left) Beeswax products from Hives Save Lives Africa

(left) Some honeys from Uganda

The women of the Nessuit Project (Rift Valley, Kenya) lining a hive with cow dung and mud. This will prevent ants, lizards and other pests from raiding the hive, once it has been completed

her workers and drones, together with sealed and unsealed brood.

The next two sections, 'How to keep safe when beekeeping' and 'How to make a simple bee veil', emphasise the need to be protected while beekeeping. This is particularly relevant when working with aggressive African bees.

The manual provides a plan for 'How to make a movable comb top bar beehive'. Such hives do not have to be constructed from expensive wood. Beekeepers can use scrap timber, raphia palm, bamboo – or whatever material is available locally that will do an effective job.

The fifth section, 'How to set up a good apiary', explains how a site must be carefully selected, so that it is easy to get to but away from people and noise. It must be close to sources of water, pollen and nectar, but protected from strong sun and wind. The manual provides further advice on how to place hives within an apiary so that they are not too crowded and not too easily accessible to predators, such as honey badgers.

Section six, 'How to manage the bees', helps the user to inspect his/her hive(s) safely and to understand what he/she sees.

Two further sections deal with 'How to harvest quality honey' and 'How to extract quality honey', respectively. In the former case, this needs to be done in a manner that is sustainable and minimises damage to brood comb.

Extraction must be undertaken under clean conditions and honey needs to be well strained to achieve the highest possible quality product.

The final section shows 'How to harvest beeswax'. As with all other parts of the manual, Pam demonstrates how locally available materials and tools can be used very effectively, at minimal cost to the beekeeper.

The picture below is of a homemade solar wax extractor. An old car window focuses the sun's rays onto a reflective sheet of aluminium foil. This produces enough heat to melt all the wax held in a cloth filtering-bag. Sieved, molten wax runs down into a collection container at the bottom of the apparatus, ready to be taken away to cool and solidify.

DISTRIBUTION TO RECIPIENTS

The *Basic Beekeeping Manual* has already been distributed to a large number of beekeeping initiatives in 25 developing countries, including 14 African nations. Recipients vary greatly in their interests, existing levels of beekeeping expertise and scale of enterprise.

They include members and support workers for well-established apiculture development projects overseas, such as those run by *Bees Abroad*; stakeholders in government initiatives, including The Uganda National Apiculture Development Organisation (TUNADO); organisations working with communities to improve the quantity and quality of organic signature honeys brought to market (eg, Forest Fruits Ltd); programmes with the aim of alleviating poverty by generating income through beekeeping (eg, Farm Income Diversity Programme (FIDP) and many other examples); rural beekeeping cooperatives seeking training and advice to improve their yields of hive products.

The Manual is provided completely free of any charge (including post and packaging) to all beekeeping development projects. For details of how to obtain copies of the manual, please contact Gay Marris, Science Coordinator, National Bee Unit, The Food and Environment Research Agency, Sand Hutton, York, YO41 1LZ, UK or e-mail: gay.marris@fera.gsi.gov.uk

(above) A home-made solar wax extractor

(far left) Clearing an apiary site in Malawi

(left) The manual includes tips such as using a beer bottle top to measure the width of top bars

Beekeepers in Nigeria inspect the activity of their worker bees and the queen, making sure the colony is building up correctly in this top-bar hive

THE WATERLOO FOUNDATION AWARD

Manuals have been extremely well received and feedback has been overwhelmingly positive, with demand often exceeding supply. In 2008 we were delighted to receive an award from the Waterloo Foundation that has enabled us to produce and distribute a second print run of the *Basic Beekeeping Manual*, including a limited number of robust, fully laminated copies for use by trainers in the most challenging field conditions.

These outputs are in line with the Waterloo Foundation's goals: to increase access to education; to provide sufficient information to allow individuals/communities to initiate new business; to promote clean, sustainable food production. Its award will also fund the development, production and distribution of a new illustrated 'How to' field manual that will cover advanced management techniques and problem solving to complement the first manual.

Although the use of written words is minimised, the current manual is available in English, French, Swahili and Chichewa. ◈

ACKNOWLEDGEMENTS

The authors are extremely grateful to the Waterloo Foundation for its continued support of the *Basic Beekeeping Manual*.

They also acknowledge photographic contributions from Margaret Cowley, Ged Marshall, Adrian Waring, Claire Waring, Max Westby, Paul Latham, Dan Ngirabakuzi, Roy Dyche, Mike Brown, Brian Durk and Len Dixon. All other images are from Fera – Crown Copyright courtesy of Fera.

Bee Basic

ABOUT THE AUTHOR

Pam Gregory has kept bees since 1974. She worked for the UK National Bee Unit from 1976 to 2003. She holds the UK National Diploma in Beekeeping and an MSc in Overseas Rural Development. She has spent the last 12 years working with beekeepers in sub-Saharan Africa.

Pam Gregory, MSc, NDB

FURTHER INFORMATION

For further information about the National Bee Unit (NBU) in the UK, you can visit www.nationalbeeunit.com The BeeBase website gives a great deal of information about the NBU and its work. There is also a general e-mail address (nbu@fera.gsi.gov.uk) to which you can send any enquiries about honey bees. For enquiries regarding Bee Health Policy and Regulatory issues in England and Wales, please contact Bee Health at beehealthinfo@fera.gsi.gov.uk