

Honeybees essential for crop pollination

THERE are estimated to be somewhere in the region of 274,000 colonies of honey bees kept by about 44,000 beekeepers throughout the United Kingdom.

Out of this total, around 250,000 colonies are managed by 37,000 beekeepers in England and Wales, with the remainder colonies being managed by beekeepers in both Northern Ireland and Scotland. There is thought to be some 1,000 Ulster beekeepers who maintain around 4,000 colonies of honey bees.

Bees in general make an essential contribution to agriculture and the environment through pollination of many cultivated crops and wild plants as they forage for nectar and pollen, and also in the production of honey and wax.

The honey bee, *Apis mellifera*, plays a dominant role in this process as the major commercially-managed pollinator to provide this service, although bumblebees and solitary bees are also available.

Recent estimates for agricultural and horticultural crops grown commercially in the UK that benefit from bee pollination are in the region of £200 million per annum.

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The value of honey production is often in the range of £20-25m per annum in the UK.

Apple orchards form a major part of the UK horticultural industry, covering approximately 27,000 hectares in total. It is well known that apple pollen is carried by the wind to some extent, but it has been shown conclusively that wind pollination has little or no significance in fruit production. Bees, and in particular honey bees, provide pollination for this crop. They are among the most important pollinating insects found within orchards and modern agricultural systems.

If five to 10 per cent of full bloom of an apple tree produces fruit, a full commercial crop is obtainable. However, growers must aim for a higher initial set because several fruit drops take place throughout the season.

If excessive numbers of fruit are set, some may be removed by using chemical thinners; however, nothing can be done when too few are set, once flowering has passed. If too many apples develop on a tree, they will be

smaller than top grade apples, but if pollination is inadequate, a reduced crop of misshapen fruit will result.

Apples have five pistils, each with two ovules, thus, there are 10 potential seeds. Fruit growth and development is stimulated near fertilized, developing seeds. Without adequate pollination the result is low seed numbers and misshapen fruit. In general, fruitlets with the smaller number of seeds are eliminated with a series of early fruit drops.

Apple growers are generally less aware of factors contributing to adequate pollination than they are to other cultural practices.

Traditional thinking has always been that beekeeping is for honey production with its role in pollination rarely being considered.

Apples are grown mostly in temperate regions where weather during bloom may be unfavourable for bee flight, pollination, pollen-tube growth and fertilisation. Therefore, cross-pollination is usually the most yield-limiting factor.

Successful apple growers prepare for this by providing enough polliniser trees and often through the introduction of bees to provide foragers to visit the flowers whenever the weather permits.

Most apple varieties are self-incompatible and certain varieties

are also cross incompatible. As varieties do not all bloom at the same time, a well-designed orchard, therefore, needs to have enough polliniser trees that bloom at the same time as the main variety.

Apple pollination requires about one bee colony per 0.5 hectare of orchard cover. Basically, the need is to have enough bees to cover the thousands of blossoms to provide a maximum crop of fully developed fruit.

There is little doubt that yield and quality suffer from inadequate pollination in many orchards caused by either too few bees or low polliniser tree numbers relative to the main crop.

Honey bees as well as being affected by the various chemical mixtures (pesticides, fungicides, etc) applied to apple trees to control invertebrate and fungal pest and diseases can also be affected by a large range of pests, diseases and parasites.

These are of vital importance for the health of colonies and also from the point of view of regulation and the movement of bees in trade around the world. Pests and diseases that can cause high colony losses could create a vacuum of available pollinators for important commercial farm crops in the United Kingdom, such as, the apple industry. During the spring of 2005

such a situation occurred in California where a dearth of available colonies for pollination of almonds required substantial imports of honey bees from Australia to make up the shortfall.

The National Bee Unit (part of the Central Science Laboratory, a Department for Environment, Food and Rural Affairs executive science agency), which manages the Bee Health Programme for England and Wales, liaises closely with contacts within the Northern Ireland bee industry through the Department of Agriculture and Rural Development and the Ulster Beekeepers' Association.

The Bee Health Programme is funded to safeguard the honey bee population throughout the UK due to its importance in the pollination of both commercial agricultural and horticultural crops and wild plants, and is underpinned by a programme of research and development to provide up-to-date technical support to beekeepers.

Apple growers across the UK should be fully aware of the important role played by honey bees within their orchards and take steps to protect this vital pollinator, because without them, apple yields may not exist to be economically viable. For further information on all aspects of honey bees visit www.nationalbeeunit.com

Farming ROUND-UP

SCA NuTec launches pig energy paste

ANIMAL health and nutrition company, SCA NuTec, has introduced a new energy and micronutrient paste for sows that can help improve sow and piglet health and overall productivity. Trials have shown that the new product, ParturAid, can add improve sow productivity by 0.78 piglets weaned per litter, equivalent to an extra 1.75 piglets reared per sow per year.

ParturAid is a patented oral paste for sows that is administered in the farrowing house up to eight hours before farrowing. The paste has been formulated to boost energy and co-nutrient levels to reduce fatigue, stress and dystocia. Reduced levels of fatigue are associated with faster farrowing, reduced levels of stillbirth, and neonatal mortality.

Stillbirth and pre-weaning mortality are a source of significant economic losses in modern pig production. In a typical litter of 12.2 piglets, 0.9 are stillborn and 1.5 piglets die pre-weaning.

"Farrowing is a physically challenging process for the sow and as litter size has increased, this is even more relevant," says SCA NuTec pig specialist, John Day. "She can tire easily and exhaustion can result in birthing problems leading to stillbirths and neonatal mortality. These losses can be aggravated by large litter sizes, poor physical condition of sows and poor housing conditions."

Reducing stillbirths and pre-weaning mortality with ParturAid will help to improve animal welfare and increase the number of pigs weaned per sow, leading to a more profitable pig businesses.

Trials conducted by SCA NuTec's parent company, Provimi, who developed the product through its global research programme, have shown that ParturAid reduces the number of stillborn piglets and pre-weaning deaths by an average of 0.79 per litter. This represents a return on investment of over 7:1, or a cost per sow of around £1.50.

ParturAid is available from SCA NuTec as either a Starter Pack (four x 300ml cartridges and a dosing applicator) or a refill pack (four x 300ml cartridges).

Beekeepers' ready for annual conference

THE Ulster Beekeepers' Association's Annual Conference at Greenmount in March is the main event of the beekeeping calendar in Northern Ireland.

2006 was an excellent honey year and 2007 is predicted to be hot: good news for beekeepers.

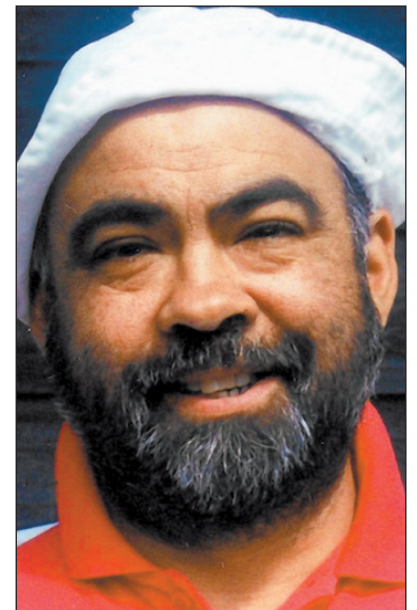
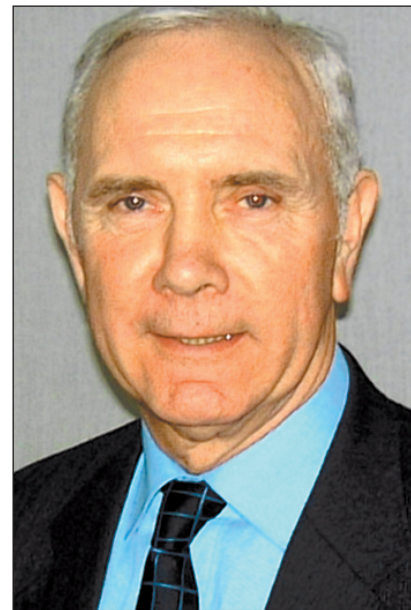
March is the month when bee colonies and beekeepers come alive and supplies for the season are purchased.

The biggest beekeeping merchant in these Islands, Thorne's, will bring lorry loads of supplies to the conference at Greenmount to satisfy the demand from beekeepers, North and South.

The theme of this year's conference is 'Beekeeping: Towards 2010.' The Varroa mite has plagued honeybees all over the world in recent years; Northern Ireland was one of the last places for it to reach, so it can now have the benefit of the experience of other countries.

There is clearly life after Varroa and the speakers at Greenmount will describe successful beekeeping many years after the arrival of the mite.

Preben Kristiansen, currently working in Sweden as a disease advisor for the Swedish Beekeepers' Association, has worked in a similar capacity in Denmark and Norway. He will deliver two papers, one an 'Update on European Varroa Research', and the other, 'Developments in the Treatment of Varroa'. Preben studied beekeep-



Preben Kristiansen, (left) originally from Denmark, now working in Sweden; Philip McCabe, (centre) past president of the Federation of Irish Beekeepers', and Clive de Bruyn, who is originally from South Africa now bee-farming in England, who will addressing the Ulster Beekeepers' Association Conference at greenmount.

ing at Fairview College, Canada, and is a member of the European Working Group for Integrated Varroa Control. Who better to come to Northern Ireland?

Clive de Bruyn will be making a return visit to Greenmount where he was so well received two years ago. After years of consultancy and teaching beekeeping, Clive is now a professional beekeeper in England, lectures worldwide and brings a very practical touch to his talks. His book, 'Practical

Beekeeping', is a "must have" for beginners and experienced beekeepers alike; Clive will deliver three lectures.

Philip McCabe was the president of Apimondia Ireland 2005, the international beekeeping conference which put Irish beekeeping on the map by bringing thousands of beekeepers from around the world to Ireland.

Philip will lead a group of Irish beekeepers, North and South, to Apimondia 2007 in Melbourne this September.

He attends Greenmount each year and has spoken there previously. He will put the conference in context when he speaks on 'Irish Beekeeping Past and Present'.

The full conference programme is posted on www.ubka.org but briefly the programme commences at 7.30pm on Friday, March 23, with two lectures and resumes at 9am on Saturday, March 24.

The conference manager is Dave Atherton (028 7186 0075) who can supply infor-

mation on accommodation if required. The venue is the College of Agriculture, Food and Rural Enterprise, Greenmount Campus, Antrim; everyone will be welcome.

The Ulster Beekeepers' Association is the Organisation to which the nine local beekeeping associations are affiliated. They are Belfast, Mid Antrim, East Antrim, Randalstown, Dromore, Killinchy, Mid Ulster, Fermanagh and Roe Valley.