

Nuclei, The Way Forward in Stock Numbers

P. Bennett

Beekeeping Unit, An An Foras Talúntais, Clonroche, Co. Wexford

Introduction

The increasing demand for nuclei and stocks of bees is not being serviced adequately at present, and this is generally recognised as one of the reasons that beekeeping has not developed to its full potential. For a number of years nuclei have been made up during the beekeeping season and overwintered successfully at Clonroche. These nuclei in most cases build up and perform as well as ordinary overwintered stocks. In the spring of 1981 after consultation with ACOT Advisors in Co Wexford it was decided that we would expand in this area of nuclei production. A production target of 100 nuclei was set and they would be overwintered at Clonroche and sold to beekeepers recommended by the advisory service in the spring of 1982. In this way it was hoped that a useful feedback of information would be obtained on their performance when in production.

Procedure

To gain additional information on the concept of producing nuclei only, in comparison with stocks producing honey one apiary of 24 stocks was divided as follows. The stocks were randomly divided into three groups of eight. In this way eight stocks produced nuclei only, eight honey only and eight honey plus nuclei. The method used for making up the nuclei was very simple. The stocks were left until they built queen cells and then up to four nuclei were taken from each stock. Each nucleus had a queen cell from the original stock or failing this one was provided from one of the others in this group. Over the season 37 nuclei were produced from the eight stocks and all produced laying queens. The highest number of nuclei produced by one stock was seven and the lowest three. The original eight stocks had recovered almost full strength by September.

The group producing honey only had an average of 22kg of honey per stock. The group producing honey plus nuclei also averaged 22kg of honey with an additional nine nuclei. This demonstrates that removing one nucleus from a honey producing stock has no adverse affect on honey production, at least in some years and is a very simple way of improving stock numbers. The average of 4.5 nuclei produced by the nuclei only group shows that this method would be a rapid way of expanding a beekeeping enterprise.

In the spring of 1982 eighty nuclei were sold to beekeepers. The nucleus consisted of four commercial size frames. The price charged for the four frames, bees and queen was £28. Demand for nuclei was very much in excess of what we could supply, and it would seem that there is an opening for an enterprising beekeeper. Clonroche experience has been that even in a poor honey season nuclei can easily be made up and could provide a beekeeper with an income not dependant on the sale of honey. If nuclei were made up from disease free stocks and fed to ensure that they have adequate food reserves they will usually be all right. It is important to ensure that they are not robbed by wasps or other strong stocks of bees.

At the present time there is an ever increasing interest in beekeeping by people who are anxious to obtain stocks, and the provision of nuclei by beekeepers is very necessary. It is important then that beekeepers have a commitment to providing these extra stocks from their own resources to fill the present demand, or alternatively to increase their own existing stock numbers.

Making up Nuclei

The concept of making up nuclei from a beekeeper's colonies during the active beekeeping season has so much advantage that it does not need any elaboration. However it is an aspect that has not been used to full advantage by most beekeepers. In the difficult beekeeping climate that now exists with Varroa etc. it is vital that beekeepers exploit that concept. Replacement of colonies, provision for the people starting out, and another consideration is that this could provide beekeepers with a source of income not depending on the production of a honey crop.

The important factors of nuclei are the donor colonies should be disease free and of a good disposition in relation to handling. They can be made up from May to the end of July, and if the beekeeper can raise a batch of queens they could be made up until mid August. The most basic way would be to make them up from colonies preparing to swarm. In that situation you would have all that would be needed. A strong populous colony, lots of brood and properly raised queen cells under the swarming inputs. colonies in this condition could be divided up ensuring that each nucleus had a good quality queen cell.

A better method would be for the beekeeper or a group of beekeepers to establish a queen rearing project in advance of making up the nuclei. This would facilitate the production of nuclei by ensuring that each nucleus would be given a young mated queen.

The nuclei that I am familiar with are taken from the commercial type hive and for those the standard was a least two frames of sealed brood to each with plenty of bees shaken in from other frames in the donor colonies. In general the National or Smith hive is the one used by most beekeepers. In that case maybe three frames of brood might be better.

Another technique that we have used is to split colonies at the end of the honey gathering period end of July early August. If the beekeeper has a batch of queens in mini hives all they have to do is to divide the brood and bees into two lots and then a week later introduce one of the queens from the mini hive to the part of the divided colony that is queen less. We have had good result from that particular practice.

You will see from this that the provision of nuclei has many facets and it fits in very well with the beekeepers methods of management. If I can be of further help please let me know.

Patsy.

Increasing Honey Production by Dividing the Best Colonies in Spring

P. Bennett

Beekeeping Unit, An Foras Talúntais, Clonroche, Co Wexford

For the past 17 seasons 75 colonies of bees have been managed commercially at Clonroche, in three apiary units of 25 each. A number of problems have recurred during this period.

1. How to replace winter losses and weak stocks in spring
2. How to reduce or spread the work involved in swarm control, to prevent strong colonies from swarming.
3. What simple method the beekeeper can use to increase the number of his stock without reducing the honey held from the original stocks

In an attempt to solve these problems, a trial was started in 1975, in which 20% of selected honey producing colonies were split in the first week of May.

Procedure

At the first apiary examination in the spring (usually during April), 15 of the 75 stocks are selected for splitting, the queen marked, and their wings clipped. Selection is based on high performance in previous years, absence of disease, and a high colony population at the time of splitting.

The 15 colonies are split at the end of April, or as early as possible in May. The queen, two frames of brood with adhering bees, and two other frames containing food, are taken from each colony and put into a nucleus hive which is taken to another apiary at least two miles away. About a week later the frames are moved from the nucleus hive into a standard brood chamber, and the bees are fed 4.5 litres of sugar syrup. The brood chamber is filled up with empty frames, using drawn comb where possible. Normally very little more work is necessary with this part of split stock provided they have sufficient stores until they reach full strength around the end of June. They usually present no swarming problems before that time. But in the trial we inspected the colonies every ten days to record development.

The queen-less part of each split colony is left on its original stand and fed 4.5 litres of sugar syrup to encourage the building of queen cells. At an inspection 5 days after splitting, all queen cells but one are destroyed. It is important to do this because otherwise excess queens are likely to leave with a small swarm. During the 8 years of the trial, these colonies usually had a new queen laying by June 10. When the queen is laying the colony is given frames of brood from colonies in the apiary that show signs of swarming preparation. On average 3 or 4 frames of brood have been given to each colony. This extra brood helps the colony with the new queen to reach a honey producing capacity in time for the main flow, and its removal from strong colonies in the apiary serves as a swarm control measure for them.

In a normal year the colonies with young queens are unlikely to swarm. They are always fed with sugar syrup if necessary, and they are particularly suitable for taking to the heather if the beekeeper so desires.

Results

Table 1 shows that in any year the average honey yield from the part of the split colony headed by the original queen is only marginally different from the yield from control unsplit colonies, also managed in our commercial apiaries. But, by splitting 15 colonies we are getting 30 by the end of the year, without introducing queens from elsewhere and also a considerable honey yield from the extra colonies even in their first year.

Table 1

Average honey yield kg per hive (excluding heather) from split colonies and from control unsplit colonies, all in commercially managed apiaries.

Year	Split Colonies			Unsplit Control Colonies
	OQ	NQ	OQ+NQ	
1975	45	31	76	42
1976	21	14	37	25
1977	39	34	73	40
1978	7	9	16	11
1979	24	22	46	25
1980	2	1	3	3
1981	13	20	33	21
1982	14	8	22	17
Average	20.8	13.3	38.2	23

OQ - Old Queen NQ - New Queen

Swarming is still a problem with the part of the colony that has the parent queen, but the problem is delayed until much later in the season, when it is more easily controlled. The results indicate that splitting 20% of a beekeepers strongest and most suitable colonies can increase his honey yield, and provides a simple way of increasing stock numbers from his own disease free selected colonies.