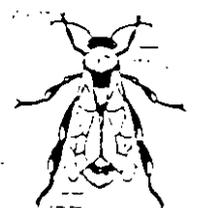


# PREPARATION AND EVALUATION OF SIX-FRAME NUCLEI WINTERED INDOORS



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## INTRODUCTION:

The use of nuclei may become the mainstay of modern beekeeping for maintaining or increasing colony numbers and for overwintering queens. Wintering nuclei is not new as four-frame nuclei have been successfully wintered indoors for several years (McCutcheon 1984). As well, many beekeepers have prepared single chambered colonies at the end of the nectar flow for wintering (e.g. Meyer 1987).

Reasons for wintering nuclei include the wintering of queens, bees for mating nuclei, and for the start of spring colonies.

This experiment used six-frame nuclei primarily with the purpose of overwintering units that will replace spring packages. Six-frames were chosen to provide ample bees and stores for winter.

## METHODS AND MATERIALS:

In late July (1986) queenless six-frame nuclei were prepared by placing 2 frames of brood and bees into each nuclei. Each nuclei received one of the following queen treatments: 1) introduction of a queen cell; 2) introduction of a newly mated queen; or 3) introduction of an old mated queen (package queen)

These colonies were fed syrup in the fall to give each ample stores and moved indoors in early November.

In the spring full sized brood chambers were prepared with honey and pollen just as is done routinely for package bees. The nuclei were moved outside on April 15th and placed in a spring yard along with the prepared brood chambers. The next morning frames of brood and bees were transferred from the nuclei into to the center of the prepared brood

chamber. The development of these colonies were evaluated until May 12th. Twenty were also monitored for buildup and honey production. However, the three queen types were not evaluated during the summer.

## RESULTS AND DISCUSSION

The six-frame nuclei wintered fairly well with a 15% loss during the winter. During the spring another 3% were eliminated as queenless or too weak (Table 1). The bee strength on April 27th was between 3.4 and 4.5 frames of bees. The old queens and cell-queens were stronger than the young late summer-reared queens but the reason for this is unclear. Sealed brood ranged from 1940 cm to 2520 cm<sup>2</sup> on May 12th. Further tests will be required to evaluate this difference.

Twenty colonies, started from nuclei, were evaluated during the summer for brood and honey production (Table 2). Colony development was quite good with 4653 cm<sup>2</sup> of sealed brood on July 7th. In spite of each colony receiving nine frames of foundation during the flow the mean honey production was 65.9 kg (145.3 lb).

Several advantages are evident when nuclei are prepared at the end of the nectar flow; nuclei prepared at this time do not affect honey production, queen acceptance is good and locally reared queens or queen cells can be used. Also, if a substantial August flow occurs and threatens to shut down egg laying by the queens, three nuclei can be put together and two honey supers placed over queen excluders. As well, three nuclei can be wintered in the space of 2 single chamber colonies. The main advantage is that the brood frames of a wintered nuclei can be placed in a prepared brood chamber in the spring and managed more or less as packages.

Table 1. Indoor Wintered Six-frame Nuclei 1986-87

		Old queens*		New queens**	
			Cell	Queen	
Colonies in fall of '86		34	21	36	
Dead in spring '87	(15 / April)	4	1	9	
Queenless or weak	(2-7 / April)	0	1	2	
Bee strength: frames	(27 / April)	4.4	4.5	3.4	
Sealed brood (cm <sup>2</sup> )	(12 / May)	2520	2450	1940	

\* Package queens

\*\* Requeening was done the last week of July / '86

Table 2. Performance of Overwintered Six-frame Nuclei, 1987

Number of colonies	Mean brood area (cm <sup>2</sup> ) 5 June	Mean brood area (cm <sup>2</sup> ) 7 July	Mean honey production kg	Queenless colonies during summer
20	3132	4653	65.9 ± 8	2

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McCutcheon D.M. 1984. Indoor wintering of hives. *Bee World* 65(1):19-37.

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(See photos on page 16)