

When November arrives, I start packing, beginning with the 2-story honey producing colonies. If, early in the month, there appear to be a good percentage of these with PMS symptoms or non-viable clusters, I will spend a couple of days breaking all of them apart between the two boxes, and marking those that have clusters obviously too small for wintering. These colonies are left unpacked, and the bees blown out and the equipment recovered during early December—when it's too cold for the failing bees to fly into neighboring colonies.

I'm not convinced that healthy, well adapted bees in doubles need to be packed, even this far north. There are a lot of bees in this valley wintered successfully year after year, with no added protection except some insulation under the outer cover. But I have a set of Canadian waxed cardboard packing cases, which I built up during the years when all my nucs were wintered on top of the honey producers. The nucs definitely benefitted from top insulation and these packing cases. I still use them now for the honey producers, with a piece of 1½" rigid insulation on top of the inner covers, and the outer covers and a rock above the cartons to keep off the rain and hold everything in place. They are easy and fast to put on, and will last for many years if stored dry during the summer. I'm sure the bees only need them during the coldest and windiest weather, but I feel better having them on, and the work is all done in a few sunny, cool days.

Packing the nucs is a more serious concern, because they do need to have some insulation and wind protection in order to achieve the optimum results. No effort should be spared to protect these colonies, because they represent the solid middle, the real strength of an untreated apiary: new queens (hopefully better than previous generations) surrounded by their own bees, in a situation where varroa mites are always present, but have not yet been able to achieve a geometric population growth. These are the bees that allow you to maintain an apiary without treatments, and still recover and make progress even after a serious loss in the other parts of the apiary.

The idea for wintering these nucs in groups of four boxes on pallets came from the Pedersen family of Cut Knife, Saskatchewan. In two ABJ articles*

*(footnote #1: ABJ May 1995: Outside Wintering of Single Brood Chamber Hives; ABJ March 1996: Outside Wintering of Single Brood Chamber Hives Revisited.)

they described how their wintering success and profitability improved as they began rearing

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their own queens and moved from indoor wintering and outside wintering of doubles, to wintering all colonies outdoors in one box, set up in groups of four and packed together on pallets. If they can do it in central Saskatchewan, surely I could do it here in subtropical Vermont. (In February I had the pleasure of meeting some of the Pedersens, and was able to confirm that their wintering method has worked well in all the years since the original articles were published. They also told me that varroa mites have not yet arrived at their far-northern location!)

As far as I can tell, after five years of experience, including two very long and cold winters, this method of packing and wintering nucleus colonies is just as successful as any other scheme I have heard of or tried myself. Wintering nucs above double story colonies is excellent, as long as those double stories don't have too many varroa mites. When I started really pushing to remove all treatments from the apiary, I knew I would need to find another method, and place, to winter the nucs. So far, wintering them in yards of their own on pallets has been completely successful, with much less insulation than is used by the Pedersens. The only drawback I can think of is the greater possibility of being completely buried in snow at the end of a long winter when the first good days for cleansing flights come along.

It's nice to pack the nucs at "just the right time"—on sunny days in November (or even early December) when it's cold enough to keep the bees clustered all day, but before snow and ice start to stay on the pallets. The trouble is, by waiting for "just the right time", it sometimes gets to be "too late". Because the bees have been flying from so many entrances on each pallet (sometimes 6 or 8), I try to pack them in a cold spell that will keep them inside for at least a couple of days after wrapping. Before pushing the boxes together, I put screens in any extra entrances facing into the center of the group—otherwise some of the clusters move into the warm, tight space between the boxes, or sometimes even migrate into another box. My friends in Scandinavia convinced me to try putting insulation under the boxes as well as on top, and after a couple years of trials, I started putting a piece of foil-faced rigid insulation under each nuc box for the winter. They are cut to fit inside the rim of the bottom board, and if they are a little thicker than the space inside the rim, the insulation will always be pushed tight against the bottom board and also make the box very easy to slide into place on the pallet. After putting in the bottom insulation pieces and removing all the outer covers from one pallet, the boxes can then be pushed together, and the four pieces of blue styrofoam placed on top of the feed bag inner covers. These bags wick away a certain amount of the moisture and air from the top of the cluster, but still provide a place where the bees can cluster right up near the insulation and retain their heat. For many years, I didn't use any other ventilation at the top, and healthy bees seem to be perfectly comfortable in this set-up. The heat of the cluster is retained, the bees stay quiet and dry, and any excess moisture condenses on the front or back of the box. This water sometimes runs out of the entrance, forming a scary looking icicle, but the bees inside would be warm and dry. Only colonies in poor health—bothered by mites or whatever—become too active in winter, and build up too much moisture in contact with the bees and combs. Now that I have let the mites run rampant on the bees for several years, and there are some unpredictable losses in the nucs each winter, I have been giving them some more top ventilation. The healthy colonies don't seem to need it, but the colonies that perish over the winter are able to dry out by

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the time the pallets are unpacked sometime in April. The combs are preserved in much better condition. Just folding back the grain bag covers so that ½ inch of the top bars are showing before putting on the rigid insulation seems to provide enough air flow to allow the combs to dry out if need be, without harming the healthy clusters in any way. A single piece of tar paper, cut in half lengthwise, is then stapled around the four boxes. These are made up in advance, with holes already cut out for the entrances. The top edge is folded in toward the center and stapled to the styrofoam just enough to hold it down. A few slits are made along each side on the top corners where the tarpaper is folded over, to allow moisture to escape, but without exposing the bees to any kind of draft. The pack is finished with one or two pieces of rolled roofing or heavy building felt, and two of the outer covers on top, tied down with twine.

Normally, tying down the last of the nuc 4-packs marks the end of the outdoor work in the beeyards for the season—except maybe for cutting some brush if there are sunny days and the snow holds off. But if a number of colonies have been selected for blowing out, this job usually goes on in December, sometimes with snow on the ground. The important thing is that the temperature be cold enough so that the bees from the failing colonies don't fly into the good survivors after they are blown out. It's a dreary job, but the equipment is preserved in excellent condition without extra moisture or mold, and it saves lots of time in the spring. It's best to stay ahead of things if you possibly can. I haven't had to do this job for a couple of years, but no doubt there will be another opportunity sometime in the future.