



Article from Pete Watt

Are Poly Hives newfangled?

The answer to that question is it seems, yes, however there is more to the story than you might think.

First of all let's establish what we are talking about when we discuss polystyrene hives.

If you are thinking about the flimsy packaging that came with the new TV for instance then think again. The poly we are discussing in this article is "injection moulded polystyrene" at a quality level of 100gms per litre. It is very tough and durable, not to mention warm. When I did evening classes I used to show the class how strong it was by jumping up and down on the assembled hive. It seemed to make the point adequately! I first met poly hives at Craibstone which was the Apiary site of the North of Scotland College of Agriculture, when Bernard Mobus NDB was the Bee Advisor for the North of Scotland. His beat was from roughly north of Dundee to Shetland. Not an inconsiderable area, and he visited most of it to lecture and demonstrate. Bernard was a keen member of BIBBA, and I believe he first encountered poly himself at a BIBBA meeting in the south of England about 1985 at which he met a German gentleman who was showing his new mating unit the "Kirchain Mating Hive or as we now would call it a "Kieler" or a mini nuc. I believe though I may be wrong here that this was the first poly mating mini nuc produced. I have the ones that Bernard accumulated and they are a good 30 years old now and still producing queens for me. The same gentleman went on to produce polystyrene Langstroth units, and again at Craibstone I met them there probably in my 2nd year of beekeeping which would have been 1988. I gained my Bee Master cert in 1989, and took over Craibstone in 1991 when Bernard retired, in a rather vain attempt to keep it together as a beekeeping centre in case NOSCA had a change of heart and reinstated a Bee Advisor. They didn't and I ran it for five years before realizing this, and building a honey house at my house back door there by reducing the daily 40 mile round trip to five feet there and five feet back which did my annual mileage a great deal of good.

About the same time, 1986, a certain Bee Farmer based in Conon Bridge, some 15 miles north of Inverness who was being helped by B. Mobus became very interested in Poly hives in no small part due to the information given him as to the way the bees behaved in them as observed by Bernard. That Bee Farmer, Hamish Robertson of Struan Apiaries began to import Langstroth Poly hives for resale and self usage.

Memory being what it is I think I bought my first poly from Hamish about 1990, the first of quite a few and it is only fair to say right at this point that the rest of this article is due in no small measure to the selfless mentoring I received from Hamish, and also the support of his beloved wife Joan. A most sincere thanks to you both. I have now had bees in poly in one version or another for over 25 years. Don't time fly when you're having fun?

What is different about Poly Hives? Three words really, warmth, lightness and dryness. And before I forget to add this in: mesh floors arrived in the UK with Poly. I remember seeing at Craibstone that Bernard had experimented with holes in wooden floors, first two 2" round holes at the back of the floor, then a slot, then four holes, and finally a mesh floor as we now know it, but always coupled with a good slab of insulation on top of the crown boards to emulate the poly performance in winter of dryness and top warmth. There was a considerable amount of scientific research done at Craibstone in the late fifties and much of the sixties into optimum wintering conditions for colonies. I will mention in passing that there is a maximum size beyond which there is actually a diminishing return in wintering success, so bigger is not always better.



Hives wintered with the mesh floor and top insulation did much better and seemed to have less nosema. Better wintering = more production in the season, which to anyone in the least commercially minded is a massive plus, and for those with "but" the welfare of their charges at heart is also a cause for some new thinking. How do bees differ in poly to timber? The main point for me is that they will use the outer two sides of the brood frames to raise brood, because it is warmer, somewhere in the region of five times warmer than timber. In my timber experience in Aberdeenshire/Kincardineshire those two outer sides are pollen, and a goodly amount of the inner two sides are pollen too. The proverbial "pollen blanket." In poly then, with the warmth there is a gain of some two frames of brood, which in a perfect world would mean a bonus of 212 square inches of brood (Wedmore says) which at 25 cells per square inch is (finds calculator) 5,300 extra workers per brood cycle. Well obviously, not in real life but every extra two or three thousand bees means more honey and better wintering. In Spring I found a very noticeable difference between the timber units and the polys. There would be as much as three weeks between the commencement of brood rearing between the two. I read some say that the polys start first but not in my experience. I found, and Bernard found the same, as did Hamish, that timber hives brood up first as they have a water issue to deal with, namely damp. One way Bernard thought for them to deal with it was to feed brood. Polys being drier had no such need and so commenced brooding later. However, and the devil is always in the detail, the polys very rapidly over took the timber hives and romped ahead in strength.

The first super I give to my bees is poly and they go up faster into them than timber as it is just warmer for them. Talking of supers, as I now work for comb honey only I find the poly supers combined with Manley frames are ideal for this. Swarms in poly hives I find start on the side of the foundation nearest to the poly wall for the warmth and work in to the middle then across from the one side. I have never seen that in a timber unit. I should add here that due to Craibstone being a teaching apairy I have had hands on experience with: Mod Nat, WBC, Glen, Smith, Dandant and Langstroth all in timber, plus the polystyrene Nationals and Langstroths.

What poly hives are available? Swienty, arguably the current market leaders, have both National and Langstroth. Other vendors are producing various hives at varying densities so the crucial question to ask is: "What density is your product?" The answer should be no less than 100 gms /litre. Followed by does the Internal Dimension of your National fit a timber type National? You may well want to put one on top of the other so compatibility is obviously important.

Several European countries are very keen on poly and it pays to look abroad. Poland for example has some interesting offerings if you are interested in Langstroth. Germany, Denmark and Finland all have manufacturers so do your research. My current set up is all National, though in the past I have had Langstroth, and what Hamish and I called "Nat polys" though technically they were Langstroths adapted to Smith frames by the judicious use of a fine-toothed table saw. They took 12 frames or on occasion if the side bars were a wee bit skimpy, 13 frames. I used Langstroth supers on these units as they were the same outside dimensions as the normal Langstroth hives. Making these units up is both fool proof as I honestly don't think they can be put together wrongly, and fast.

At a push I think I could assemble one in less than a minute, the brood box that is as the four sides are dovetailed, and just push fit. I don't even glue them together these days, and give them a coat of emulsion, though some use gloss paint to protect the outer surface from the sun plus of course to assist the bees in finding home and reducing drifting. The roof is one piece, and the floor takes about four to five minutes to tap in clout nails to hold on the mesh. Including painting time for the brood box floor and roof say half an hour to build a hive. I have never used mouse guards on the polys and have yet to have an issue, though no doubt someone somewhere will have had.



I have painted I hope a rosy picture and of course there has to be a down side. And that is AFB. Today FERA to the best of my knowledge has not yet dealt with a poly unit in an AFB situation. Whether they will accept Zirkon as a safe hive treatment remains to be defined.

Du Pont when I asked them got a bit coy, so I cannot definitively answer that question, nor I think can anyone at this time. Thankfully though at long last FERA have decided that chemical cleaning of poly is safe, see the advisory PDF file: Hive Cleaning and Sterilization. Is it a massive issue? To me no. If I were unfortunate enough to have AFB I would roll with the situation, and start over. For others who love their blow lamps then possibly it might be. I have heard too of woodpecker issues, and although some say they hate the feel of the material on their beaks, others say they enjoy it just as much as timber. Whether this has been with the proper density poly or the inferior type I cannot say.

The other usage for poly is in both mini nucs and also 5 or 6 frame nucs. I am finding that these little units over winter quite well, even through the harsh winters these last two seasons. If you are being tempted it might be a route to consider as a "taster." Mini nucs whilst tempting to try and over winter really cannot support enough bees to make it a fair challenge to the colony. They really should be wound up at the end of the active season and the bees added into production colonies to give them a further boost for winter.

Would I go back to timber? No. I find poly to have so many advantages that it is a very simple decision, and the bees prefer it too and tell me so.

Wishing you successful beekeeping.

Pete Watt