have bear protection, so instead of building a fence around the trailer, I made up hangers to hold livestock panels along the sides. These look like woven fence, but are 1/4" thick bar stock welded together in 16' lengths and then galvanized. Tractor Supply sells panels that are welded after galvanizing and they hold up fairly well. The really good ones are welded, then hot-dipped in zinc and are manufactured by Behlen Corp. in Columbus, NE, telephone no. 1-800-447-2751. They can supply a list of dealers in your area if you call them. The local dealers in my area handle 52" high cattle panels and 34" hog panels. I have always used the 52" just as a safety factor, but I really think 34" would work.

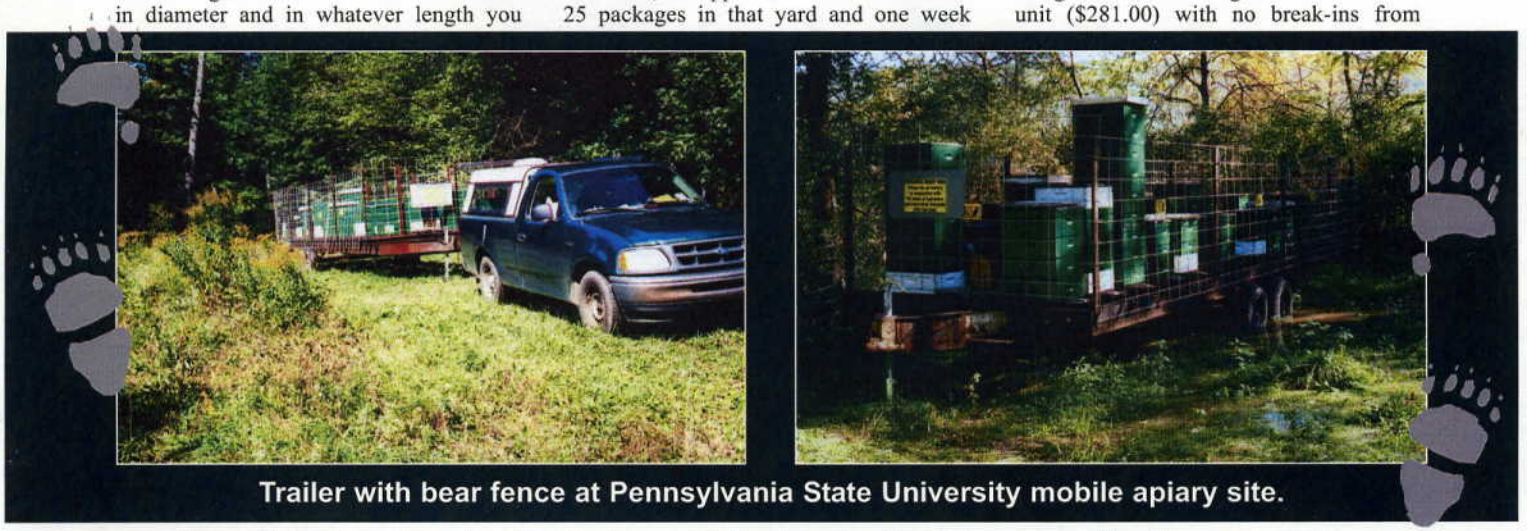
A friend of mine from the Poconos, John Sloan, and I were discussing bear problems last spring in his yard when we came up with the idea of using these same panels to build a permanent bee yard fence. Again, Kencove came to the rescue with how to insulate these from the ground. They sell used fiberglass oil field sucker rods 1 1/4" in diameter and in whatever length you want. These rods feel like a piece of steel and are about that flexible. NOTE: Always wear gloves when you handle these because of the glass fibers. Do not let the hardware store salesmen talk you into something else that will not work as well. I have mine cut out 6' long and drive them 2' into the ground and let the panel extend above the tops. After driving in the posts, I stand a panel up on two 4" bricks and tie it to the post. This 4" space allows me to use a weedeater for vegetation control, while it is low enough to keep skunks out. These can be a real problem with the research hives at Penn State University that I help maintain.

Once the panels are at the correct height, use a drill to make a 1/4" hole through the post about 12" down from the panel top at a horizontal bar location. Insert a 1/4" stainless bolt with the head on the far side, using 1 washer next and then a nut and tighten. Now screw on the second nut and washer with Loc Tite leaving 3/8" between the two nuts. The panel's weight will be supported by the bolt and you can tie the panels to the post with thin wire or plastic ties. Eight posts and 4 panels, with about 2 hours work, and I have a 16' x 16' nice looking bee yard. I like the panels because they stop and make the bear look around instead of just crashing in. He will sniff and touch, but stay out. We also used 36" wide metal roofing under the panels at Penn State to reduce fence vegetation maintenance and this also gives the bear's feet a wonderful ground to complete the circuit. One end of a panel is simply swung back to provide us with a gate when we are working and then tied shut when we leave.

Another type of fence was used the previous fall at another yard location for Penn State. When I was first asked to do the field work with the University's bees I asked, "How are your bear fences." The answer was, "They don't work, but that is all right because we don't have a bear problem." I made temporary repairs to the fence and braced the corners, so it was half presentable. The fencer itself was a cheap solar unit, but appeared to work. I installed 25 packages in that yard and one week later it was raided by a bear. I couldn't find any downed wire, so the only thing it could have done was to crawl under the smooth gate wire. The fencer was working and I was stumped. I did my bee work and before I left for home, I decided to check the fencer again. It was a "sometimes" fencer – sometimes it worked and sometimes it didn't! So, I drove the 80 miles round trip and brought back my own solar Parmak fencer and hooked it up. About one week later on a Sunday evening, while the sun was still up, I drove over to check and while doing paper work in the truck cab, I noticed something coming down the logging road. It was a beautiful black bear coming right towards me – past the front of the truck within 12 feet of me and then went to each side of the yard. It would stand about the middle of one side and look left and right. After awhile, it would move to another side and look left and right again. Finally, it went back into the brush and laid down. They say a cow can tell if a fence is on or off and I think a bear can also. As poor as this fence was, the good fencer kept the bear out.

I rebuilt this fence in the fall with 6" and 8" x 8' long wood fence posts and high tensile wire spaced about 6" apart. I used 1 ½" pipe between the posts to brace one corner against another. One wire was placed about 4" from the ground to keep the skunks out and it made a big difference this year – no skunks. This is a very impressive looking fence, but it requires a tremendous amount of labor and I really don't think it is as effective a fence as the panels for bear protection. Live and learn.

Let's talk about the fencer last. It is the heart of the whole fence, for without it, you have nothing. The best chain link fence without electricity is just an exercise game for a bear. They just go up and over the top, hand over hand. Here I went back to Kencove for more answers. If you want to get some real technical questions answered, then ask for Ken. He recommends a fencer with an output of 1 joule for bears. Both Penn State and I have been using the Parmak Magnum 12 volt solar unit ($281.00) with no break-ins from bears. (E-mail: www.parmakusa.com.; Telephone: 1-800-662-1038) Some fencers are rated with miles of wire they can handle and sometimes it can be very misleading. Some sales people will say anything sometimes to make a sale, so it is better to deal with someone who knows the equipment and you can trust. The output on the Parmak 12 is at 1 joule, whether it is solar-powered or a battery-powered fencer ($85.00).



Trailer with bear fence at Pennsylvania State University mobile apiary site.

Ken can build a custom made unit also if you have deep pockets and a real need for more power. Some of the things that determine how large a solar unit you need are:

1. Latitude which determines the Tile Angle
2. The average sun hours per day
3. The output of the fencer

Generally, the larger the fencer unit (output), the larger the solar panel must be. Also, larger batteries are needed where you have fewer sun-hours per day.

I have a small D cell operated unit called a Yellow Jacket with a 0.25 joule output at a cost of $72.50. I use it where I have only

one or two hives on a temporary basis and so far I haven't had any problem, but I would not recommend it as a good choice.

People tell me they can't afford to spend $300.00 on a bear fence and then they turn around and lose 4 or 5 hives with the season's honey production gone also. They lost all that and now they still have to buy the fence! The 110 volt fencers are nice because they always work, but lightening is about three times more likely to hit the fencer than with a battery or solar powered fencer. Just in case you didn't know, those solar units do contain a battery that needs to be replaced every few years. I didn't know this and years ago I bought a brand new solar unit from a farm store. It had been on the shelf so long the battery was junk. I sent it in to the manufacturer and they repaired it, but I was out the postage and time. Again – buy from someone who has a good reputation.

The cost of the 16 x 16 foot bee yard fence at Pennsylvania State University was:

4 panels @ $25.00 . . . . . .$100.00
8 posts @ $6.90 . . . . . .55.20
Total . . . . . .$155.20 Plus fencer

Another person I met used wood posts with Kencove's "double nail-on insulators" to hold the panels. It turned out to be a real neat looking job when he was done.

One of the larger queen breeders told me he likes the 0.5" white ribbon for temporary fence. It seems that the bears are fascinated by the way it flutters in a breeze and touch it with their nose. They won't do that again!

All in all, bears are one of our smaller problems. They can be managed with a little work and common sense. Somewhere or sometime you may have a problem and have to solve it the best way for everyone with a good bear fence. It won't do any good to fight with the game commission of your state because they are only able to do so much and now their budgets are tight.

If you want more information on this, you may contact me, Craig Cella at 1-570-725-3682 or Maryann Frazier at Penn State University, 1-814-865-4621, **Web site – http://MAAREC.cas.psu.edu**