Processing urine & faeces

Urine

We add the urine to windrows of woodchips at the bottom of our land. The idea is that if you add nitrogen rich liquid to dryish carbon, it will compost down well together, producing a safe compost. So far, that has worked really well, although we are improving our systems since we got permanent planning permission in 2017 and also due to the increased toilet use onsite (more people living here and more campers as the campsite gains in popularity).

Urine leaves the IBC through 25mm MDPE pipe.

From most of the toilets, the urine is collected in IBC containers. When one is full, the urine is moved along 25mm MDPE pipe into a temporary tank where it can rest for a while if necessary. The top of the temporary tank is approx. one metre below the bottom of the house tanks so once air locks etc are removed, the urine trickles in until the first tank is empty. There is a small hand bilge pump at the lower end of the pipe to remove air and get the process started.

The top of the temporary tank is approx. half a metre below the bottom of the household tanks.

The temporary tank is slightly higher than the campsite tank, so we use a petrol pump to move the urine (not ideal, we prefer to use gravity so we may invest in a different pipe system for this tank at some point).

The urine is moved through 25mm MDPE pipe and then 30mm corrugated flexible hose down to the wood chip windrows, which are approx. 3m below the bottom of the tank. The key thing here is to get enough pressure so the urine sprays out and can be spread evenly over the woodchip piles without taking too much time.

The drop from the bottom of the temporary tank to the top of woodchip windrows is approx. 3m.

Getting good pressure is about having enough of a drop and using wide enough pipe. This has taken quite a bit of experimenting to get right and although I think we've cracked it, we haven't tried our final version of the system yet.

We use a digger to turn the compost heaps after adding urine and then cover them with heavy duty Mypex to speed the composting process.

Woodchip windrows on either side of our track – approx. 35m on either side

Faeces

So far, we have emptied only one of the IBC containers. The compost in it was quite dry on top, well composted in the middle and a little wet at the bottom. It had been sitting for approx 20 months with no new additions. I emptied it into 3 x 220 litre containers with drainage holes in the bottom to finish composting. I think any liquid is safe after that much time. It wasn't smelly but there were some paper/cotton items that weren't fully composted so I think it needs more time. The poo compost will never be used on land where we grow vegetables to sell. We plan to use it on land used only for growing crops for the family.

We have emptied the 40 litre containers that were used in the original campsite/market garden toilet. These needed to be emptied every year. Each year I would leave them as long as possible – with worms added of course! In all but one year this was at least 6 months. Then I emptied them into a 220 litre container to continue breaking down.

Poo composting area.

Each container is labelled with the year the last deposit was made into it. We still have three years' worth composting there. I used one to grow tomatoes in a tub and added another to some of my perennials. So far, that is the only composted poo that has been put into the soil.

For the proposed bucket toilet we will use 220 litre containers with a raised base inside them so they don't get too wet. I think it will take a long time to fill one with just one person using it, as the market garden toilet has never even filled one 220 litre container in a year, even with quite heavy use over the summer months.