Pee on the Garden

Elaine Myers © 1992

One of the most important limiting factors in the plant growth in my garden is a lack of nitrogen in our soil. One day, as I was considering the relative disadvantages and costs of the various sources of nitrogen for my garden, I realized that I was already producing a regular stream of nitrogenous fertilizer, free for the catching. To stanch the flow of pesticides in cottonseed meal, or the inhumane living conditions associated with the production of blood and bonemeal, or the hemorrhage of oil and gas into commercial fertilizers, I put a container in the bathroom, and incorporated our household stream of urine into my garden fertilizing plans. To use our energy-efficient home production of soluble fertilizer, and to complete the natural cycle of nutrients from the garden to our bodies and back to the garden, we keep a piss bucket to catch our clean (uncontaminated) pee and distribute it in the garden. The results have been amazing.

The average adult produces enough nitrogen in his/her urine to fertilize approximately 3000 square feet of garden at the annual rate of 150 lb nitrogen per acre, or 0.35 lb per 100 square feet. A 120-lb woman producing 1.5 qts of urine per day excretes 12.25 lb of nitrogen per year. If the value of that 12.25 lb is computed at the cost per pound of nitrogen from cottonseed meal ($18.80/100 lb cottonseed meal) then a woman's annual nitrogen production is worth $34.70.

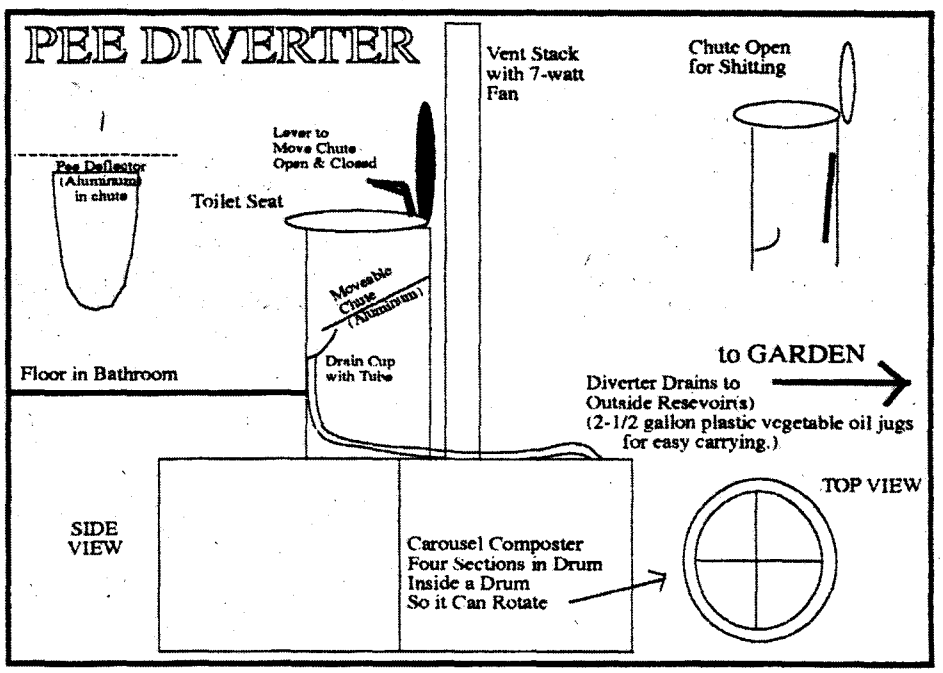
In terms of just dollars, this doesn't seem worth very much. In terms of energy saved, it looks much more favorable. A 25-pound bag of ammonium sulfate, at 21% nitrogen, consumes 42,000 kilocalories or 170,000 BTUs of energy (natural gas, usually) in the production process. Additional fossil fuel energy is used to transport it from the factory to the garden. (Each gallon of gasoline is another 31,000 kcal.) If I fertilize 3000 square feet of garden with 60 lb of ammonium sulfate instead of a year's urine, I have consumed an extra 98,000 kcal, the equivalent food energy of six weeks of a standard diet of 2300 calories per day, or about 1200 lb lettuce, 350 lb potatoes, or 62 lb dry field corn. The millions of gallons of urine flushed down the toilets of North America every day represents an enormous waste of energy in the form of nitrogenous fertilizer, not to mention all the fresh water wasted in the flushing. With just a little personal effort, we can transform this "waste" into a resource.

"Well," you might say, "I don't use chemical fertilizers. I only use organic amendments." Cottonseed meal comes from cotton, an energy-intensive, soil-exhausting, agribusiness product. Ecologically, cottonseed meal's best use is back on the cotton fields, replacing chemical fertilizers there. All the bloodmeal and bonemeal fertilizers require the killing of animals. These animal products carry the vibrations of a high energy, inhumane system. Fishmeal and fish emulsions seem a more sustainable, humane alternative. Still, these commercial sources of nitrogen all use non-renewable energy to process, package, and transport.

I enjoy the daily ritual of emptying the piss bucket. If kept covered, emptied once or twice a day (depending on prevailing temperatures) and allowed to air in the sun, it smells no worse than a baby's wet diaper. It helps to have at least two buckets, so each has a chance to dry and air out between uses. (plastic buckets.) A strong odor from the urine can occur when the urea is broken down by bacteria and vaporizes as ammonia. Be kind to your soil organisms, and use the pee when it is fresh. If the piss stinks, it means you are losing nitrogen. Get it to the garden quickly! If the high-nitrogen urine is mixed with water and added to high-carbon materials (straw, sawdust, leaves, old mulch, etc.), the ammonia will dissolve in the water, and the composting organisms will quickly consume it preventing its escape to the atmosphere.

The daily ritual of emptying the bucket keeps me in touch with the plants in my garden. I wander about the garden, watching for yellow lower leaves, and feed the plants that show stress from a lack of nitrogen. I usually pour the fresh urine directly on the soil around the plant, or alongside the row of plants, being careful not to splash on edible leaves. (I like to graze in the garden.) I then use a gentle spray of water to wash off the leaves (just in case I did splash) and dilute the urine in the soil. The amount of water I use depends on the recent rainfall, and the moisture in the soil. The Farallones Institute suggests urine 1:5 with water for soil application.

The Aprovecho Institute, in their June 1991 newsletter, discusses uses of pee on the garden. They claim to get good control of the buttercup weeds in the onions using full-strength, well-aged urine. The old pee sticks to the buttercup leaf, but runs off the onion leaf. In the hot sun the buttercup leaves get scorched when coated with pee, and the onions are unaffected. Besides which, the onions really like the high nitrogen fertilizer during their green phase.



Schematic of pee diverter for compost toilet in use at Gilman residence, Bainbridge Island, Washington

During the winter when we have very heavy rains, and the soluble nitrogen would be washed away, I store the urine in plastic jugs, to be used as an activator when I am building compost piles during the growing season. I used to enrich a mostly finished compost pile with extra urine/nitrogen, but after seeing earthworms writhing in agony when doused with a bucket of well aged pee, I confine my applications of high ammonia (stale) urine to new piles (not yet inhabited by the earthworms).

I incorporate fresh urine (less than 24 hrs old) into the fertilizing schedule of the rapidly growing annuals. Leafy green plants really appreciate the soluble nitrogen. Newly transplanted seedlings fed a daily dilute dose (about one to ten) were especially responsive. When I tried watering squash hills with piss, I ended up with a lot of rotten seeds, so I restrict the application to well sprouted seedlings and older plants. To minimize direct contact between urine and food, root crops get urine indirectly, via compost. Legumes (peas and beans) make their own nitrogen at root nodules, and do not usually get any urine. Sometimes when the beans are stressed by heavy rains during the seedling stage, I'll give them a little snack to help get them going.

The odor of fresh urine is used by many animals to mark their territory. In *Never Cry Wolf,* Farley Mowat tells of being ignored by the wolves until he staked out his territory with his pee. I have friends who garden in areas with high deer populations, and those who use pee in their garden report that the deer stay out of their gardens. I don't know whether it is from marking my territory, or having healthier, more vigorous plants, but since I have been using pee on the garden, slugs have not been a problem. Other gardeners report similar success in controlling slug damage.

Is human urine really safe to use on the garden? Generally, yes. In persons without specific bladder infections, urine is usually sterile and safe to use on the garden. Be careful to collect pee that is not contaminated by any shit, as almost all of the pathogens associated with human wastes are contained in the feces. A parasitic schistosome (blood fluke) can occur in human urine as part of its complex life cycle, but this is mainly a problem in tropical areas. In North America, infectious hepatitis and other viruses could be a problem, so avoid using uncomposted urine from unknown sources.

Aprovecho stores the urine in 55-gallon drums, where it undergoes some pretty radical changes chemically. They apply it full strength to the surface of weed leaves on bright sunny days. Between pH changes, oxidation, and UV radiation, they are reasonably confident that pathogens specific to internal human chemistry are unlikely to be a problem. If you feel squeamish about adding your own urine directly to the garden, I suggest you run it through a good hot compost pile. Urine is a wonderful activator for the compost, especially when there is a high proportion of high-carbon materials, like sawdust, straw, or old hay.

Is urine really good for the soil? The sodium in urine can cause a salt build up in the soil, especially in arid climates.

Allium Triumphant

The Farrallones Institute Integral Urban House recommends monthly applications of gypsum; for every pint of pee applied per day, sprinkle on the soil surface 3/4 lb gypsum per month (if your arid soil is acid, use 1/2 lb limestone flour).

Do the plants really like urine? Here is some folk wisdom on the use of pee in the garden *(Northampton Chronical,* 1930).

It is my firm belief
That feeding through the leaf
Makes all crops as healthy as can b
And after careful test,
I find that urine is the best,
It feeds the plants and keeps them insect-free.

All plants do truly need
A much diluted feed,
And here's how dilution's to be done
To eight pints water,
Add urine one quarter,
In other words, just thirty-two to one

Sprayed gently on the leaf,
Above and underneath,
It kills the pests and checks the milde too.
The growth it seems to charm,
And flowers take no harm,
Sprayed once each week with one in thirty two.

I have been advised that biodynamic methods recommend against the use of human wastes in the garden. As best I can tell, this comes from their experienc of using night soil from cities in Germany during World War II. On the oth hand, the Findhorn Garden book tells the devas advised the use of "night so in the garden when that group was smal and intimate. I started pouring my pee on the garden because a voice inside me advised that this is the right thing to do add nitrogen to the system. It fits my values of simplicity, direct action, closing the loop, reliance on local resources The results of this simple action based o an internal logic have been amazing. "The growth it seems to charm..." As I become more discriminating in how I us pee on the garden, the whole system increases in vigor and dynamic balance.

When the garden is actively growing, daily application of fresh pee helps keep me in touch with all my plants. The plants feed me, and I complete the cycle and feed the plants, in a very direct, personal way. I transform one of my "wastes" into a resource, and increase m energy self-reliance (no fossil fuel energy). With a bucket in hand, I make th rounds, asking "Who needs a little nourishment today?" As I pour my pee around the plants in my garden, I feel a deep, magical connection with the whol process.

Elaine Myers has gardened 22 years in the same ground at Rosburg, Wash.