urine as fertilizer

Posted by Leroy A White

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Leroy A White
urine as fertilizer
December 02, 2012 08:37PM

Registered: 11 years ago
Posts: 6

I have recently read that uric acid (in the form of urine) contains nitrogen, potassium and phosphate and is considered an "all-around organic fertilizer" that is free. Sphagnum peat, (when water-soaked is 3.0-4.5 pH), is quite acidic and also has the ability to "hold" these nutrients. Therefore, in lieu of expensive supplements, let's pee in our peat buckets for the sake of our acid loving fruit trees and other plantings.

Berry Ridge Gardens
Zone 5 in Ohio

Edited 1 time(s). Last edit at 03/02/2013 05:53PM by Michael Phillips.

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Rob Miksza
Re: urine as fertilizer
December 04, 2012 01:27PM

Registered: 10 years ago
Posts: 1

We experimented with 'urine therapy' in the orchard this year. We had a few poorly located plum trees that never produced more than a plum or two a year over 1o years. The therapy consisted of a dilute urine soak (1 part urine to 6 parts water) added approx 1x a week. The result was fantastic -- we actually had to thin out fruit for the first time ever! We also included our Oaks on this therapy plan and they too showed dramatic results, with an extra 18" of new growth. (Impressive for a Gary Oak!) The only downfall is dealing with collecting urine. ...i'm still a bit squeemish about it. I'll grow out of that perhaps.

Edited 1 time(s). Last edit at 03/02/2013 05:55PM by Michael Phillips.

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Todd Parlo
To pee or not to pee
February 25, 2013 08:58PM

Registered: 10 years ago
Posts: 301

I have been thinking alot lately about low imput farming, which is possible if you have a bit of varied acreage for the collection of mulches, herbal brews, wood ash and good water. Nitrogen, though is often the weak link. The following is a post from our website last year, and I thought it might be helpful to some of you earthier types. Sorry for the length:

To pee or not to pee.

Ok, all jocularity aside, this is a matter that should be discussed in logical manner. We live in a culture that spends countless millions on fertilizers and then flush a nearly equal amount down the toilet. The society which is mortified at the sight of someone peeing in his backyard is strangely the same society that concentrates astonishing amounts of human waste into singular spaces. When these systems break down, dangers to human health and ecosystem can be serious, simply due to their sheer mass.

To the point. The human body disposes a good deal of waste product of value to agriculture. Although manure may have a part to play here, urine is the easy first step. (Humanure as it is called will be dealt with elsewhere). The liquid is both easier to deal with from a health standpoint, and is a proportionally greater fertilizer.

Helvi Heinonen-Tanski, leader of a research group at the University of Kuopio’s Department of Environmental Sciences in Finland was involved in a study that focused on growing row crops with human urine as its sole fertilizer. The study found that the amount of urine produced by the average person could yield 160 heads of cabbage. That incidentally, is an increase of 141 pounds of food over the control plot using conventional fertilizer. This age old approach was evaluated on yield, but also on taste and passed muster here as well. Plant and biomass were slightly higher in urine plots compared with those using industrial fertilizer. Additionally, insect damage in the former was lower.

As for implications to human health, perhaps a little primer will be of use here. Urine is the product of the body's system for cleaning blood. Not the processing of food, but blood. The digestive system can be seen (as Isaac Asimov liked to think) as an extension of the outside world, not truly part of the body. Visualize it as tube running entrance to exit, kind of a long skinny hole right through the middle of us. The urinary system is different, being a system of organs that deals more directly with us, and thus needs to be more free of microorganisms. The digestive system is germs, and needs to be to process waste. The urinary system is more like a filtering system, where the things it is getting rid of are already present in our blood.

So, the urine from a healthy human is a non-issue from a health standpoint. In fact it is actually sterile within the body, which is why it is used in cleaning wounds. Urine in the healthy individual contains no bacteria, fungi or viruses. It can attract pathogenic organisms once outside the body, but well, so does a sandwich.

Dr. Philip Tierno, director of clinical microbiology and immunology at New York University Medical Center, New York City said in an interview, "there's nothing wrong with using it." (I just finished reading his "Secret Life of Germs" and can attest this is not a guy who takes germs lightly.

Regarding the actual constituents, – In July of 1971 a NASA report was undertaken on the constituencies of human urine. Likely not outdone by any other study of its kind, it fills 112 pages with charts and exhausting figures. Among its findings were the following:

158 chemical constituents listed

Nitrogen : Urea – 9300 to 23,330mg/l , Uric Acid 400-670mg/l, Ammonia 200-730mg/l with many additional nitrogen containing substances like ammonium salts.

Potassium : 750 to 2610mg/l

Phosphorus : 470 to 1070mg/l

pH average of 6.5.

The entire pdf is available at [ntrs.nasa.gov]

Another study looked at what constituted stored urine and its value. The study was conducted by H. Kirchmann and S. Pettersson. -Human urine – Chemical composition and fertilizer use efficiency. An abstract can be found online, but some of what they found was as follows:

pH values of 8.9 and was composed of eight main ionic species (> 0.1 meq L–1), the cations Na, K, NH4, Ca and the anions, Cl, SO4, PO4 and HCO3.

Nitrogen was mainly (> 90%) present as ammoniacal N, with ammonium bicarbonate being the dominant compound. Urea and urate decomposed during storage.

Heavy metal concentrations in urine samples were low compared with other organic fertilizers, but copper, mercury, nickel and zinc were 10–500 times higher in urine than in precipitation and surface waters.

Phosphorus present in urine was utilized at a higher rate than soluble phosphate, showing that urine P is at least as available to crops as soluble P fertilizers.

So, at a period in time where we are all waxing environmental, and recycling dirty peanut butter jars wouldn't it make sense to utilize something so natural. Either it is cultural squeemishness or an avoidance of anything inconvenient, but it is the sort of attutude that will fall by the wayside due to necessity. NASA dedicated attention to the study of urine because they had to deal with it in outer space, and to find use in it (it could be processed and drunk). We will not always have the luxury of cheap fertilization of the haber-bosch process and petroleum/natural gas. We will have to think less like shoppers and more like astronauts.

Walden Heights Nursery & Orchard
Zone 3 in Vermont

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