

How to separate urine?



Urine diverting toilets do not mix urine and faeces by using a separating toilet seat. Urine is collected and stored in a reservoir. Faeces are collected underneath the toilet must be directly covered by dry materials such as saw dust, soil or ashes or a mixture of those, and stored for 2 years.

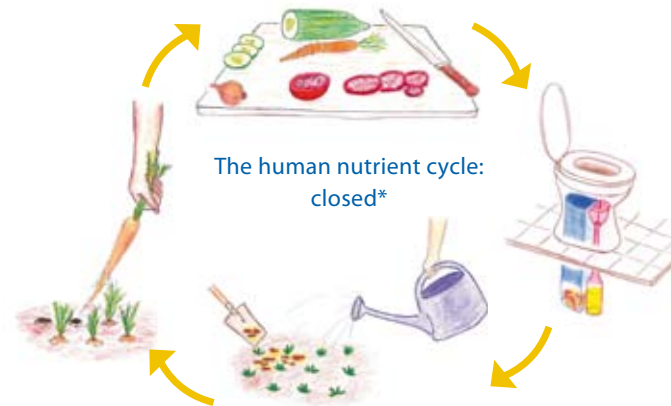
Why should we mix what nature has separated?



Hygiene: Urine is generally free of pathogens when excreted by a healthy person. However, there might occur some pathogenic contamination, thus urine should not be applied directly onto parts of plants to be harvested and eaten raw. Urine from public toilets should be stored for 6 months, while from private toilets urine can be used directly.

References:

World Health Organisation, 2006: WHO Guidelines for the safe use of wastewater, excreta and grey water, Volume 4, Use of excreta and grey water in agriculture http://www.who.int/water_sanitation_health/wastewater/gsuww/en/index.html
 Ecosanres, 2004: Guidelines on the safe use of urine and faeces http://www.ecosanres.org/pdf_files/ESR_Publications_2004/ESR1web.pdf
http://www.ecosanres.org/pdf_files/ESR_Publications_2004/ESR2web.pdf



Ecological sanitation does not waste resources, does not pollute the environment and closes the Loop of Nutrients (not like pit latrines or flush toilets without treatment). Urine contains most (80—90%) of the nitrogen excreted.

* for the re-use of faeces see separate flyer "Compost and safe re-use of faeces"



About WECF

WECF is an international network of over 100 women's and environmental organisations in 40 countries, implementing projects and advocating globally for a healthy environment for all. Sustainable sanitation demonstration projects have been implemented in Central and Eastern Europe, Caucasus, and Central Asia by WECF and network.

Contact person: Claudia Wendland, claudia.wendland@wecf.eu

If you would like to support our work by making a donation, please contact:

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WECF The Netherlands
 PO Box 13047
 3507 LA, Utrecht
 The Netherlands
 Tel: +31 - 30 - 23 10 300
 Fax: +31 - 30 - 23 40 878

Rekening 1266.45.116
 Tenaamstelling: Wecf
 IBAN: NL96 RABO 0126 6451 16
 BIC: RABONL2U

WECF Germany
 Sankt-Jakobs-Platz 10
 D - 80331 München
 Germany
 Tel: +49 - 89 - 23 23 938 0
 Fax: +49 - 89 - 23 23 938 11

Kontonummer: 13 13 90 50
 Bankleitzahl: 701 500 00
 Stadtparkasse München
 IBAN: DE68 7015 0000 0013 1390 50
 BIC: SSKMDEMM

WECF France
 BP 100
 74103 Annemasse
 Cedex, France
 Tel / Fax: +33 450 37 71 98

Crédit Agricole de Savoie -
 Annemasse Saint André
 Compte n° 18106 00038 96711941875 56
 Code IBAN : FR76 1810 6000 3896 7119
 4187 556 Code BIC : AGRIFRPP881



WECF
wecf@wecf.eu

www.wecf.eu

Urine – the yellow gold

Safe re-use of human urine from ecosan toilets to increase your yields



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Why to fertilise with urine?

Urine is an excellent fertiliser containing nitrogen, phosphorus, potassium and many micro-nutrients.

The nutrients in urine are easily taken up by plants. The fertilised plant will grow faster, develop more leaves and produce higher yields.

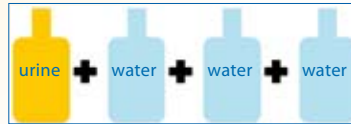
Applying urine to crops instead of chemical fertilisers saves money and energy and produces a similar yield. One person produces about 500 liter urine per year.



How urine application improves the yield

How to apply urine?

Dilution: Undiluted urine is quite 'strong', and should be diluted with water in order not to 'burn' the plants. However, on bare ground before planting, urine can be applied undiluted. When fertilising young plants, urine should be diluted 1:1—1:7. For young plants you need to dilute the urine more than for elder or for trees.



How much? As a rule of thumb it is recommended to apply 1.0-2.5 liter urine per square meter, depending on the nitrogen demand of the crop and soil. You can do small experiments to find the optimal fertilisation.

	Per Litre	Per person/year
Nitrogen	3-7 g	2 - 3.5 kg
Phosphorus	0.3 - 1 g	0.2 - 0.5 kg
Potassium	1.5 - 2 g	0.8 - 1 kg
Sulphur	0.5—1 g	0.5 kg
Magnesium	30—80 mg	40 g
Calcium	50—200 mg	100 g

The table shows the nutrient content in urine

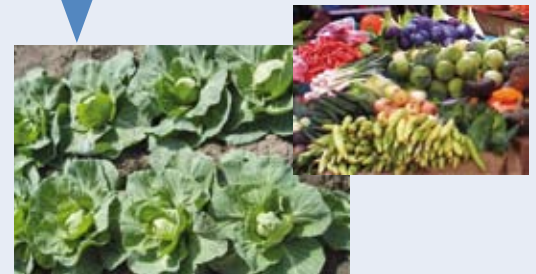
When to fertilise? Fertilisation with urine can be scheduled as usually done with nitrogen fertilisers, thus during the growing season. Fertilisation can be done once or more in the cropping season. In general, crops with small amount of roots like carrots, onions and lettuce need more repeated applications of urine. In winter urine can be stored in closed containers until the growing season. After fertilisation, the crops can be watered to rinse the urine into the soil to avoid nitrogen loss. Or use urine together with irrigation.



Direct use of urine from private toilets, BUT after 6 months storage for public toilets!



Harvest after 1 month or later



Do's	Dont's
<ul style="list-style-type: none"> • Apply the urine close to the ground • Incorporate or rinse the urine in the soil • Wear gloves and old clothes when applying • Wash the crops after harvesting 	<ul style="list-style-type: none"> • Don't apply urine less than one month before harvesting • Don't apply urine next to surface water (rivers or lakes)