# Using Human Excrement

## As a Compost Feedstock

USCC 2013 Conference, Joe Jenkins, CompostSanitation.com

**7 billion humans produce over 3 billion metric tons of excrement each year, containing about *50 million metric tonnes of agronutrients*.**

**A metric ton is 1,000 kg (2,204.6 pounds).**

**Human manure contains:**

**5-7% Nitrogen**
**3-5% Phosphorus**
**1-2% Potassium**

**Urine contains:**

**15-19% N**
**2-5% P**
**3-4% K**

Almost all of it is flushed down a drain mostly into our drinking water supplies.

**Yet, U.S. consumption of N, P and K has nearly tripled since 1960.**

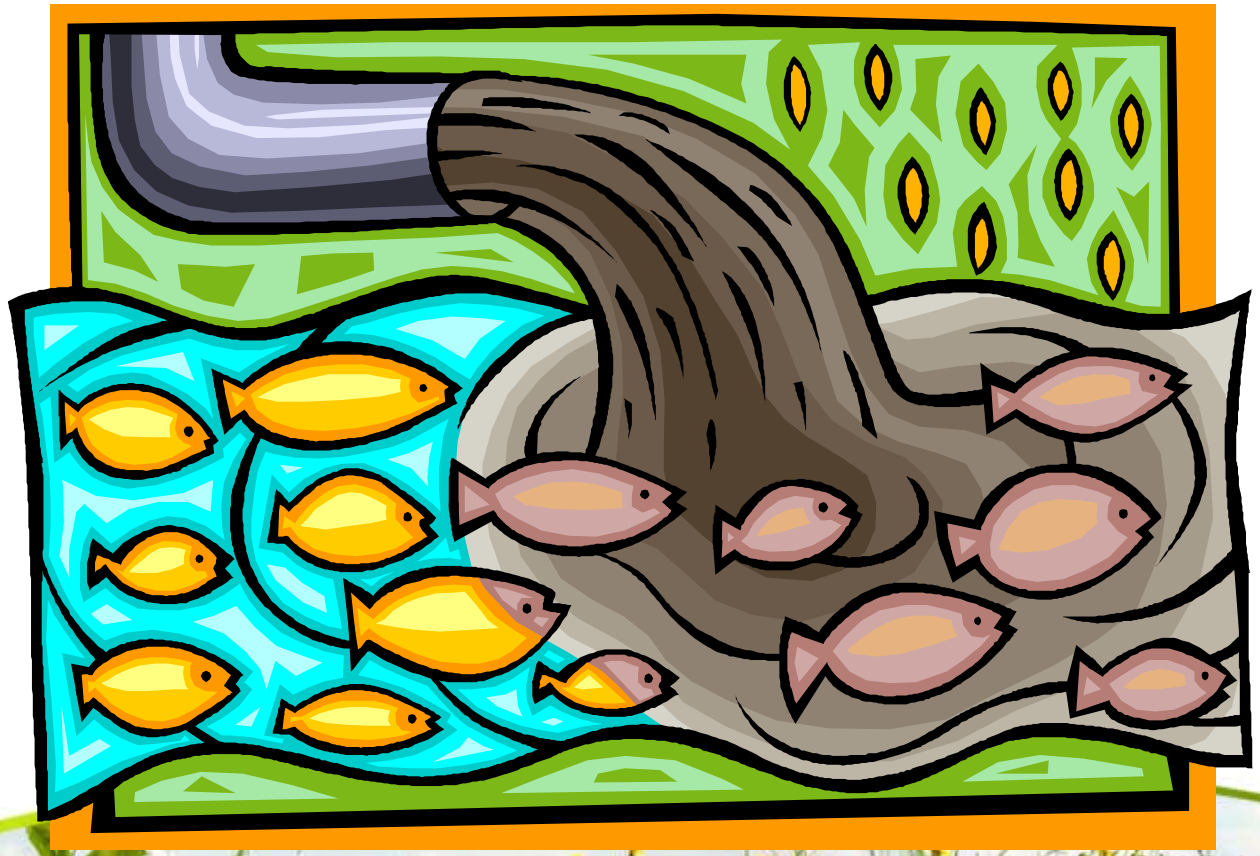
**Why not recycle our organic fertility rather than dump it down a toilet?**

# Most toilets are disposal devices, not designed for recycling.

- The wastewater they produce threatens public health and pollutes the environment.

# Example: “Human Waste Continues to Pour into NY Harbor After Sandy.”

- NBC news, Friday, November 16, 2012



# U.S. beaches were closed 23,481 days in 2011,

- due to bacteria levels from human or animal waste.

# Toilets can collect excrement for recycling.

Example: portable toilets in Australia:

# Australian Collection Toilets

# Sawdust is used as a “cover material.”

# Wheelie bins collect the toilet material.

# This is a recycling toilet in Belgium.

**The toilet material is composted in outdoor bins made from pallets.**

**This is a recycling toilet in Finland.**

**The toilet material is collected in plastic wheelie bins.**

# These are recycling toilets in France.

# French portable composting toilets.

# French toilet receptacles

# Toilet contents are removed by pallet jack.

# Canadian household recycling toilet.

**This is a “Loveable Loo” style toilet in an American office.**

# Another example of an American recycling toilet.

# A recycling toilet in Hawaii.

# Another American collection toilet. Note how the toilet contents are kept covered with a carbon material.

# Haiti: this group is being trained to compost toilet material for a village.

**Toilet construction allows for a cottage industry.**

# No plumbing, water, electricity or odor means the toilets can be located anywhere.

# The compost crew uses sugar cane bagasse as a carbon cover material.

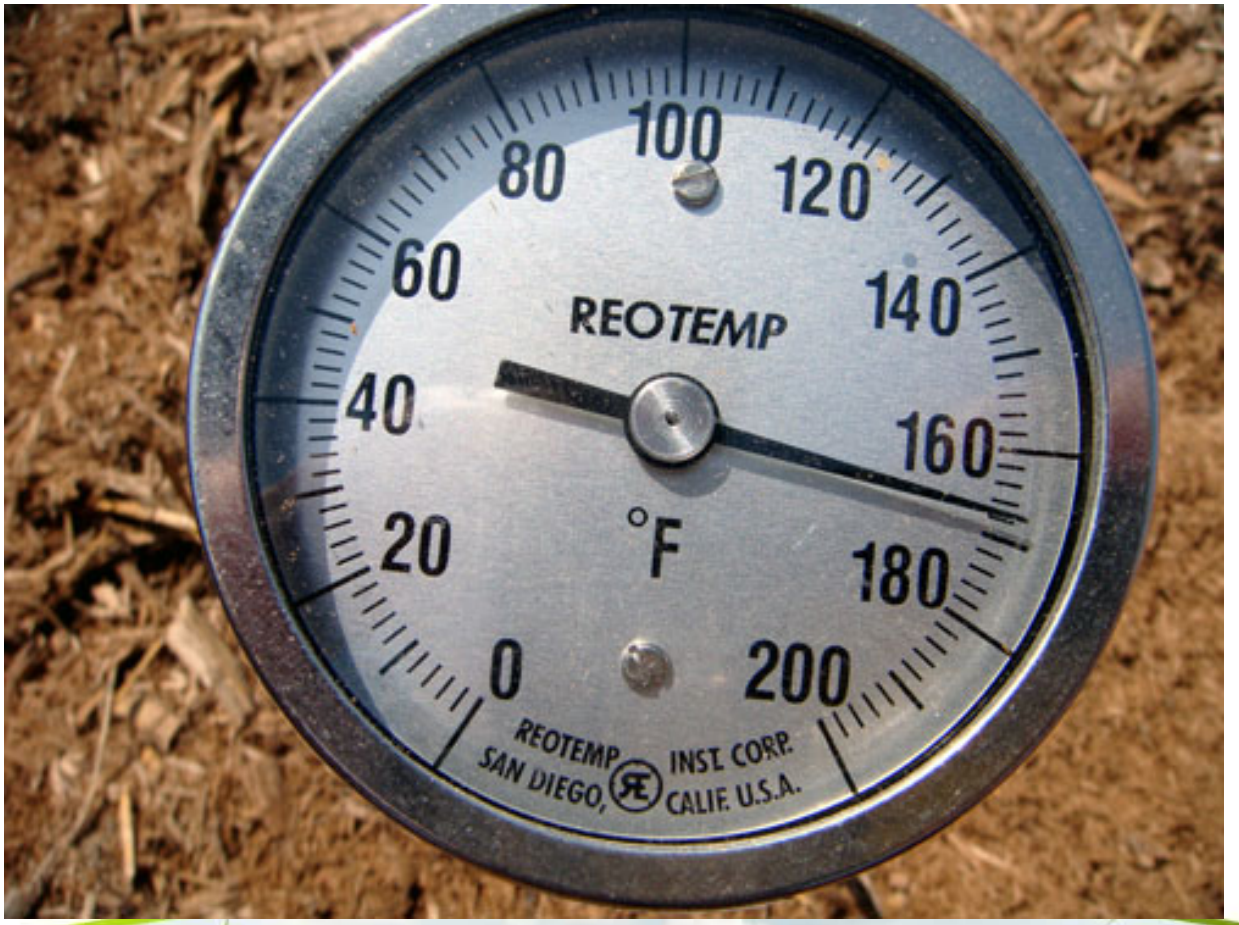
# Pallet bins are first layered with clean bagasse on the bottom.

# The toilet material is collected in 5-gallon receptacles.

# Toilet materials as well as food scraps are layered in the bagasse.

# The full bins are covered with bagasse. No smell and no flies.

# Temperatures can approach 170F (76C).



# Temperatures over 131F are sustained for more than 6 months.

# A thermometer set at the edge while we worked still read 130F at a depth of 6”.

# The compost system recycles all toilet material and food scraps beautifully.

# This school in Haiti uses the compost to grow gardens.

**Toilets of the future will grow food.**

# Questions?

- Joseph Jenkins, Inc.
- HumanureHandbook.com
- CompostSanitation.com
- GiveLove.org