

# SCIENCE & ENVIRONMENT

## Wash your vegetables, but not your clothes

BY KIP KEEN

When I was 10, and while 'whoa-oh-oh-oh-oh ... hangin' tough' was spilling off the tongues of pre-teens, phosphates in laundry detergents had become a huge eco-enemy. People asked; how could one have nice clean clothes and simultaneously save the environment? My Mum wasn't too keen on my suggestion that we stop doing laundry, and before I could have taken any action, ABC and TIDE came out as environment saviours with the introduction of phosphate-free detergents.

Although I was disappointed

that Sundays would still include my cold feet stomping around in the basement laundry room, the new soaps helped stop the excessive pumping of phosphates into the ecosystem, which allowed certain plants to bloom and blossom where they previously hadn't, thereby bullying out other green neighbours. Fortunately, phosphate loading is less of a problem now that we have more friendly soaps.

Unfortunately, this story does not end with the prince and princess riding off into the environmentally friendly sunset.

Today, an even more pressing matter confronts us: nitrogen load-

ing.

Nitrogen is a naturally occurring element which ranks forth as the most present element in living organisms, after oxygen, carbon, and hydrogen. It is an essential part of every plant's breakfast. However, plants can only get their fill of the substance if it is in a flora friendly form, called 'fixed nitrogen'. While nitrogen makes up 78 percent of the atmosphere, occurs geologically as mineral, and is present in decomposing corpses and vegetation, it cannot be used by plants until 'nitrogen fixers' and soil microbes convert it into a usable form, usually as nitrate or ammonium.

A 1997 study, *Human Alteration of the Global Nitrogen Cycle: Sources and Consequences*, provides an overview of the large pool of data on nitrogen from all walks of science. It declares that natural nitrogen fixation, the amount of nitrogen made available to the food chain by mother nature, is estimated to have been between 80 and 140 million metric tons (Tg) per year before industrialization. Humans are conservatively estimated to be adding a further 140 Tg per year to the environment, at least doubling the amount of fixed nitrogen that organisms have access to.

Of this addition, 80 Tg is a result of the use of fertilizers, which are used to maximize the growth of crops. The report asserts that between 1980 and 1990 the amount of industrially fixed nitrogen applied to crops more than equalled all industrial fertilizer applied pre-

viously in human history. This does not include manure because recycled animal feces already presents fixed nitrogen.

The problems created by this excess of nitrogen are many, and a few are outlined by the study.

When no more nitrogen can be used by plants, the excess seeps into streams, ground water, and the atmosphere, spreading nitrogen into ecosystems which hadn't had access to it. In rivers and coastal waters this leads to serious eutrophication, or nutrient abundance. Algae and other organisms multiply and strip the water of its oxygen, suffocating other plants and animals from their habitats.

In soils, the glut of ammonium, a fixed form of nitrogen, intensifies the production of nitrates, which releases hydrogen ions into the earth, helping to acidify it. These nitrates also carry away other minerals such as calcium, magnesium and potassium, which are a vital part of most organisms' diets.

The loss of minerals allows

aluminum to reach toxic concentrations, damaging tree roots, killing fish in water habitats, and posing a threat to humans. Aluminum build up in the body is associated with Alzheimer's disease and other mentally debilitating diseases.

When one considers that fertilizer use is currently increasing, as countries respond to burgeoning populations and the need for greater food supplies, it becomes apparent that cutting nitrogen use is not going to be as simple as coming out with environment-friendly detergents was. Completely ceasing to use fertilizers is an unlikely solution, so the report calls for wiser application of fertilizers in order to curb their effects on the environment.

The report concludes that "it is urgent that national and international policies address the nitrogen issue, slow the pace of global change, and moderate its impacts."

Go to [www.sdsc.edu/ESA/tilman.html](http://www.sdsc.edu/ESA/tilman.html) for a dummy friendly version of the technical report.

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### ASK GREENGIRL

Dear Greengirl,  
I am heading West, and I want to shed my possessions, while also potentially raising some cash for the road. Where can a student get a load off?  
Thanks,

A Wandering Gypsy.

Nomad to be, see these categories; for places to lighten your burden and increase your earnings!

They may buy your used furniture: Almanac Used Furniture and Antiques, 2810 Windsor; Easy Pickins Furniture and Things, 2128 Gottingen; Electro-Shack, 6297 Quinpool (stereos, radios, TVs, etc).

They may buy your used clothes: Allie's Repeat Performance Boutique, 6021 Cunard; Baby Jade's, 5543 Young; Cat's Closet Boutique, 5670 Spring Garden; Closet Encounters Ladies Boutique, 2592 Elm; Einstein's Clotheslines, 1678 Barrington; Junk and Foibles, 1533 Barrington; Second Hand Rose, 5212 Morris.

They may buy your used CDs: Disc Go Round, 5222 Blowers; Taz Records, 1588 Argyle; Terry's CDs and Cassettes, 1533 Barrington; Urban Sound Exchange, 1592 Barrington.

For the philanthropists, try donating stuff to the Salvation Army or another charity. You can call the Salvation Army (455-3196), Big Brothers and Big Sisters (454-4025) and the Canadian Diabetes Association (453-4232) for free pick up. You can also drop off any left-over non-perishable food items to the Food Bank. There are collecting bins at many grocery stores.

Getting rid of books? If they are textbooks you might be able to sell them back to the bookstore in the Student Union Building. For everything else, you'll find used book stores abound in Halifax.

A great alternative to converting your unwanted possessions into green is to instead trade them for items you do need: organize a trading circle with your friends and neighbours. Trading is a fun and community-building idea. Add a little drumming, some summer sunshine, and a potluck and you've got a party!  
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Greengirl.



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