

Waste Not, Want Not: An Overview and Combating Food Losses and Food Waste

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December 8, 2012

Study conducted for the
International Congress

SAVE FOOD!

at Interpack2011
Düsseldorf, Germany



GLOBAL
FOOD
LOSSES
AND
FOOD
WASTE



EXTENT,
CAUSES AND
PREVENTION



FOOD WASTE

is a major worldwide problem



of all edible food produced worldwide is wasted or lost each year. That is 1/3 of the food produced annually.

Food WASTE



3,000 lbs. of food is wasted every second in America

 = 100 lbs/second



 = 100 people

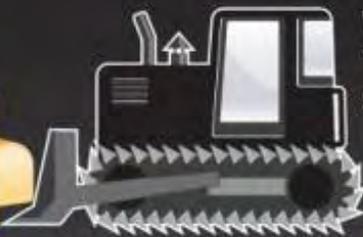
3,000 lbs. would feed 650 Americans for an entire day.



 = 1,000 lbs.

Per capita waste is approximately 245 lbs. per year in Europe & North America.

Per capita waste is approximately 25 lbs. per year in Sub-Saharan Africa & South/Southeast Asia.



Wealthy countries waste 15,000 lbs. of food every second.

This is equal to the amount of food production for entire Sub-Saharan Africa.



- U.S. food waste has increased 50% since 1974.
- 1,400 kcal/person/day
- Leafy vegetables – 50%
- Bread – 33%
- Meat – 12%
- Fruits – 28%
- Vegetables – 22%

Wasted Food, Wasted Energy: The Embedded Energy in Food Waste in the United States



300 million barrels of oil are used each year to produce food that is ultimately wasted.

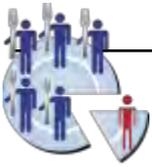


■ = 10m barrels



University of Texas publication determined that the U.S. could save roughly 2 percent of its total energy consumption in one year if it stopped wasting food (Webber, 2010).





The wave of global hunger



In the year **2050**,
world **population**
will require



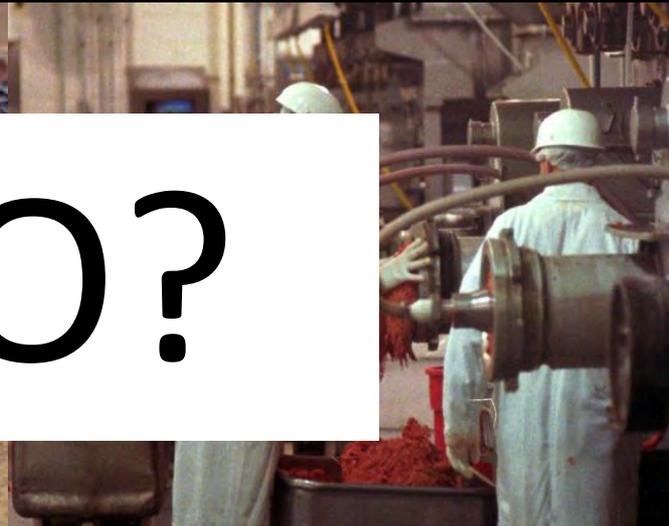
100%
more **food**,^{1,2} and



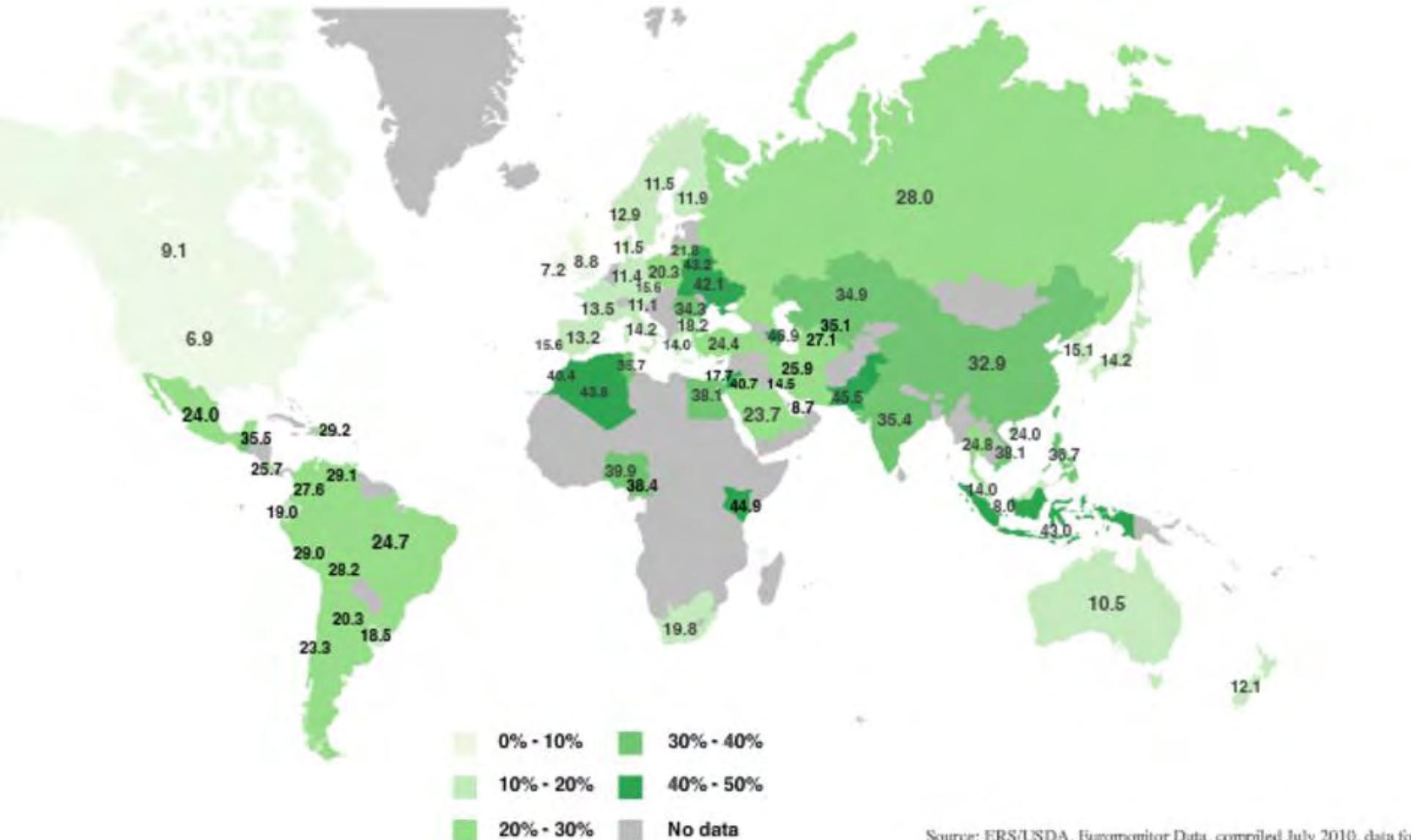
70% of this
food must come from
efficiency-improving
technology³

Food Waste: Is it the collateral damage of a highly productive system?

YES/NO?



How Much of Spending Goes Toward Food



Source: ERS/USDA, Eurocomitor Data, compiled July 2010, data for
 Data represents money spent on food at home
 Icons from chalkwork.com Creative Commons

Refrigerator Excess



Being Penny-Wise With Food Was Considered a Patriotic Duty

FOOD IS A WEAPON



DON'T WASTE IT!

BUY WISELY - COOK CAREFULLY - EAT IT ALL

FOLLOW THE NATIONAL WARTIME NUTRITION PROGRAM

**"We are saving you,
YOU save FOOD"**



**Well fed Soldiers
WILL WIN the WAR**

Not Just A Patriotic Guilt Trip



Rationing means
a fair share for all of us



Today's Food Waste Poster

American Wasteland



HOW AMERICA THROWS AWAY
NEARLY HALF OF ITS FOOD

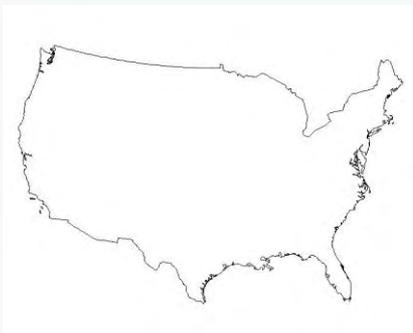
(and what we can do about it)

Jonathan Bloom

In Blooms book, Baby boomers faced a decision on how to treat their children that pitted their experiences with hunger from the 1930's and 1940's against postwar euphoria and abundance sweeping across the nation. They could either preach to their children to clean their plates or let them eat whatever they wanted. The later idea won."

TECHNOLOGY





In 2009, the Program for International Students Assessment ranked U.S. students 17th in the world in science and 25th in math. Let's change those numbers. Let's invest in our teachers. Let's inspire our students. Let's solve this.

ExxonMobil

Pfizer Animal Health

- I. Dispensing of waste has become more expensive every year for businesses.
- II. Been able to reduce waste by as much as 93% and have saved \$2.25 million annually.
- III. Management programs include efforts to reduced, reused and recycled solid waste, eliminate electronic waste, composting of grass clippings and leaves as well as recycling hazardous waste such as medical, tires, paint and petroleum products.
- IV. Currently have a food partnership program, but no food waste management program.



Zero Waste South Australian Research Center



U.K. Waste and Resources Action Program

WRAP has designed a voluntary agreement, due to be launched in June 2012, to support the sector in working together to reduce food waste, optimize packaging and increase recycling rates.

There are over 260,000 outlets in the UK ranging from cafés to hotels and hospitals. These cooperators represented food and drink which totaled £41,982 million and it is estimated that 8,165 million meals were served.

WRAP research estimates that in these establishments, 3.4 million tones of waste was generated . Through various programs and education efforts, only 1.5 million tones of this was sent to landfill and estimated savings was about £722 million.



Working together for
a world without waste

**DAIRY
LOVERS**
think green



Whatever food you love, we can help you
waste less and save up to £50 a month at
lovefoodhatewaste.com

**LOVE
FOOD**
hate waste

**YOUR
FRIDGE
is
YOUR
FRIEND**



**LOVE
FOOD**
hate waste



big jubilee lunch
an eden project 2012

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The Intellex Freshness Management™ solution enables growers, producers, co-ops, distributors, retail grocers, restaurants and food service providers to reduce loss due to spoilage, improve quality and address traceability requirements.

Without unpacking or modifying your processes, you can instantly determine the shipping and storage history of your products. Through the use of the RFIS technology, the product's Freshness Factor™ is calculated resulting in improves product quality and safety for your customers, and increase your revenues.



Stop Guessing

Improve Delivered Freshness™
and post-harvest yield with Intellex in-transit
temperature monitoring solutions.

Forecast
Thursday

To date, retailers have reduce food waste by 15% in their stores.



Consumer Confusion: Dates??

- As part of the WRAP findings, information suggests that 60% of the consumers believe food has to be frozen on the day of purchase.
- Changing the advice has helped stop shoppers from throwing away up to 800,000 tons of perfectly good food each year.
- “Freeze By” vs. “Use By confusion.
- “Freeze as soon as possible after purchase and always within the use by date. Once frozen consume within one month. If defrosted use the same day.”

Sainsbury's

Try something new today

Date labels - Infographic



Best Before:

These dates refer to quality rather than food safety. Foods with a 'best before' date should be safe to eat after the 'best before' date, but they may no longer be at their best.

BEST BEFORE
04 MAR

Sainsbury's

Try something new today

Date labels - Infographic

Use-by:

These dates refer to safety. Food can be eaten up to the end of this date but not after even if it looks and smells fine. Always follow the storage instructions on packs



Retail Packaging Efforts

- Food that is wasted before it is consumed requires ten times more energy and materials to produce than the packaging used to protect it (Advisory Committee on Packaging, 2008).
- These retailers were the first to use the revolutionary 'It's Fresh!' strip inside its strawberry baskets that acts as an 'ethylene remover'. Ethylene is the ripening hormone that causes fruit to ripen and then turn "moldy."

4-5% wastage savings which represents approximately 40,000 packages of strawberries not being thrown away.



TESCO
Every little helps



MARKS &
SPENCER

Revolutionary Food Freshness Label

For meat items, the traffic lights correspond to “best before date”, “best before date” has passed and “use by date” has passed”.

Depending on food type, freshness label can be set using date, pH, moisture concentration, oxygen concentration, time of bottle is opened.

“Intelligent Labeling”



Buy One, Get One

FREE

No Limit! Hurry Offer Expires So

Buy 1 Get 1

Purchase ANY two (2)
1-gallon bottles of Prestone® Extended Life Antifreeze/Coolant &
Get the other one FREE!



UNIVERSITY DODGE

LADBROOK, PEMBROKE PINES & MIRAMAR - 10 MINUTES FROM
& MIAMI LAKES - 3 MINUTES FROM PLANTATION & COOPER CITY

2!

NO ADDITIONAL COST!
\$22,195
SEE DEALER FOR DETAILS



RAM 1500 4-DOOR THUNDER ROAD INCLUDES:
Power Windows • Power Locks • 20" Wheels • Fog
Lamps • CD Player • Much More! • Stk#8T79598



BOGOF next time... Tesco plans 'Buy One Get One Free Later' deal in a bid to cut food waste

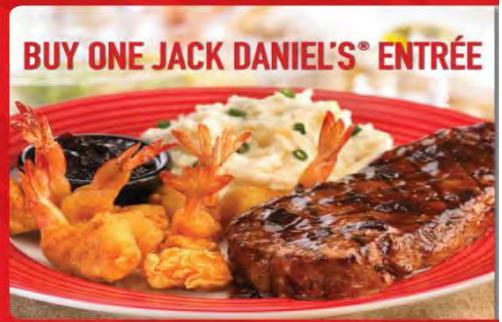
\$11.788

SAVE \$5197!

OFF!



LIKE GOING OUT FOR A GREAT At T.G.I. Friday's® we've got you covered with our economic relief program...



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BUY ONE JACK DANIEL'S® ENTRÉE, GET ONE FREE

Buy one Jack Daniel's entree get one Jack Daniel's entree of equal or lesser value free. One in only. One offer per party, per visit. One coupon per two guests. No cash value. Not valid for gift cards, happy hour, alcoholic beverages or in conjunction with any other offer or discount. Tax and gratuity not included. Valid at participating locations.

Code: GMMS JD BOGO
Valid: 03/11/09 - 04/30/09

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BUY ONE LUNCH GET ONE FREE

Buy one lunch entree get one of equal or lesser value free. One in only. One offer per party, per visit. One coupon per two guests. No cash value. Not valid for gift cards, happy hour, alcoholic beverages or in conjunction with any other offer or discount. Tax and gratuity not included. Valid at participating locations.

Code: GMMS Lunch BOGO
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From the Folks That Brought You Inhalable Chocolate and Caffeine



Professor Dr. Edwards
Harvard University

- **WikiCells** is a new edible packaging technology that allows individuals to eat and transport food without plastic.
- **Natures Way of Creating Bottles:** This membrane, which is comprised of a charged polymer and food particles, is in turn protected by a hard shell which can be broken away much like that of an egg.
- Eventually, he even hopes to develop a product platform for WikiCells, which would allow individuals to produce their own **edible bottles.**



Remember the Earth.
Forget the Tray.



Significantly reduce energy use
Reduce chemical usage for washing trays
Reduce water usage by 12,000 gallons per week
Reduce waste by 6,000 lbs. per week

Bama Dining has made the move to trayless dining. As a part of UA's continuing efforts toward making our campus more sustainable, tray-less dining has been a huge move in the right direction. Here are just a few of the benefits:

- Saving 12,000 gallons of water per week.
- Saving over 6,000 pounds of solid waste per week.
- 25-30% reduction in energy use.
- Drastic reduction in the usage of chemical cleaning agents.

- **300 Universities on Aramark**
- **Diverting >15 million pounds of food waste**
- **Lowered electric, labor and water costs.**

Gundersen Health System

Using an electronic tracking program, Gundersen has been able to make a number of adjustments to reduce food waste. In just seven months, food waste decreased by 550 pounds (\$475/week) per week, a 50 percent improvement.



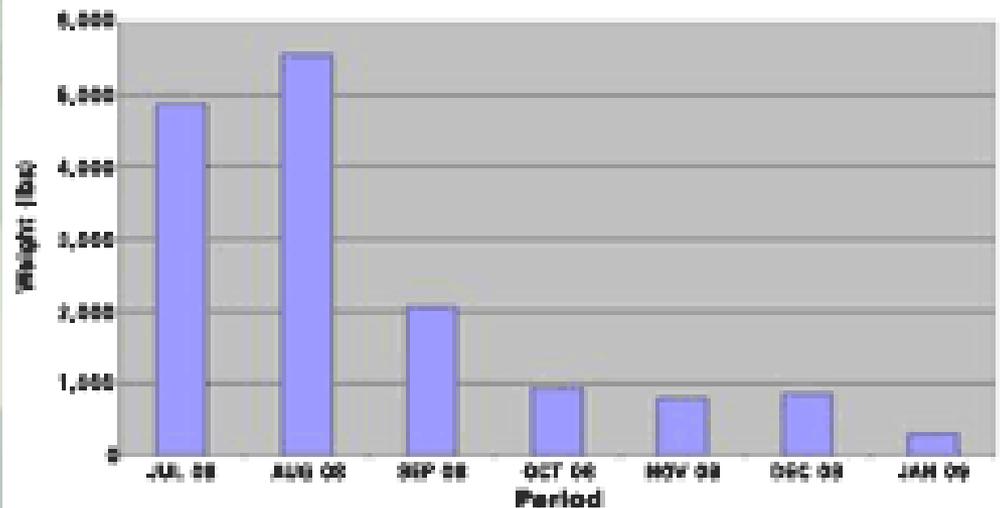
ValuWaste Tracker

Army Installation Sustainability Success

- 10-fold reduction in dining facility waste at Fort Jackson.
- Menu changes that include increase in cut fruit.
- Increased management of portions sent to the field.
- Awareness of methods to reduce food waste.



Average Food Waste per Month





World Leader In Lowering Food Waste



Koreans “Taxed” for Food Waste

- Korea has adopted a volume – or weight – rate disposal system for all “kitchen waste” (170,000 tons of food waste daily).
- Waste will be bagged in a specifically marked bag that is weighed and in turn will charge residents and business owners.
- RFID card (that doubles as public transit card) is utilized.
- Food waste has been reduced by 20% (US\$4.3 billion)



SLIPS: Slippery Liquid-Infused Porous Surfaces

- After a rain, the cupped leaf of a pitcher plant becomes a virtually frictionless surface. Sweet-smelling and elegant, the carnivore attracts ants, spiders, and even little frogs.
- The plant locks in a water layer, creating a slick coating on the top. In short, the fluid itself becomes the repellent surface. The effect is similar to when a car hydroplanes, the tires literally gliding on the water rather than the road.



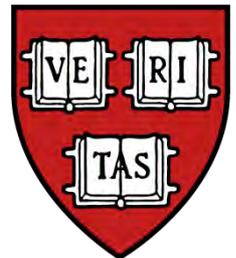
(Image courtesy of Peter Allen and James C. Weaver, Wyss Institute, Harvard)

<http://www.technovelgy.com/ct/Science-Fiction-News.asp?NewsNum=3465>

SLIPS: Potential Applications

- Fuel and water transport pipes
- Medical tubing
- Self cleaning windows
- Surfaces that resist bacteria (ship hulls)
- Ice repelling surfaces (airplanes)
- Surfaces that repel fingerprints or graffiti
- Food containers (ketchup bottle)

Source: Wyss Institute for Biologically Inspired Engineering at Harvard University.





Waste Not,
Want Not

