



EXPLORE

By the Numbers

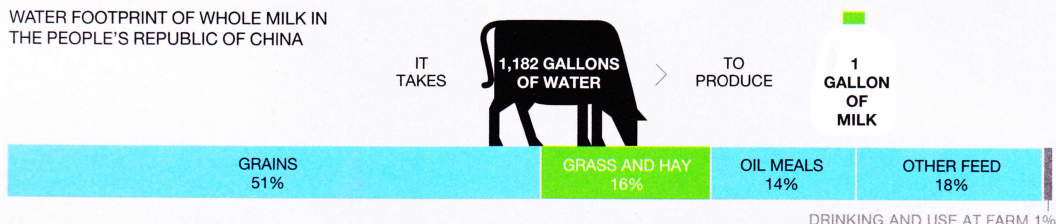
Thirsty Exports

Even though many farmers struggle to meet their crops' demand for water in places such as drought-stricken California, every year they send billions of virtual gallons to other countries—in the form of the food and feed grown with that water. According to Arjen Hoekstra of the Netherlands' University of Twente, the issue of agriculture's water footprint—all the water used to produce a commodity and get it to a consumer—is contentious, since many farmers use scarce water to produce low-value export crops. Water is a public good, he says, so allocation systems ought to support its sustainable use. —Kelsey Nowakowski

CHINA'S RISING DAIRY DEMAND

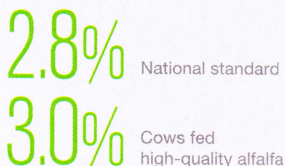
Chinese consumers drink more milk today than ever before. Because their appetite for dairy products is growing faster than Chinese farmers' capacity to feed dairy cattle, those farmers now rely on alfalfa hay imports from the U.S.

WATER FOOTPRINT OF WHOLE MILK IN THE PEOPLE'S REPUBLIC OF CHINA



Alfalfa improves the amount and quality of milk produced by dairy cows.

RAW MILK PROTEIN CONTENT IN CHINA



ALFALFA IS CALIFORNIA'S LARGEST AGRICULTURAL WATER USER, CONSUMING MORE THAN FIVE MILLION ACRE-FEET** A YEAR.

U.S. ALFALFA HAY IMPORTED BY CHINA

After dropping off Chinese goods in California ports, many containers are filled with alfalfa for the return trip. It's often more cost-effective to send alfalfa from Los Angeles to Beijing than from California's Imperial Valley to its Central Valley, where many dairy farms are located.

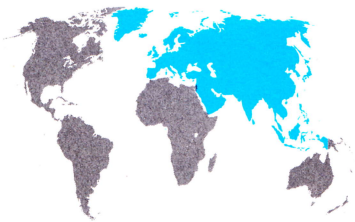


*Virtual water flow is all water used to produce a commodity, transferred virtually through trade to the consuming country.

**One acre-foot is the amount of water that would cover one acre to a depth of one foot, or 325,851 gallons.

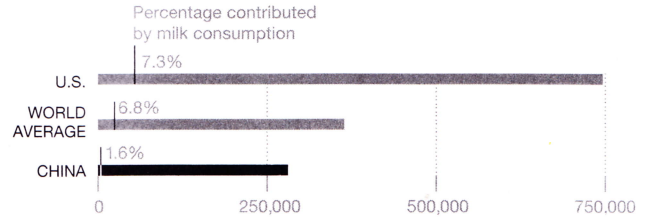
VIRTUAL WATER FLOW*

● Net exporters ● Net importers



AVERAGE ANNUAL WATER FOOTPRINT

gallons per capita, 1996-2005



TONS OF U.S. ALFALFA IMPORTED BY CHINA

648,980

APPETITE FOR MILK

In 20 years annual per capita milk consumption in China rose more than fivefold.



CHINA'S DAIRY COW IMPORTS

From 2008 to 2011 imports of Australian, New Zealand, and Uruguayan cows—twice as productive as Chinese cows—grew almost 600 percent. To feed those cows, hay demand increased dramatically.



GOVERNMENT PUSH

"I have a dream, and my dream is that each Chinese person, especially the children, can afford to buy one jin [18 fl. oz.] of milk to drink every day."

PREMIER WEN JIABAO, 2006



2006

2008

2011

2013

21,321

206,923

310
THOUSAND

ACRE-FEET OF WATER
are used to grow the U.S.
alfalfa exported to China
every year.

800
THOUSAND

AMERICAN FAMILIES
use the same amount of
water annually that's used
to grow alfalfa in California.