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Free range eggs contain a little something extra: pollutants

June 16, 2010 | 1:16 pm

Here's some disconcerting news for health-conscious eaters who favor eggs from free-range hens: A Taiwanese study found that the eggs contain much higher levels of industrial pollutants than eggs laid by caged hens.

The researchers focused on two types of pollutants, [polychlorinated dibenzo-p-dioxins](#) and [dibenzofurans](#) (known collectively as PCCD/Fs), which are released into the environment by municipal waste incinerators, factories and other industrial sources. A [report from the International Program on Chemical Safety](#) says the chemicals have caused cancer, liver damage, problems with the skin and nervous system, reproductive problems and other undesirable effects in animals.



The researchers collected 60 free range eggs from farms in southern Taiwan and compared them with 120 eggs from caged hens that were purchased throughout the country. Then they measured the levels of 17 kinds of PCCD/Fs.

For the free range eggs, the levels ranged from 6.18 to 41.3 picograms per gram of lipid, with an average value of 17.5 pg/g. Levels for the caged eggs ranged from 2.85 to 19.8 pg/g, with an average value of 7.65.

The researchers also calculated the [toxic equivalency quotient](#) (TEQ) for both kinds of eggs using a system endorsed by the World Health Organization. The levels for the free range eggs were 5.7 times higher than the levels for the caged eggs.

In addition, 17% of the free range eggs had levels that European regulators have deemed unsafe for consumption. All of the caged eggs were easily in the safe zone, the researchers found. The [results were published](#) in the latest edition of the Journal of Agricultural and Food Chemistry.

The researchers believe the free range eggs have more contaminants because they are found in the

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environments where free range hens roam. Studies have found the chemicals in “feedstuffs, soil, plants, worms and insects,” they wrote. Their own measurements of dirt from free range farms persuaded them that soil contamination is at least partly to blame.

The problem probably isn’t limited to Taiwan. Scientists have also found the same trend in the European Union, and one study found that about 10% of free range eggs exceeded the safety limit set by regulators there.

“The issue of contamination in free range eggs could be a global issue, and more research should be done to identify the factors from the external environment that influence and modify the PCDD/F levels in eggs from free range hens,” the authors wrote.

In case you were wondering, their research was *not* sponsored by the commercial egg-laying industry. The scientists had grants from the National Science Council of Taiwan and the Taiwanese Ministry of Education.



— Karen Kaplan

Photo: These free-range chickens seem to be enjoying their time outdoors, but with dioxins lurking in the environment, it may not be good for them – or us – after all. Credit: Steve Osman / Los Angeles Times

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maybe if we polluted the environment a little less, those eggs wouldn't be so bad. nah, let's just eat the eggs from "clean" battery environments, while they pump the waste out to destroy the ground that the free-rangers walk on.

Posted by: brian | June 16, 2010 at 01:55 PM

That's just great. What might the possibility be of getting some data from the good ol' US of A.....where my eggs are laid?

Posted by: Dad | June 16, 2010 at 01:57 PM

I never buy into the Organic Fad anyway.

Posted by: Wolfy | June 16, 2010 at 02:05 PM

And that's why I don't eat eggs from Taiwan... Stop misleading people with these headlines; how does a study in Taiwan on chickens from Taiwan affect someone in the Los Angeles area that buys their free-range eggs from local sources??

Posted by: free-range Egg Eater | June 16, 2010 at 02:06 PM

Okay - anyone who has traveled to, or lived in, Asia has to realize the difference between the pollution levels in Taiwan and the US. Perhaps that should have been mentioned in the article.

Posted by: jc40 | June 16, 2010 at 02:06 PM

I totally agree with "free-range Egg Eater". I don't buy eggs from Taiwan or any food that made from main land China.

Posted by: Marie | June 16, 2010 at 02:14 PM

Another misleading title and article from the Times health section...The Times has just lost another reader.

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Posted by: angela | June 16, 2010 at 02:33 PM

This study was conducted in Taiwan...a dirty city with no pollution regulations. How can you apply this finding to all health-conscious eaters who buy free-range? The way this blip of an article is written seems to want to undermine the idea of free-range across the board. So the next question is what kind of ties does Karen Kaplan and LA Times have to commercially produced eggs?

Posted by: DRE DAWG | June 16, 2010 at 02:40 PM

Can you head-in-sand naysayers not read? "Scientists have also found the same trend in the European Union, and one study found that about 10% of free range eggs exceeded the safety limit set by regulators there." Do you really think the result would be different in the "good ol' US of A", which has less strict environmental controls than Europe?

Posted by: Lou Bricano | June 16, 2010 at 02:47 PM

Right... so chickens should live their lives in artificial environments, eating artificial food, so that we can have "pollutant-free" eggs??? This article is ridiculous.

Posted by: Tigerlily | June 16, 2010 at 02:53 PM

Give this research study and the newspaper article to people in Taiwan. Ridiculous - why the scare tactic LA Times? Remember, good journalism also includes good statistical reporting, and this article is written as an attempt to mislead hurried readers.

Posted by: mmmkit | June 16, 2010 at 03:11 PM

'Organic' food, whatever that means, is not bad. Its the way all humans ate until a few decades back.

However, if 1/3rd of a crop is lost to pests normally killed by chemicals not used organically, that means to get the same amount of food the farms need 1/3rd more land, water, labor, soil erosion & cost.

If Earth goes back to organic farming, with no chemical inputs (tractors fuel, ship fuel, pesticides, ammonia fertilizer, smudge pots, etc), we might lose a few billion people. Just sayin...

Posted by: R U Joking?! | June 16, 2010 at 03:11 PM

Did anyone looking into the source of the funding for this 'study'? I detect a rodent in this piece. My birds wander around eating bugs. The only pollutants anywhere near are bureaucrats infesting government buildings some miles distant.

Check out the avian girls photo.

josephlcooke.blogspot

Posted by: Joseph L Cooke | June 16, 2010 at 03:18 PM

LOU, regardless, let's get information about where our eggs are from in this country, along with world wide comparisons.

i must say i am getting really annoyed with misleading headlines and misleading photos attached to articles. sadly, i think most people don't read the entire article and may take away misinformation to carry on to conversations and saying they saw it in the LA times!

who's editing this paper anyway?

Posted by: maggie in LA | June 16, 2010 at 03:21 PM

@Lou: the headline is misleading, period. U.S. environmental standards are different from both Taiwan and Europe. Therefore the studies in those countries are irrelevant to eggs in the U.S.. Maybe they are worse here, maybe better but the studies are irrelevant.

Posted by: Seamus Piper | June 16, 2010 at 03:23 PM

I'll take pollutants over hormones anyway.

Posted by: deartoni70 | June 16, 2010 at 03:31 PM

I don't give a crap cuz I don't shop in Taiwan. Dumb article.

Posted by: ingrasam | June 16, 2010 at 03:33 PM

If I was a hen, I would rather be free ranging with dioxins than caged in a space so crowded one can hardly move. I prefer animal welfare rather than organic!

Posted by: Bob | June 16, 2010 at 03:37 PM

What's with the anger in the comments section here? Do you really think that Los Angeles and Central Valley is so clean that this would not apply here? Are you nuts? We have terrible pollution here. Not as bad as some cities in the world, but it's still terrible and I'm sure it's enough to contaminate eggs.

Also, Taiwan is a country, not a city DRE DAWG.

Posted by: Rob Goodin | June 16, 2010 at 03:45 PM

hey dre dawg,

taiwan is a country.

not a city.

fyi.

Posted by: to "dre dawg" | June 16, 2010 at 03:58 PM

Yeah, and running in an urban area during day time hours is harmful for your lungs. Does that mean that the solution is to stop running? No. The solution is to get rid of the contaminants in the air that are harmful for us, as well as the pollutants we put into the soil and the water. Even if you don't believe in global warming, or even organic produce - you can't possibly believe that the current way we do things is at the least bit sustainable or correct for the survival of our Eco-systems.

Posted by: Rudy | June 16, 2010 at 04:05 PM

Yes, the holes in the research for this article are big enough to drive a chicken truck through. As many have pointed out, a Taiwanese farm is not a litmus test for an American farm. Plus, averages like this need to be examined carefully - for example a group of cage free farms on dangerously polluted grounds can tilt the statistics absurdly, but not necessarily reflect a fundamental flaw with cage free farming.

This issue deserves research, not sensational headlines. But Kaplan likes to shake things up without getting to caught up with those pesky details like "facts." And yes, it gets attention. Sigh. Moving on.

Posted by: Josh | June 16, 2010 at 04:09 PM

From Wikipedia wiki on "Free Range": "... In the United States, USDA regulation apply only to poultry and indicate that the animal has been allowed access to the outside.[1] The USDA regulations do not specify the quality or size of the outside range nor the duration of time an animal must have access to the outside."

Note that it says "allowed" access. The birds need never leave their barn, nor even their nesting box, in order for the eggs to be sold as "free range". This as long as the possibility existed for them to, say, scoot through a one by one foot hole in the wall at the other end of the 500 foot long barn in which they are accustomed generation after generation to remaining inside. This even if that door is only open a half hour per day and opens onto a parking lot.

And that kind of thing *does* happen.

Whereas many small farmers market eggs from birds which actually range free all day on good forage land.

It is well to know where your food comes from when possible.

Did the Taiwanese scientists hew to this definition of free range? If not, then what one did they use?

Was a single definition applied in Taiwan and in Europe?

Were the 5 dozen "free range" eggs tested in Taiwan collected from two farms or twenty? How many of those farms--in that rather cramped nation--were close downwind of a municipal incinerator, or located in a rural area where most garbage is burned in the open air with no controls?

The story says soil contamination was implicated. If the tested eggs all came from two farms, and one of them was keeping chickens on ground which had been long used for open incineration, would this have skewed the data? Did the scientists investigate this? Kaplan apparently did not.

The article says: "The problem probably isn't limited to Taiwan. Scientists have also found the same trend in the European Union, and one study found that about 10% of free range eggs exceeded the safety limit set by regulators there."

Well the Taiwanese eggs were evaluated against W.H.O standards, apparently, But the European eggs against local standards. Are the European standards equivalent to the WHO standards? Much weaker? Much more stringent? If the European standards are much more stringent and only 10 percent of the tested eggs failed then this is an order of magnitude difference from the across the (albeit very tiny) board failures found in Taiwan. Why didn't Kaplan put one or two questions to the right people before grinding out this sensationalistic article?

In the US, genuinely free range eggs are raised under conditions ranging from rural to urban, across thousands of miles of geography, some using organic methods and some not, each farm on a piece of ground with different forage and different soil than the next one over.

It may be fair to generalize about all of the eggs McDonalds puts onto their muffins if they all tend to be produced in factory farms using ear identical, least-cost regimens of containment and feeding the lowest possible grade of feed that provides enough protein and meets the letter of the law.

You simply cant generalize about free range eggs in a similar fashion.

The science behind the article may be good, not that writer looked deeply enough to inspire in us faith that it indeed is. Giving the researchers the benefit of the doubt I'll thank them for addressing an area of potential concern.

To the Times I'll say that this article represents precisely why you hear all over: "Every month it's something else that's gonna kill you, and a year later they change their minds anyway--so I ignore everything they say." That is to say that this article encapsulates just what tends to be wrong with science reporting in this country.

I realize that newspaper staffs are thin these days and resources limited. Still, a little bit of thought, five minutes on the web and a couple of phone calls could have made all the difference here. Stressed or not, Kaplan should take some responsibility.

Please give her assignments she can handle and let someone like Rosie Mestel do a follow-up on this matter.

Posted by: Barry Singh | June 16, 2010 at 04:11 PM

We should probably also continue eating fast food right? After all the pharmaceutical companies have a drugs for every disease nowadays. Reminds me of the new corn syrup commercial. Check out , "the bitter truth of sugar" on you tube its by a researcher from UCSF. A great example of disinformation.

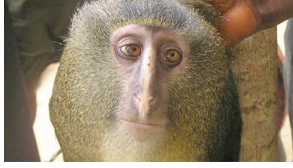
Posted by: Luis | June 16, 2010 at 04:25 PM

I continue to be amazed at the level of ignorance in America. First, of all Taiwan is not a city, it's a country for all practical purposes, despite any political views you may have. Second the difference between Taiwan and China is huge when it comes to food safety and environment. Most Taiwanese actively avoid eating food imported from China. As for LA being safer, that is a naive view of our status in the world. We use so many household, agricultural, and industrial chemicals and pesticides, not mentioning ambient smog pollution, it is naive to think local LA farms would be safer. Half these comments come across as jingoistic ignorance about the realities of the world.

Posted by: taiwan | June 16, 2010 at 04:25 PM

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