

Now on ScienceBlogs: [Fuk-D: radiation monitoring](#)



- [Last 24 Hrs](#)
- [Life Science](#)
- [Physical Science](#)
- [Environment](#)
- [Humanities](#)
- [Education](#)
- [Politics](#)
- [Medicine](#)
- [Brain & Behavior](#)
- [Technology](#)
- [Information Science](#)
- [Jobs](#)

Casaubon's Book

- [Latest Posts](#)
- [Archives](#)
- [About](#)
- [RSS](#)
- [Contact](#)

Profile

It was just like a fairy tale, only not. The princess, in her academic tower, meets a super-smart prince (the astrophysicist), and they fall in love and go about seeking the perfect palace of ivory to do their very important work. The princess writes about dark things - our long history of demographic and ecological crisis, and how they may play out again, but this is just a job. Except that she gets kissed by one big ugly frog - the realization that our way of life can't go on. So she drags the prince (who keeps rolling his eyes and asking whether someone else can't do some of this) off to try and establish a way of life with a future, using a fair share of the world's resources. So now she's up to her knees in chickens and laundry, milking goats, making jam and splitting wood, while also writing books and this blog about food, energy, climate change and whatever else strikes her fancy. And except for the fact that the planet is still getting warmer and the oil is still peaking, she's actually living happily ever after.

Search

Recent Posts

- [Food Storage and Evacuation](#)
- [CSAs, Deflation and Japan Relief](#)
- [Inconceivable: Why Failure Should Be Part of the Plan...But Isn't](#)
- [Nicole Foss on Japan](#)
- [We Could Feed the World With Low-Input Agriculture. But Will We?](#)
- [Things Forthcoming!](#)
- [International Women's Day - Sex and Cheap Energy](#)
- [Tad Patzek on Whether Renewable Energies Actually Reduce Global CO2](#)
- [I'm Going to Be Just Like Everyone Else...](#)
- [Succession, Human and Wild](#)

Recent Comments

- Dave on [Food Storage and Evacuation](#)
- [Apple Jack Creek](#) on [Food Storage and Evacuation](#)
- et on [Food Storage and Evacuation](#)
- MEA on [Food Storage and Evacuation](#)
- kermit on [Food Storage and Evacuation](#)
- Moopheus on [CSAs, Deflation and Japan Relief](#)
- mahafakir on [Goat Girl, or, The Milking Life](#)
- Sharon Astyk on [We Could Feed the World With Low-Input Agriculture. But Will We?](#)
- Sharon Astyk on [CSAs, Deflation and Japan Relief](#)
- Stephen B. on [Inconceivable: Why Failure Should Be Part of the Plan...But Isn't](#)

Archives

- [March 2011](#)
- [February 2011](#)
- [January 2011](#)
- [December 2010](#)
- [November 2010](#)
- [October 2010](#)
- [September 2010](#)
- [August 2010](#)
- [July 2010](#)
- [June 2010](#)
- [May 2010](#)
- [April 2010](#)
- [March 2010](#)
- [February 2010](#)
- [January 2010](#)
- [December 2009](#)

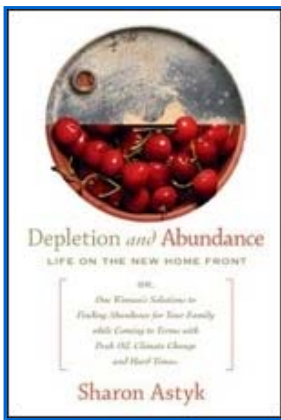
Blogroll

- [Real Climate](#)
- [The Automatic Earth](#)
- [The Oil Drum](#)
- [Energy Bulletin](#)
- [Riot for Austerity](#)
- [Path to Freedom](#)
- [Aaron Newton](#)
- [Little Blog in the Big Woods](#)

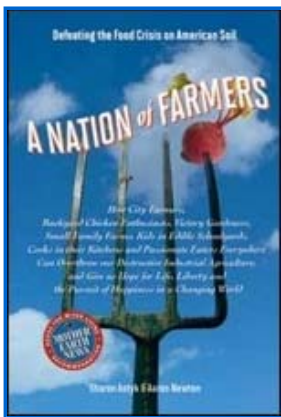
- [Crunchy Chicken](#)
- [Kathy Harrison](#)
- [The Matron of Husbandry](#)
- [The Peak Oil Hausfrau](#)
- [Club Orlov](#)
- [Bob Waldrop](#)
- [Chile Chews](#)
- [Robyn Adapts in Place](#)
- [Spuds](#)
- [The Jew and the Carrot](#)
- [Wasted Food](#)

Other Information

I'm the author of three books:



[Depletion and Abundance: Life on the New Home Front](#)



[A Nation of Farmers: Defeating the Food Crisis on American Soil](#)



[Independence Days: A Guide to Sustainable Food Storage and Preservation](#)

« [Things Forthcoming!](#) | [Main](#) | [Nicole Foss on Japan](#) »

[We Could Feed the World With Low-Input Agriculture. But Will We?](#)

Category: [A Nation of Farmers](#) • [food](#) • [food crisis](#) • [hunger](#)

Posted on: March 10, 2011 10:38 AM, by [Sharon Astyk](#)

In January of 2007, Aaron Newton, my friend and co-author of *A Nation of Farmers* came to Albany for four days of intense work on our book. We barely ate, slept or left the house, since we knew it would be the only chance the two of us had to hash everything out. Perhaps the single most intense moment for me, at least, was the conversation Aaron and I had about the central chapter of the book - the one that answered the question "Can we actually feed the 9+ billion people expected to live on this planet without lots of fossil fueled inputs?" This was the [question answered by Tuesday's release of the UN Special Report on the Right to Food, to much public discussion.](#)

The report is a good one, and an important one. Among other things, it is perhaps the first major report in UN history to take peak oil seriously - it is mostly implicit, rather than explicit, whereas climate change is an explicit driver, but the report presumes that we cannot go on using fossil fuels in agriculture as we have been.

When Aaron and I set out to answer the "can low input agriculture on small farms using people power feed us...since it will have to? question, the conventional wisdom was no, but there were contrary studies to consider. We knew both that fossil energies were bound to decline, leaving gaps, but also that small scale, human powered agriculture had potentials that were underappreciated. We didn't know the answer, and were determined not to prejudge it - to be emotionally and intellectually prepared to write that hunger and death were a likely consequence of all our best efforts. We spent the next months reading, researching and writing, and came out in 2008, at the height of the food crisis, with a very simple answer. Yes, the evidence is overwhelming that we can feed the world in a purely technical sense. We wrote:

It is a commonplace to assume that organic agriculture yields less than conventional agriculture and that we would have to endure enormous losses in yield were we to give up chemical inputs. The yield increases of the Green Revolution are commonly articulated in isolation, without discussion of organic yields. To determine how important the Green Revolution was, then, we need to go through the outputs of the Green Revolution and ask whether increased agricultural yields actually depend on using Green Revolution techniques. If, for example, agricultural yields depended on mechanization, we would expect mechanized agriculture to consistently out-yield hand labor. If they depend upon chemical inputs, we would expect organic agriculture to be heavily outyielded by conventional industrial agriculture. And if they depend on plant breeding, we would expect older varieties to be universally outyielded by newer ones.

These were the questions we set out to answer, and [we found the same thing that the UN report also found](#) - that these things were not, in fact, true, or not uniformly true.

In fact there was ample evidence that small farm yields were in many cases higher per acre, and that the lowered cost of agriculture inputs often meant more food security for the world's farmer even when their yields were slightly lower. Even more importantly, organic agricultural yields might have been slightly lower on the average in many cases, but they were better in years of extreme weather, suggesting that organic agriculture was more likely to endure climate change better.

We found that wider application of techniques like SSRI in rice fields and integrated polycultures - precisely the same things being lauded by the UN Report, could match projected yields for best outcomes of chemical agriculture. We followed the research of Peter Rosset and Jules Pretty and others who have done international studies showing the increased productivity of small scale, human powered, low input agriculture. We tracked the UN's own observation that in the 1990s, 2 billion people were being fed entirely by organic, low input agriculture - simply because they couldn't afford chemical inputs - usually on

marginal land that they'd been pushed onto by industrial production. We asked the question - what could those two billion do with better land access and more justice?

Exactly like the UN report, we found that we had been focusing on the wrong things - despite the best intentions in the world, many millions of dollars spent on breeding GMO crops for conditions in Africa would have been better spent simply bringing the best farming techniques, better basic seed stock and better land access to Africa. The emphasis on pushing hard for small percentage increases in grain production in the global north - in countries that already had higher production than they could possibly need, did not, in fact, 'feed the world' but resulted in more corn and soy surpluses mostly going into livestock and meat for developed world consumption. We'd have done better to reduce specialization and encourage farmers in the Global South to grow the food they needed to eat.

The information was out there, and of course, much of it was extremely old. In 1986, for example, the UN FAO was forced to admit by researches that where you grow the food matters - that increasing the world's total food stocks doesn't result in reduced world hunger. This research has been going on for decades, but it was reassuring and fascinating to see the entire body of it laid out in front of me, just as it is good and valuable to have the UN report validate and publicize the literature review and analysis Aaron and I did four years ago. Hopefully a lot more people will read this than read *'A Nation of Farmers'* ;-). Perhaps we can begin to discard the old saws about organic agriculture condemning us all to starvation.

This is not all the truth that ever was - if the world population does not stabilize around 9 billion, or in any number of climate and other disastrous scenarios, we could fail to produce enough food to feed the world. That, however, is not an inevitable outcome - if we were determined enough to ensure human well being long enough to stabilize the population and have it begin to decline overall, we could expect not to see the kind of massive starvation that many people have anticipated as a consequence of peak oil and climate change, and that is good news indeed.

As the newspapers trumpet this bit of news, however, it is useful to meditate on the second part of Aaron's and my conclusion, which is partly evident in the UN report, but less explicit - not just whether it is technically feasible to feed 9 billion people, but more importantly, will we? This is the \$64 billion dollar question, isn't it? Because we presently produce enough food to feed every man, woman and child in the world about twice as many calories as their bodies require. In 2008, when our book came out and the number of the world's hungry skyrocketed to above 1 billion people, we had record harvests. Yes, there were floods and fires that year, but the the aggregate remained - there was more food than had ever been produced on earth before - and we still had one out of every 6.7 people going hungry.

The question is simply one of equity - as the UN report observes as one of its central premises:

To achieve this, however, pouring money into agriculture will not be sufficient; what is most important is to take steps that facilitate the transition towards a low-carbon, resource-preserving type of agriculture that benefits the poorest farmers. This will not happen by chance. It can only happen by design, through strategies and programmes backed by strong political will, and informed by a right-to-food approach.

Unless we are as a world committed to the idea of food justice, we will not mend this issue, no matter how we improve yields. Unless those of us who have them put our world's resources in the right places (Remember those promises industrial nations made for food aid and agricultural support during the food crisis in 2008...billions pledged, yadda, yadda? Nope, they never paid up.) Unless we are prepared in the interest of equity to give up some of our consumption of meat and biofuels, it won't happen. You can double yields, or triple or quadruple them (ok, you probably can't, but I'm being rhetorical) - it doesn't matter how much food there is, it matters how we distribute and share it.

That is a much bigger project even than conversion to small farms and agro-ecology. That requires that we care about other people enough to make changes and sacrifices, that we take the right to food seriously. That could happen - it is possible that we could become a world people that does care about others like that. There is precedent - Aaron and I talk about the campaign in the US to go back on food rationing due to the starvation in Europe and Asia that followed World War II. Overwhelmingly American actually supported rationing their own food to feed the hungry in Europe - and more than a third of them would have rationed their own food to feed the starving Japanese, our worst enemies. We are not incapable of that kind of change. But it is a big project.

Aaron and I wrote about that too - we began our chapter quoting Mark Twain, who said "It ain't what you don't know that gets you into trouble. It is what you know for sure that just ain't so." That, I think is the story of our food future, and so we wrote that what frustrated us most was the fact that what many people are sure they know reinforces the status quo, renders it natural and inevitable, when it is not:

We concluded, in the end, that the greatest barriers to feeding the world had less to do with agriculture and more to do with politics than anything else, as is always the case. Now the UN confirms what we have argued - we could do it. But in order to do so, we must place food justice at the center of our worldview. Will we do this? Perhaps not. But I do not acknowledge that it is impossible, simply because that erases the responsibility to work your damndest to make it so. And since my children will live

in this world, and other people's children who they love as I love mine will live in it, I cannot think of a more useful thing to do in the world than to try.

Sharon

Like

279 likes. Sign Up to see what your friends like.

16



Find more posts in:  [Environment](#)  [Life Science](#)

TrackBacks

TrackBack URL for this entry: <http://scienceblogs.com/mt/pings/153826>

Comments

1

Not for the first time, I could use more specific recommendations for legislation you or others would favor. Examples: "Food justice" without specifics is terribly fuzzy for me. I doubt food rationing is in the cards. "give up some of our consumption of meat and biofuels" - how do you want to accomplish that?

Pointing out that a few individuals can do these things out of goodness doesn't mean that is a practical solution. That you personally can use 80% less energy will not make even a tiny blip. Missionary work is good, but overharping personal virtue can be a distraction from the politics. I'll still conserve energy, plant the garden, pick the berries and kill some deer (tons near me), but my neighbors need coercion. Probably monetary pressures are needed.

Posted by: rork | [March 10, 2011 2:06 PM](#)

2

I was a tiny bit surprised you didn't reference Mark Bittman's op ed column this week in the NYT;

<http://opinionator.blogs.nytimes.com/2011/03/08/sustainable-farming/>

I was a tiny bit surprised he didn't reference YOU, either. :-)

Anyway; the 270-some comments there are an excellent education for any just getting into this discussion, and illustrate the extent of ignorance, miscomprehensions, name-calling, and rancor that have to be dealt with. Too many, too much, all around.

sigh. (oh, yeah, and the Spock to McCoy ratio in the comments is around 1 to 90, or so...)

:-)

Posted by: [Greenpa](#) | [March 10, 2011 6:37 PM](#)

3

I think that in general our species reacts to both largesse and scarcity with scarcity-minded strategies, choosing in-groups with whom to share and out-groups with whom to compete. When an economy or empire is expanding, unions, nonprofit ventures, and revolutionaries stand to gain, and when an empire or economy contracts, unions, NGOs and revolutionaries lose (and the rich win, but only in the relatively short term). It's nice to be right, but Ugo Bardi has named his new blog well. Or that's how I'm feeling today, after a whole series of entropic life events...

Posted by: [risa b](#) | [March 10, 2011 7:44 PM](#)

4

9+ billion people on this planet sounds like an eco-catastrophe. Lets hope it never happens.

Posted by: Mark N. | [March 10, 2011 8:14 PM](#)

5

risa b.,

I tend to think that it is our decadent social structure that reacts with scarcity-minded strategies, and not our *species*. The fact that we raise our children to the same decadent lessons our parents were taught doesn't mean that we are incapable of the selflessness and wisdom of the very brightest points in human history.

We are surrounded by people of faith, of heart and honor, and of wisdom, do we but recognize them. There are some few in government itself, I have to believe, though I couldn't at this moment name one with such a great spirit; more, though, aspire.

Notice though, that Sharon's call for human power actually addresses several problems. I agree that the world would be a sorry place if a majority of nine billion people waited for food. But if most are engaged in providing food - then most aren't available for mischief or indolence. The other lacking resource is community, of awareness of our neighbors and earning their respect. That seems to happen more, for those with their hands touching the earth that sustains us, in gardening, agribusiness, and each shading from one to the other.

I am of mixed thoughts about abandoning meat for a regular diet. At least at present, the energy and resources to move grain to the table is daunting and a problem for large numbers of servings. Meat is more compact, and potentially able to convey more useful calories for the same shipping weight. Especially if we go back to driving the cow, the pig, and the goat to the corner butcher.

But first we have to restore the grain storehouse at the village and community level, we must restore the number of butchers. Heck, we have to make the needed hoe handles and shovels and spades - and divert and train the people needed to begin scratching the soil, planting the seed, and raising their children to love the soil well.

Posted by: [Brad K.](#) | [March 10, 2011 9:42 PM](#)

6

The thought of over 9 billion people on the planet is staggering. We have the capability of feeding people as the population of the U.S. can attest to by our largeness.

Posted by: [Use Your Brain](#) | [March 11, 2011 8:09 AM](#)

7

Hello. What is food justice for the North?
Thank you,
claude

Posted by: claude saint-jarre | [March 11, 2011 11:07 PM](#)

8

Until there are legislators who are not scientific illiterates and whose major goal is reelection, no political help is likely . Unfortunately, scientific literacy is declining among the American population, so the representatives do actually represent the views of their constituents.

Posted by: Bernie R | [March 12, 2011 9:36 AM](#)

9

ever notice there is NEVER A SHORTAGE OF STARVING CHILDREN in impoverished areas?

We could feed everyone if that didn't lead to those irresponsible illiterates procreating more of their little garbage disposals

Posted by: glenp | [March 14, 2011 5:08 PM](#)

10

Not to be callous but I agree with glenp. Why is 9 billion a magic number. Why not 10, 12 or 20. If there is a maximum global population that can be sustained by the sun's energy then what? Obviously it would be self limiting and if left to play out naturally, not a very civilized scenerio. So why focus on just feeding the population and not controlling it?

Posted by: jeff | [March 15, 2011 8:59 AM](#)

11

Jeff, I'm not at all sure it is possible to agree with GlenP's framing and not be callous ;-), but we'll try. 9 billion is the mid-range projection for population - a peak at around 2050, with a gradual decline after that if the conditions for demographic transition continue. So as you can see, population is hardly out of the equation - the problem is that the 9 billion people are already written - the growing generation that will come of age and having children in the coming decades will already be having dramatically fewer children than their parents - but they will have children. Demographic shifts take time - literally generations. In the meantime, unless they all die horribly, you have to feed people.

As for the GlenP's framing, which is ignorant at best, the problem is distribution - we produce enough food right now to feed everyone double the calories they need. We could, with fair distribution, feed 9 billion *now* - today. We grow enough food worldwide to do it. The issues are equity - and those "little illiterates" don't actually do most of the consuming Glen and Jeff and I do. Our cars eat more grain than those children. We eat more in the form of meat. Most nations with starving populations don't have shortages of food - they have equity and distribution problems. Ethiopia, for example, during the famous "famine" in the 1980s was exporting grain.

The average American kid consumes 30xs more resources than the average Kenyan kid. The average Kenyan has 5 children. All their kids together contribute 1/6 of 1 American child's impact. It is, of course, convenient, to put the blame on the poor, far away, non-white and illiterate. It is not, however, remotely accurate.

Sharon

Posted by: Sharon Astyk | [March 16, 2011 9:11 AM](#)

Post a Comment

(Email is required for authentication purposes only. On some blogs, comments are moderated for spam, so your comment may not appear immediately.)

Name:

Email Address:

URL:

Comments: (you may use simple HTML tags for style)

Preview

Post

[ScienceBlogs](#)

Search ScienceBlogs:

Go to:

Choose a blog...

Channels

- [Last 24 Hours](#)
- [Life Science](#)
- [Physical Science](#)
- [Environment](#)
- [Humanities & Social Science](#)
- [Education](#)
- [Politics](#)
- [Medicine & Health](#)
- [Brain & Behavior](#)
- [Technology](#)
- [Information Science](#)
- [Jobs](#)

RSS Feeds

- [ScienceBlogs Select](#)
- [The Combined Feed](#)
- [Peer Review on Sb](#)
- [News-Related Posts](#)
- [All Feeds](#)

More ScienceBlogs

- [New! Sb on Twitter](#)
- [Email Alerts](#)
- [Weekly Newsletter](#)
- [The ScienceBlogs Shop](#)
- [The Latest Comments](#)



ScienceBlogs on Facebook

Like

17,160 people like ScienceBlogs.



James Charles Ana Paula

Facebook social plugin

Advertisement



The Latest Readers' Picks

1. [1Inconceivable: Why Failure Should Be Part of the Plan...But Isn't : Casaubon's Book](#)
2. [2Winners and Losers in Agroecology : The Pump Handle](#)
3. [3International Women's Day - Sex and Cheap Energy : Casaubon's Book](#)
4. [4Defending Your Territory: Is Peeing on the Wall Just for the Dogs? : The Thoughtful Animal](#)
5. [5PROTOBATS: visualising the earliest stages of bat evolution : Tetrapod Zoology](#)

1. [Trypanosomatid plastids and unintentional scientific comedy](#)
SKEPTIC WONDER
2. [Why we don't need a brain](#)
OSCILLATORY THOUGHTS
3. [A basic psychological link between religion and right-wing politics](#)
EPIPHENOM
4. [How baleen whales lost a gene and their teeth](#)
THOUGHTOMICS
5. <http://bytesizebio.net/in-are-there-no-disease-causing-archaea/>
BYTE SIZE BIOLOGY

Follow @ResearchBlogs
on Twitter

> CLICK HERE

Powered by SEED



Advertisement



From:
Albany

Depart:
This Weekend

Return:
This Weekend

[See Deals](#)

An advertisement for a DVD collection from the National Geographic Store. The text reads: "121 years of National Geographic Magazine on 6 DVDs \$69.95 Save \$10". Below the text is a yellow "BUY NOW" button with a right-pointing arrow and an image of the DVD box set. The National Geographic Store logo is at the bottom.

[The Blog Index](#) | [About ScienceBlogs](#) | [Advertise with ScienceBlogs](#) | [Privacy Policy](#) | [Terms & Conditions](#) | [Contact Us](#)

© 2006-2010 ScienceBlogs LLC. ScienceBlogs is a registered trademark of ScienceBlogs LLC. All rights reserved.