

# Our Renewable Future: Food After Fossil Fuels

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Speakers: Michael Bomford (Kwantlen Polytechnic University), Tom Philpott (Mother Jones), Asher Miller (Post Carbon Institute)

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Daniel Check out our upcoming webinars at: <http://ourrenewablefuture.org/the-future>

Crystal Looking forward to this webinar!

Stanley Serious sound problems.....

karen My audio is good.

Alvaro mine too, hi!

Daniel Mike Bomford's bio: <http://www.postcarbon.org/our-people/michael-bomford/>

Daniel And Tom Philpott's bio: <http://www.motherjones.com/authors/tom-philpott>

Mary My question: I've seen claims that properly managed agriculture, including rotational grazing, could sequester ALL of the excess carbon in the atmosphere. I suspect that it could help a lot but not that much. What do you think?

Tessa I am wondering as a consequence of our past use of fossil fuels, how the post resource depletion of fertilizers like the phosphorus of Nauru are going to impact our agricultural society. I understand there has been significant depletion of micronutrients in the soils already, but we are depleting a lot of soil nutrients overall, so what options do we have for fertilizers in general, even on a smaller scale?

Jurek would that numbers be representative also for EU?

Serena Good Morning from Perth Australia! rQ: Do you think edible insects should be part of a sustainable diet in future?

Constance sure, it is a very good source of proteins, abundant and possibly without a lot of greenhouse gas production

MR Why does hypocrisy rule the US?

Silvia And all that to end-up wasting about 50% of food produced in US, inasmuch as we can call most of it food. What is the solution? Is decoupling food production from commodity markets one solution, in other words return food production to real demand and satisfying basic needs, instead of an investment, financial speculation or business as usual?

Tom What role might a shift to perennial crops play in sustainable ag? I wrote an article on this a few years ago: <http://planetsave.com/2011/03/09/perennial-crops-sustainable-agriculture-a-21st-century-green-revolution/>

Leigh For Mike Bomford: Does the 2.25 C of crude oil equiv for farming include fossil fuel inputs into herbicides/pesticides? Do you have a breakout of COE on that portion?

Ted Which of the two, large scale corporate food production or small farms, should be the dominant food producer now and into the future?

Evan How can ground & lake water from water-rich regions like the Great Lakes/Midwest be distributed ethically & socially responsibly to water-poor regions while not adding to landfill build up as is current by the bottled water industry, or soil depletion?

Daniel Energy inputs in the food system have come up a few times; see Figure 2.7 in book for a chart that breaks them down: <http://ourrenewablefuture.org/chapter-2/>

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- Pamela What about hemp? Is it true that it requires half the water of corn? Half the fertilizer and minimal herbicide--less insecticide. For excellent protein, lots of carbon tie-up, phyto-remediation, etc. Is it true
- Dr. Michael has departed
- wayne He's turned into carbon dioxide
- Joseph Are there enough farmers to make small farm sustainable agricultural practicable?
- Pamela What about even smaller bio-intensive farms, -ncluding urban and suburban settings?
- Pamela Organizations like Farm Bureaus heavily influence farmers who are politically guided by Fossil fuel proponents.
- MR How is it possible to establish the necessary systemic transformation identified by Heinberg & Fridley in their recent book, Our Renewable Future?
- Daniel For a great discussion of some of the things Mike is talking about, see his chapter in our 2010 book "The Post Carbon Reader
- Leigh For Mike Bomford: So, you really don't think N-fixing cover crops can make much of a dent AND not have a significant drop-off in production quantity? How much of a drop-off are you talking about?
- Ted Pamela, urban planner Andres Duany speaks to the issues that you raise (urban and rural settings) as does John Howard Kunstler in his book, 'The Long Emergency'.
- Pamela thanks, Ted.
- Jurek Once I encountered a paper of Eric Garza with all of the net energy inputs calculations resulting in 8 calorias of input for 1 caloria of output in a food product, but It has been removed from PCI website. do U have any links for such calculation of ur side?
- Leigh Wenonah Hauter's Foodopoly is a good book on the issues around concentration in the ag sector: <http://www.foodopoly.org>
- Tessa Do you think our current/projected population can be sustained by a agricultural system that does not depend on fossil fuels?
- Daniel Hi Jurek, I think Eric's publications have been consolidated on his own website: <http://www.resilience.org/stories/2014-08-26/activism-and-integrity>. Perhaps the article on page 5 of this newsletter?: <http://ericgarza.info/wp-content/uploads/2015/10/Agriview-1-26-2015-for-web.pdf>
- Pamela If we cannot talk to the farmers because they are manipulated-brainwashed, we have a huge bottle-neck to change.
- Silvia The biggest challenge in switching to 100% RE is to forget about the other problems: land, soil, water, pursuit of economic growth, subsidized mono-cropping, pursuing volume instead of quality, health, hunger. We still need a systemic approach to farming, while solving the energy aspect.
- Jurek @ Daniel Lerch: Thnx, Daniel but as to art on the resilience website it is no longer extant Sorry, "there%0Ùs no page at this URL"
- Jurek as I can see all of his art have been removed
- Daniel Jurek: Whoops, I included the period in the hyperlink. Try this instead: <http://www.resilience.org/stories/2014-08-26/activism-and-integrity>
- Pamela How do the Germans Use bio-mass? Don't they get 1/3 of their energy frommit?
- Jurek @ Daniel : "This article has been removed at the request of its author, Eric Garza, in an attempt to consolidate his web presence around his personal website as well as websites he has produced media for specifically. If you wish to read his thoughts on current events, feel free to visit him at [EricGarza.info](http://EricGarza.info)."
- Daniel Jurek: email me directly at [daniel@postcarbon.org](mailto:daniel@postcarbon.org) and I'll see if I can track the original article down for you.

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- Daniel Here's some of what Tom's talking about re crop diversity and rotation and the work at Iowa State: <http://www.motherjones.com/tom-philpott/2013/01/farm-policy-if-climate-change-mattered>
- Ann Yes, talk more about the crop yields --
- Serena In Australia, we've been focusing on 'Food Forests'. A food forest is a system of gardening using a diversity of mostly perennial (long-lived species, as opposed to annual vegetables) chosen and arranged such as they compliment and support each other, minimising weeds, pests and maintenance while providing a rich variety of harvests. <http://www.foodforest.com.au/>
- Pamela Oh, nature is more efficient than bio-engineering? Imagine supporting awareness of nature and actual science . Truth to power?
- Pamela What about the nutritional value?
- Pamela Small farms.
- Daniel You can read more about what Mike has to say on these issues in these two publications he's done with Post Carbon: <http://www.postcarbon.org/publications/getting-fossil-fuels-off-the-plate/> (book chapter), <http://www.postcarbon.org/publications/food-and-farming-transition/> (report)
- Ylva We need to cooperate and team up with the soil food web! Elanine Inghams studies
- Leigh @Serena Morris: Folks in the US are also focusing on permaculture, but it seems to be present in pockets. @Pamela Bosch: Did you see the recent story (don't recall where) about scientists starting to work on boosting the efficiency of plant photosynthesis? The problem, as always with this sort of thing, is "efficient" according to whom? Plants seem to do just fine on their own terms.
- Ylva In Sweden we do have a lot of biomass, but it is at the price of monocultural forest systems that is basically spruce deserts...
- Pamela Sorry I am not well prepared. Who directs farmers? Government? Who directs consumers?
- Ylva Permaculture is growing in Sweden too. I am currently writing the first manual of permaculture in Swedish.
- Silvia Carbon price is not at all a "low hanging fruit" in the US, it will not happen anytime soon. I think we should focus on the demand side, changing our attitude towards food purchasing and consumption. Successful examples are organic farming, return of farmers' markets, young farmers <http://yardfarmers.us/>
- Daniel Next week's webinar on communities and buildings: <http://ourrenewablefuture.org/the-future/#future-buildings-communities>
- Leigh Eating seasonally AND locally can help with some of these issues.
- Leigh Good for you, @Ylva Arvidsson!
- Jurek @ LEigh! with this # of population! no way!
- Ylva Thank you Leigh Glenn :- ) <https://www.facebook.com/The-first-manual-of-permaculture-in-Swedish-1685840505015372/?ref=bookmarks>
- Pamela I have not seen. I think of nature as efficient because the complexity of evolution is more diverse and encompassing than engineering.
- Dr. As a solar scientist, I completely agree with the stupidity of turning solar into electricity, transporting it with losses, then using it to re-create not full spectrum simulated sunlight to grow anything desirable. Very inefficient. We work on what we call direct use solar for lighting, Not just windows but piped concentrated sunlight to reduce glazed areas and get sunlight to deep core spaces and even underground spaces, then spreading the light for glare avoidance. It works great and is very energy efficient. The only electricity it uses is self-generated with small PV arrays built into the sunlight harvesting system. See [www.sundolier.com](http://www.sundolier.com)
- Leigh @Jurek Rafalkiewicz: Overnight? No, of course, not. But it is slowly happening...at least where I live in Maryland, US. That said, this area is prime (great soils) for growing fruits and vegetables.

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- john Just mentioned was organic produce trucked from California to the East Coast. My poster child for such transport is buying 5# of motzah from Jerusalem to East Coast just before Passover and a little more before hurricane season. I buy 10# every year as part of my hurricane stash. Other than canned B&M Brown Bread it's the only breadlike product I know of that has a shelf life in excess of a year.
- Jurek Heingberg warned us.. it is all about the time we have left, taking undr consideration the growth rate.. I'm pesymistic
- Leigh @PamelaBosch: Agree!
- Pamela In a politically polarized country, farmers are isolated. There is a rural/urban polarity that is manipulated by consumerism values.
- Daniel This has been a wonderfully wide-ranging conversation -- and if you want go further down the rabbit hole on sustainability and resilience on food system issues, visit the Food & Water section on our resilience.org website: <http://www.resilience.org/stories-list/79719-food-water> !
- Leigh @JurekRafalkiewicz: Yes, I understand. I think we just have to keep moving, though.
- Daniel Also, here's some of the other work done on food at Post Carbon Institute, covering many of the issues Mike and Tom have been talking about: <http://www.postcarbon.org/publications/rebuilding-the-foodshed/> (book by Philip Ackerman-Leist of Green Mtn. College), <http://www.postcarbon.org/publications/growing-community-food-systems/> (book chapter by Erika Allen of Growing Power), <http://www.postcarbon.org/publications/agriculture-and-its-impact-on-soil/> (book chapter by Wes Jackson of The Land Institute).
- Pamela Staging respectful conversations with food producers . Diversity of scale and diversity of values.
- Tessa Thank you so much!
- Russell Just my opinion, but I think the average person will find in the near future his occupation will be part-time some cash earning job, plus and effort at growing his/her own vegetables/fruits.
- Leigh Thank you, Mike, Tom and Asher so much!
- Warren Thanks good conversation
- Serena Thankyou!
- Ylva Thank you all!
- Jurek Diversity and lowering the consumerism rate.. maybe may give us a chance.
- Tom Wes Jackson - perennial crops
- Sandra Thank you for great thoughts!