



Scenario 2020: The Future of Food in Mendocino County

Posted by [Jason Bradford](#) on January 5, 2009 - 10:27am

Topic: [Environment/Sustainability](#)

Tags: [food supply](#), [local food](#), [oil shock](#) [[list all tags](#)]

I was asked to give a presentation to a group called Leadership Mendocino. Every year about 30 people in our County, usually from a mix of businesses, government agencies, and non-profits, meet monthly for a full day and intensively study a particular topic. Nov. 14th 2008 was their Ag day, and my presentation followed the Ag Commissioner's, who reviewed the County's history and present. I didn't want to talk about the future as if I knew what was going to happen, but I did want to highlight the vulnerabilities and tensions I saw building and suggest some alternatives to our predicament. Hence I created a storyline in which I was now the County Historian in 2020 giving a talk to the group about the past decade of change.

While the details are specific to where I live, the general lessons apply to the whole world.

A video version of my presentation (which adds more details to the discussion presented here) is available [here](#).

Click on any image to see a higher resolution version.

For Mendocino County the key date was December 12, 2009. The trucks didn't show up that day.



Why weren't the trucks running? I'll give a quick overview of what led up to the Little Death.

Let's start with the credit market break down in 2008. What followed was a plunge in the volume and reliability of global trade. Without access to the free flow of credit, countries experienced food and fuel shortages. People began rioting.



We saw how developing countries were in profound crisis, but most of us didn't imagine how those awful scenes would so quickly be in our own neighborhoods too.

Everyone knows the story...Pakistan devolved into anarchy and was unable to keep all of its nuclear weapons secure. Several went missing and the world didn't find out where they went until it was too late.

South-Central Asia and the Middle East were on fire.

The nuclear exchange was contained within the region, but the effects spread globally. The world's largest oil production facilities and ports were destroyed or inaccessible. The daily flow of supertankers from the Middle East was over.



It was common knowledge at the time that crude oil was the lifeblood of our economy, but little had yet been done to reduce our dependency on oil. The modern world was suddenly without sufficient transportation fuels and totally unprepared.

The specific numbers are staggering. Only a quarter of U.S. crude oil consumption was domestically produced in 2009. The trucking system was the key part of what was called the Just in Time delivery system. Warehousing and stockpiling were no longer practiced significantly and so no buffer existed when the trucks stopped. Our Just in Time system unraveled over a period of several weeks.

J-I-T now stood for "Just Isn't There."

As the flow of goods and services slowed dramatically and then in some cases stopped moving altogether, we were subject to cascading, compounding failures in key sectors of the economy. Just a couple of examples...Without constant truck movement, spare parts and basic supplies ran short. Electricity production relied on coal, which relied on diesel.

Most dire of all was that within three days of the halt to trucking, the grocery stores were out of food.

Looking back at historical records it is clear that, while shocking, this was no surprise. Community-based organizations had been warning of this exact possibility for years.

Table from 2005 Food Security Report, Willits Economic LocalLization

Market	Customers/Day	Delivery Frequency and Daily Turnover	# Days Supply in Stock	County Products
Mariposa Market (natural foods)	200-300	Fruits and vegetables: 3 deliveries/week Meat and dairy: 2 deliveries/week Groceries: 2 deliveries/week Frozen Foods: 2 deliveries/week	2-7 days 7 days 7 days 7 days	1% (10% in summer)
Ray's Sentry Market	1,200	Fruits and vegetables: 6 deliveries/week Meat and dairy: 3 deliveries/week Groceries: 2 deliveries/week Frozen Foods: 2 deliveries/week	1 day 3 days 3 days 3 days	15-20%
Safeway	1,900	Daily delivery of all items	1-2 days	2%

Nowadays we have buffers and resiliency built into our systems, but that was not the case in 2009. Government hadn't prepared, having placed its faith in the market to provide for basic goods such as food and energy. Global food stockpiles had been declining for over a decade, and in any case they were not under any government control.

Although some people had stockpiled food and essentials, most people hadn't because either they never thought this could happen or were simply distracted. It might be good to remind everyone what life was like in 2009. Most of us tended to spend our free time in front of the television or interacting with various media and communication devices. Gardening, food preservation, community meals and stuff like that wasn't cool and exciting for the majority of people, although interest in food security had been increasing for a few years preceding the crisis.

After a week everybody became scared, and most started to feel hungry. This was so unthinkable that many also became profoundly disillusioned and angry. This was not supposed to be happening to "us." The Five Stages of Grief were on full display.



Events began to run their natural course.

Scared, hungry people saw that some households still had food. This led to looting in some areas. A handful of police and sheriffs couldn't protect private property from a desperate populace. In other areas looting was averted (barely) as neighbors and authorities agreed to pool private food holdings and distribute them evenly.

As the crisis deepened, a triage system was established. Food was preferentially given to those who could work, and the young.

All sorts of questions that had been ignored for decades became very important. "What about the local farms," the people asked. "Can they feed us?"



"It's the middle of winter," the farmer's replied. "We can plant potatoes and grains in the spring but they won't be ready until summer."

"And where are the seeds going to come from? We are hay farmers, cattle ranchers and grape growers. We don't even have the right equipment for this."



Three months passed without relief. Clearly, household preparation wasn't enough, and now the population was starving.

Other problems arose too. Electricity was spotty. Every bit of gasoline and diesel were needed in generators to keep pumps for water and sewer systems going, to keep the hospitals powered, and to cook food in community kitchens.

But by spring these supplies, commandeered from the tanks of gas stations, were gone.

FEMA didn't arrive with supplies of food, fuel and medicines in the major valleys until March 2010. These were barely enough to end starvation and give tractors some fuel.

When the railroad cars arrived in May 2010 we finally had enough of the basics again. Freeways were abandoned for hauling freight. They were in disrepair from winter storms and far too expensive to maintain for the now minimal trucking system.

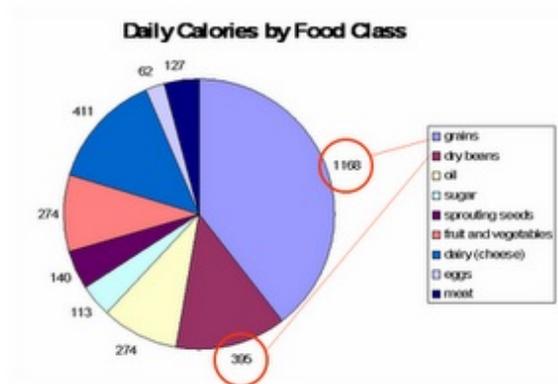


In addition to supplies of grain and beans (25,000 lbs per trailer load), enough seed potatoes were brought in to plant. Potatoes became our survival food for a few years. As we all know, it is hard to eat enough of them to keep the weight on! Health care providers estimate that the average person lost twenty pounds between 2009 and 2012.



Here's another graphic from the archives. Food security organizations in the County knew that storage foods with high caloric density were essential, and had even started to import and store them in the County. The grain and bean silos established in Willits in 2009 really helped that area weather the crisis better than elsewhere. Silos were quickly built along the railroad tracks in every town.

Mendocino County Food Security Report, 2008



All of us began to learn some of the basic facts about nutrition and agriculture, such as how many calories we need per day and how to eke that out of the soil.

Even with farm supplies brought in by rail car, we lacked much of the needed energy infrastructure to irrigate crops as electricity was still unreliable. Few well pumps ran off solar panels. So in most cases, yields weren't as large as we'd hoped. It was terribly frustrating; we could see the water 30 ft down in the well but couldn't get it out fast enough to make a difference.

Ever since the Little Death, precious tractor fuel has been limited. Much more is now done with manual labor than in the past. This was a difficult adjustment, both physically and psychologically. Some people were excited by the challenge and adapted well. On the bright side, "unemployment" is nearly non-existent and we are a fit and industrious people.



Explicit warnings of our vulnerabilities, and an alternative vision had been given by local community groups as early 2004. In August 2010, a plan for a local food economy was adopted by local governments based on the research of community activists that preceded the crisis. The food system we have today is by and large based on those plans.

Documents from County Non-profits and Activist Groups from 2006 and 2007

Food Security Assessment Report for the Willits Area (2006)

Jason Bradford (with thanks to the Willits Food Group)
Willits Economic Local Action (WELA)

A copy of this report is available at: www.willitsmunicipalaction.org

Last revised: April 4, 2006

Background

North American rural towns have seen dramatic changes over the past several decades. The advent of the automobile and associated highway system, and the flow of trade goods from different regions of the world into small communities, has undermined the self reliance that towns once enjoyed. The erosion of self sufficiency has paralleled the apparent gains in opportunities for employment elsewhere. Since the demographic crisis of rural areas where young people move away and leave older generations stranded and disenfranchised. For example, in Willits, CA, 77 of 77 high school graduates attended out of town.

These trends will increase as energy costs and the need to eat back on greenhouse gas emissions force the local production and consumption of basic goods. Within Mendocino County, for example, several citizen groups have formed during the past year to deal with the security threats posed by Peak Oil and Climate Change, and to use these challenges as opportunities for positive community transformations.¹ The localisation movement that began in Willits has already spread to Laytonville, Mendocino Coast Pt. Reyes, Orinda Pt. Arena, Anderson Valley, and Ukiah-Redwood Valley. These cities and towns from around the county also stand to be widespread affected by the movement has gathered. A Willits conference on economic localisation April 1-4, 2006 has attracted over 100 participants from 14 groups in western North America. Just as Mendocino County sought the nation with its passage of Measure R, it is being watched for its leadership in localisation.

While there exists great enthusiasm and desire to create locally sourced, sustainable livelihoods, information about how to accomplish this is difficult to come by. Much of 20th century thought was about centralisation, concentration and globalisation of the means of production and governance. In Mendocino County however people from the "back to the land" movement have advocated more decentralised, personal and local economic systems. These movements touch

Mendocino County's
Local Food Guide

Local Food from Farm and Sea

Apples	Arroz	Beef	Berries	Broccoli
Butter	Chick	Chick Peas	Egg	Greenbeans
Ham	Salmon	Cash	Wing	Beef
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local
Local	Local	Local	Local	Local

The ranching community was familiar with the concept of carrying capacity, but usually called it the “stocking rate.” Good ranchers made sure not to put more cattle on a piece of land than it could handle. A local food system plan had to think about the sustainable population of humans in the County too.



Some basic facts that were used to frame the plan:

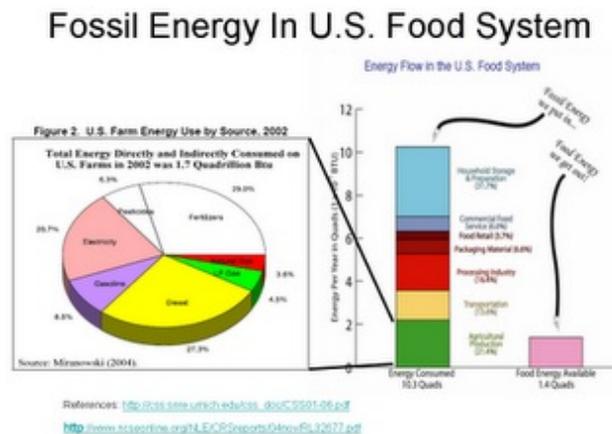
1. The County’s population in 2010 was estimated at 80,000 (down from a peak of 90,000 before the crisis).
2. Somewhere between 35,000 and 50,000 acres of prime ag land remained in the county (after an initial endowment of 95,000).
3. To supply enough food to feed one person requires about one acre.

The plan also recognized that a local food system had to overcome serious capital deficits with respect to: renewable energy, equipment, infrastructure, education and worker skills, business to business relationships, and public law and policy.

In any environment it would be difficult to overcome these deficits, but the crisis was a mixed blessing. Everybody now recognized that a new system had to be built. Nearly all resources were allocated according to this need. Ideology was replaced by practicality. What people were “willing to do” changed overnight.

Now I will shift gears and contrast the food system of 2009 with what we have today. I’ll start with a review of the 2009 food system.

Here are a couple of graphs that summarize data at the national scale when the crisis hit. At that time, one calorie of food energy depended on several calories of fossil fuel energy. Basically, all parts of the system were highly dependent upon fossil fuels, long-distance supply chains, and complex financial markets.



Today’s food system has many features that improve our resiliency and security. Key attributes are:

- Diverse.** A complete and balanced diet can be had within the agricultural base of the County.
- Local.** Food produced here is consumed here, and the agricultural landscape is no longer dominated by grapes and cattle for export.
- Renewable.** Energy inputs for agriculture, transportation and processing are based on solar, wind, hydro and other non-fossil sources.
- Non-toxic.** Artificial pesticides and herbicides are no longer available and we use biological controls and landscape management to dampen pest cycles.
- Cyclical.** Soils are improved rather than depleted through conservation tillage, smart land-cover rotation patterns, and composting of all human and animal wastes.

Adaptable. As climate changes and new farmers learn what works best, systems are in place to exchange information and perform needed research.

Buffered. The future is always uncertain. Always be prepared for trouble by storing extra of what we really need.

Today's food system is completely different. The plan recognized the web of relationships needed for a sustainable system. Fossil fuels are nearly eliminated. Transportation distances are very short. Waste becomes the new fertilizer.

While mechanized to the extent energy availability allows, the farm of 2020 uses efficient hand tools when those suffice.



Compost today is very expensive. Farmers work very hard to create the fertility they need on site as best they can. Food scraps are highly valued and used in vermiculture systems. Human wastes are professionally handled and sold to farmers certified disease free.



Imported chemical pesticides and herbicides are also very costly. More knowledge and labor is now used, including beneficial insect plants that add a lot of color and interest to farms.

Off the farm society has changed just as dramatically. People often use solar ovens to cook, and disposable packaging is rarely seen anymore.

Because a transportation fuel crisis was the proximate cause of the crisis, people were especially

keen on eliminating reliance on long-distance supply chains. Households began sourcing as much food locally as they could. In 2009 a trip to the grocery store would mean a 1500 mile diet. Today that could be more like a 150 yard diet. Bikes with trailers can now handle much local transport. Streets are quieter, and the air less polluted.



Not only have on the farm practices changed, but farms are cooperating like never before. This creates synergies at the landscape level we all benefit from.

For example, this goat dairy sows a hay crop rich in wildflowers, thereby supporting a local beekeeper. The beekeeper's hives also service orchards and row crops in the area, ensuring good pollination and food for all of us.



We have much to be proud of now. We made it through very tough times together by mostly keeping our heads on straight and making good decisions when it really counted. But we also live with the pain of loss and regret, asking ourselves over and over, "How did we let this happen?"

What does the last 10 years teach us about the importance of leadership?

I look at this issue in two ways. First, good leaders do their best to prevent crises. This requires the ability to help people accept the reality of unsustainable tensions before they go too far. Just talking to people can establish new conversations that propagate. Only when enough people are having similar conversations are social changes possible.

Of course human history is full of one account after another of societies that failed to recognize their obvious problems before it was too late. When disaster strikes, good leaders manage their

The Oil Drum | Scenario 2020: The Future of Food in Mendocino County <http://www.theoil drum.com/node/4884>
shock and the loss of normalcy. They model the proper attitude, reducing panic and heightening clear thinking.

The best crisis leaders are those that combine awareness of the problem before it arrived with a sense of direction and clarity. Because they saw what was coming, they often have a plan to deal with it as soon as the population is forced by circumstances out of denial, distraction and inaction. Since what people are willing to do changes in a crisis, wise leadership can make a lot happen for the good very quickly.



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