

## Introduction

This report provides a series of case studies illustrating how Superfund sites across the country are being used for agricultural purposes. Local governments, communities and other parties are working together to reclaim landscapes for agricultural land uses that benefit local communities and the environment. The report touches on traditional farming activities and focuses on several innovative agricultural land uses. Concluding sections highlight several key lessons learned and identify resources for parties interested in pursuing agricultural reuse opportunities at Superfund sites.

The revitalization of contaminated lands is now widespread, with sites being returned to a wide range of land uses to meet multiple community needs. As of 2011, there are over 550 Superfund sites in actual or planned use, including more than 210 sites in agricultural, ecological or recreational uses.

According to the United States Department of Agriculture (USDA), over 440 million acres (20 percent of the country's land) is dedicated to growing crops in the United States, and another 587 million acres (26 percent) is in pasture and range, largely used for domestic livestock production. While these farming activities remain the core of American agriculture, agricultural land uses also continue to diversify; recent trends include value-added farm products, organic agriculture, niche farming, alternative energy production, and an emphasis on community food systems and food security.

Agricultural land uses at Superfund sites reflect these dynamics. Activities at many of these sites are farming operations like grazing and cropland, while other sites host agricultural land uses that transform waste into energy and sustain local food systems. Future agricultural possibilities at these sites could play a role in addressing national and global priorities like climate change.

### What's Inside?

- + **Traditional Agricultural Operations at Superfund Sites**
- + **New Agricultural Possibilities at Superfund Sites**  
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Greensgrow Farm  
Liberty Lands Community Park  
Sustainable Forestry
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*According to USDA, more than a billion acres of land in the United States are dedicated to growing crops and livestock production. As of 2011, there are over 550 Superfund sites in actual or planned use, including more than 210 sites in agricultural, ecological or recreational uses.*

# Agricultural Operations at Superfund Sites

Farming activities like grazing and cropland are located at sites that have remained in continuous use as well as at sites in reuse following cleanup.

- At the Crossley Farm site in Berks County, Pennsylvania waste drums contaminated area ground water, but have not limited local farming activities.
- At the Summitville Mine site in Del Norte, Colorado, contamination from gold and silver mining activities contaminated area ground water and surface water, but has not affected the viability of local grazing.
- In 2005, a local community organization began managing a cattle ranch on the Clark Fork River portion of the Milltown Reservoir / Clark Fork River site in western Montana as a showcase for sustainable ranching techniques.
- At the Silver Mountain Mine site in Loomis, Washington, cattle have been grazing across most of the 5-acre site for more than a decade; the site's capped mine tailings are fenced to ensure the protectiveness of the site's remedy.
- In Lindsay, Nebraska, treated ground water from the Lindsay Manufacturing Company site is being used to irrigate alfalfa crops thanks to a partnership between the responsible party and a neighboring farmer.



*At the Silver Mountain Mine site in Loomis, Washington, cattle have been grazing across most of the 5-acre site for more than a decade.  
Source: EPA*

# Additional Agricultural Possibilities at Superfund Sites

Agricultural land uses in the United States continue to change and diversify over time, capitalizing on other uses of the nation's natural resource base. Superfund sites offer opportunities to host innovative agricultural land uses that transform waste into energy, sustain local food systems and support sustainable forestry operations, as illustrated in the case studies below.

## Waste Recycling, Alternative Energy and Agricultural Research

Waste recycling is a key component of industrial ecology, an interdisciplinary field that focuses on sustainably integrating natural resources with the economy and technology. In agriculture, this translates into developing new uses for waste products, like manure and crop residues. In recent decades, agricultural waste products have proven to be particularly well-suited for alternative energy generation. A former munitions plant in Nebraska illustrates that rural Superfund sites can be well-suited to waste recycling and alternative energy opportunities. The agricultural research facilities at the site also highlight how some sites can support multiple agricultural land uses.

### Nebraska Ordnance Plant Site: Mead, Nebraska

The Nebraska Ordnance Plant is a Superfund site located in eastern Nebraska. A former army munitions production plant, portions of the plant were sold to various entities beginning in 1962. At the time, addressing potentially unexploded ordnance was the primary concern. Once the site was added to EPA's National Priorities List in 1989, site contaminants, including polychlorinated biphenyls (PCBs), volatile organic compounds and explosives residues were addressed.

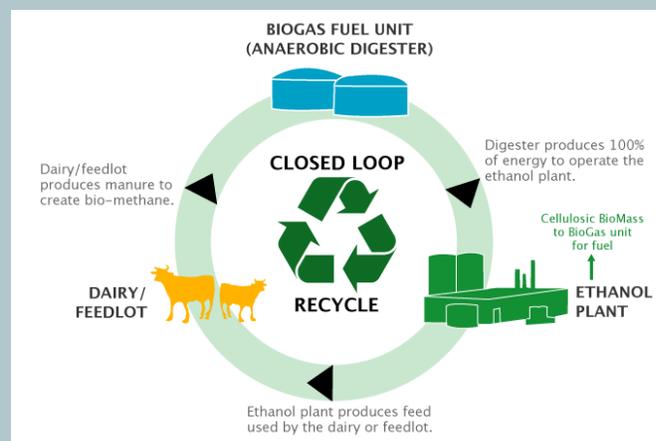
Today, portions of the 17,000-acre area are the focus of several innovative agricultural efforts, including waste recycling, alternative energy generation and agricultural research. Based on these innovative uses, the facility has been recognized as part of EPA's Environmentally Responsible Redevelopment and Reuse (ER3) Initiative, which is designed to promote the sustainable redevelopment or reuse of formerly contaminated sites.

#### Waste Recycling and Alternative Energy Generation

The E3 Biofuels Genesis plant, located on part of the Nebraska Ordnance Plant site, was designed to be a self-sustaining, "closed-loop" process where waste from an on-site, 30,000-head cattle feedlot would be processed by an anaerobic digester to produce biogas to power an on-site ethanol plant. Wet distillers grain, a byproduct of ethanol production, would be fed to the cattle and residual material from the facility's solid waste management would be separated into liquid and solid biofertilizers.

According to E3 Biofuels CEO Dennis Langley, the site was initially selected due to its existing cattle feedlot, one of the few in the country which already had roofs over the cows and slatted floors for quick collection of manure. The E3 Biofuels complex's anaerobic digester requires "clean manure" that does not contain dirt, sand or water in order to create biogas.

Other key factors included the plant's proximity to the Omaha and Lincoln ethanol markets, as well as a strong corn supply from the surrounding area. The site also benefits from an existing natural gas supply line, which could provide a backup energy supply for the facility.



E3 Biofuels' "closed-loop" waste recycling system.  
Source: E3 Biofuels

## Nebraska Ordnance Plant Case Study (continued)

E3 BioFuels launched its \$80 million Genesis plant in early 2007, as the world's first closed-loop ethanol plant fueled largely by biogas from animal waste instead of coal or natural gas. While the plant was later closed down following a boiler explosion, Spectrum Business Ventures Inc. of Kansas City, Missouri, and its affiliate, AltEn LLC of Kansas acquired the plant in November 2010, with plans to restart production in 2011. The Genesis plant has the capacity to produce 25 million gallons of ethanol a year and consume 300,000 tons of manure. Restarting the facility will restore local jobs and strengthen the region's economy.

"Biofuels have the potential to help solve global warming because the growing plants used to make them absorb carbon dioxide that's already in our atmosphere," said David Tuft, campaign director of the Natural Resources Defense Council's climate center in Washington, D.C., who attended the original launch of the Genesis plant in 2007. "Next-generation biofuels, like those made by the closed-loop system at the Genesis plant, make solving global warming easier by avoiding the use of fossil fuels in their manufacture. That means we're releasing less of the ancient carbon that is trapping heat in our atmosphere."

### Agricultural Research

More than 9,500 acres of the Nebraska Ordnance Plant site are operated by the University of Nebraska-Lincoln's Agricultural Research and Development Center (ARDC). Agricultural research conducted at ARDC includes crop production, livestock, plant disease and wildlife management. Nearly half of the land used by ARDC is made up of row crops and there are over 6,000 domestic farm animals used for research at the site. Crop production research encompasses plant breeding, genetics, plant physiology, soil and water science and weed science. Investigation into plant disease and pests focuses on disease prevention and control.

## Community Food Systems and Urban Superfund Farming

Waste recycling is a key component of industrial ecology, an interdisciplinary field that focuses on sustainably integrating natural resources with the economy and technology. In agriculture, this translates into developing new uses for waste products, like manure and crop residues. In recent decades, agricultural waste products have proven to be particularly well-suited for alternative energy generation. A former munitions plant in Nebraska illustrates that rural Superfund sites can be well-suited to waste recycling and alternative energy opportunities. The agricultural research facilities at the site also highlight how some sites can support multiple agricultural land uses.

In addition to waste recycling, agricultural land uses at Superfund sites include community food systems and urban farms. In a community food system, food production, processing, distribution and consumption are integrated to enhance public and environmental health. Community food systems can be located in rural or urban communities and function at the neighborhood scale or in larger areas, like cities, counties and regions.

Rising energy and food prices and increased consumer interest in the source and quality of food has led to the rapid growth of community food systems. USDA reported that the number of

farmer's markets climbed to 6,132 in 2010, up 53 percent from a decade earlier. Sales from those markets reached \$1 billion. In 2000, around 400 farms offered direct, farmer-to-consumer community supported agriculture (CSA) programs; in 2011, there are approximately 1,500 CSA programs nationwide.

Two farms on formerly contaminated areas in Philadelphia highlight that urban sites can also be well-suited to agricultural reuse, building on the burgeoning national interest in community food systems. Urban Superfund sites are often located in close proximity to large numbers of people, as well as lower-income neighborhoods with limited access to fresh produce. These sites are large enough to support viable urban farms and available infrastructure can reduce start-up costs. Finally, the revitalization of these formerly vacant, stigmatized properties can help foster and sustain neighborhood revitalization efforts, replacing areas of community concern with local amenities.



In 2011, there are approximately 1,500 CSA programs nationwide. Source: Greensgrow Farm

## Greensgrow Farm: Philadelphia, Pennsylvania

Greensgrow Farm is one of the leading urban agriculture projects in the United States. Located on a 1-acre plot in Philadelphia's low-income Kensington neighborhood, raised beds and greenhouses have taken the place of a former steel-galvanizing factory.

When Greensgrow Farm's co-founder and chief farm hand Mary Steton acquired the property in 1998, the Boyle Galvanizing Superfund site had been vacant for decades. When the factory closed, it left behind lead, arsenic, zinc and cadmium contamination. EPA conducted a removal action at the site in 1995 to address site contaminants, excavating and backfilling the site with clean soil.

A chef and entrepreneur, Ms. Steton was looking to start an urban farm to grow lettuce to supply restaurants in Philadelphia. She selected the Boyle Galvanizing site because it was a large piece of property located close to her customers. To ensure the feasibility of the site's agricultural reuse, she relied on EPA's risk assessment for the site and coordinated with environmental specialists at Penn State University. Greensgrow Farms trucked in more clean soil, constructed greenhouses to grow crops hydroponically and later built raised garden beds.

***"With the right cleanup and lots of hard work, anything is possible."***

*-Mary Steton, co-founder and chief farm hand, Greensgrow Farm*

According to Ms. Steton, her biggest initial challenge was transforming the community's perception of the site and its agricultural reuse. "I was confident about the quality of what we were growing because we worked so closely with EPA's site information and environmental specialists while deciding on this site," Ms. Steton explained. "But the neighborhood took a while to come around. People used to cross the street to avoid getting close to the site. In those early days, we even had people come up and yell through the fence, telling us to get off the land."

Greensgrow Farm began with small-scale operations, expanding its offerings as the company's neighborhood and restaurant client profile became more established. The company's lettuce was all hydroponically grown in



*Plants for sale at Greensgrow Farm, an urban agriculture project located on a former Superfund site in Philadelphia, Pennsylvania. Source: Greensgrow Farm*

greenhouses at the outset; the farm then expanded into providing cut flowers and building raised beds for expanded production.

Ms. Steton indicated that while Greensgrow Farm has become a successful enterprise, community outreach and education remains a key part of the company's mission. "Just last week, there was a response to a newspaper review of a restaurant that serves our produce, saying that people eating there would grow three heads," Ms. Steton said. "I wrote back to say that I have always had to be comfortable feeding this food to my own family first, before I would ever consider providing it to our clients."

Today, what began as an operation providing lettuce to restaurants has blossomed into a plant nursery, farm stand and CSA program. At its farm stand, Greensgrow Farm offers honey and produce grown on-site, as well as organic free-range meat, artisan bread and crafts from farms in surrounding counties. In addition, the farm recycles cooking oil from its restaurant clientele to produce its own biodiesel and is planning to add solar panels to its farm stand roof. Today, Greensgrow Farm's CSA has grown to include over 140 members.

"It's come with hard work," Ms. Steton said, looking back over the past decade. "With the right cleanup and lots of hard work, anything is possible."

## Liberty Lands Community Park: Philadelphia, Pennsylvania

Two miles northeast of Greensgrow Farm, another vacant area has been reclaimed as an urban garden and community park. Liberty Lands community park includes garden plots and a composting area, a children's playground, and community art and sculpture.

Twenty years ago, the Northern Liberties neighborhood was the only zip code in Philadelphia without a community green space. The neighborhood was the location of several tanneries until 1986; operations led to the area's contamination with pesticides, PCBs and metals. EPA conducted removal actions and cleaned up the area. In 1987, EPA removed 750 drums, hundreds of laboratory chemical containers, 23 sludge containers and crushed drums. EPA followed up in 1990 to clean up spilled PCBs.



*Before: The neighborhood prior to cleanup.  
Source: EPA*



*After: Liberty Lands community park.  
Source: NLNA*

Neighborhood residents led the way in transforming the area into an urban garden and community park, addressing significant obstacles and finding resources to make Liberty Lands a reality. Initial reuse plans for the area had called for loft housing; when the development did not move forward, the developer donated the site property to the Northern Liberties Neighborhood Association (NLNA) in 1995, based on the neighborhood's interest. The NLNA worked with the City of Philadelphia to remove a \$500,000 lien that had been attached to the property, and received a \$60,000 grant from the Pennsylvania Urban Resources Partnership Program in 1997 to support the park's development. EPA provided soil testing and other technical assistance to ensure that the site was safe for reuse as a park and community garden.

The goal of the Liberty Lands project was to create a multi-use open space on the 2-acre area. The park would feature community garden plots, a perimeter of trees, a large open central area for community events and festivals, a mural and a farmers market. Following hundreds of hours of donated time, monthly meetings, outreach and fundraising efforts, Liberty Lands opened. As of 2011, the park also has a stormwater management best practices demonstration project, financed by city and state agencies, which includes an innovative cistern system that saves street runoff for park irrigation.

Today, Liberty Lands is at the heart of a revitalizing community; residential and commercial development around the park has accelerated in recent years. NLNA continues to own and operate the park. Liberty Lands offers year-round activities: an annual neighborhood festival, Halloween hayrides, a summer movie series, garden tours, and community musical and dramatic events. The park provides community garden plots for neighborhood residents, an herb and butterfly garden, open space for community events, murals, a children's playground, and a perimeter of trees and benches.

## Sustainable Forestry at Superfund Sites

Sustainable forest management operations are located at several former Superfund sites across the country. For example, the 120-acre Petersen Sand & Gravel site outside Chicago is now part of the 1,100-acre Independence Grove Forest Preserve, which provides a diverse natural, conservation, recreation and education area that serves as a regional community resource.

The sustainable management of forest resources enables natural resource stewardship and the production of forest products over time. Sustainably managed forests contain varied species, multiple habitats and multiple stages of forest regeneration, from seedlings to mature timber.

Sustainably managed forest areas can be harvested for timber over the long term, generating significant revenues. In some cases, sustainably managed forests can also generate revenues through the mitigation of greenhouse gases, by sequestering carbon dioxide (CO<sub>2</sub>) to address climate change. Biological carbon sequestration occurs as trees and plants store CO<sub>2</sub> in their roots, bark and leaves. Forest management can provide



*The Petersen Sand & Gravel Superfund site in Libertyville, Illinois, is now part of the 1,100-acre Independence Grove Forest Preserve.  
Source: EPA*

a significant opportunity to reduce CO<sub>2</sub> levels. Finally, forest management can also serve as a part of cleanup remedies at Superfund sites – phytoremediation techniques rely on plants and trees to remove contaminants from site soils.



*In addition to being harvested for timber and mitigating greenhouse gases, sustainably managed forest areas can also help clean up Superfund sites.  
Source: EPA*

# Taking a Look Back: Agriculture and Superfund Sites

## **Agricultural Reuse of Superfund Sites Is Possible.**

Agricultural land uses at Superfund sites range from traditional activities like cropland to newer land uses that transform waste into energy and sustain local food systems. At some sites, site remedies can already support non-intensive agricultural activities like grazing. At other sites, above-ground structures like greenhouses and raised beds can enable agricultural uses while remaining protective of human health and the environment.

## **Different Types of Superfund Sites Are Suited to Different Types of Agricultural Land Uses.**

The case studies presented in this report illustrate that small Superfund sites near population centers can be well-suited to urban agriculture, harnessing the rapid growth of interest in community food systems. At the other end of the spectrum, large Superfund sites like the Nebraska Ordnance Plant site can support multiple large-scale agricultural land uses. Other land uses, like sustainably managed forest areas, also offer opportunities to co-locate multiple complementary land uses, like forestry, recreational trails, wildlife habitat and ecological land uses.

## **Stakeholder Engagement and Good Working Relationships Are Critically Important.**

Reusing Superfund sites for agricultural land uses requires the involvement of diverse site and community stakeholders to incorporate the requisite expertise. At each of the sites discussed

in this report, community organizations, local governments, site owners, land users and technical specialists worked with EPA and state agency staff to understand site conditions, contamination and remedies and to evaluate agricultural reuse opportunities.

## **Agricultural Land Uses Can Help Clean Up Superfund Sites.**

At sites where remedies have not yet been selected, it may also be possible for plant-based agricultural land uses, including sustainable forest management, to serve *as part of* a site's remedy. Phytoremediation techniques rely on plants and trees like poplars and willows to remove contaminants, particularly metals and organic compounds, from site soils. Phytoremediation works optimally when plant or tree roots reach the depth of soil contamination.

## **Resources are Available to Support Agricultural Land Uses at Contaminated Lands.**

Federal, state, local and non-governmental resources are available for parties interested in agricultural land uses at contaminated lands. The resources and references on the following pages provide additional information as well as references for the case studies presented in the report.

### **For More Information**

***EPA's Superfund Redevelopment Initiative*** provides tools, case studies and resource information addressing the reuse of Superfund sites. For more information, contact Melissa Friedland, EPA's National Program Manager for Superfund Redevelopment, at 703-603-8864 / [friedland.melissa@epa.gov](mailto:friedland.melissa@epa.gov) and Frank Avvisato at 703-603-8949 / [avvisato.frank@epa.gov](mailto:avvisato.frank@epa.gov).  
**Website:** <http://www.epa.gov/superfund/programs/recycle>

***EPA's Environmentally Responsible Redevelopment and Reuse (ER3) Initiative*** uses enforcement and other Agency-wide incentives to promote the sustainable cleanup and redevelopment of contaminated sites, including Superfund sites. The Initiative supports pilot redevelopment projects that incorporate sustainability principles.  
**Website:** <http://www.epa.gov/oecaerth/cleanup/revitalization/er3/index.html>

***EPA's Abandoned Mine Lands Team*** provides communities with reuse-related technical support and resources for Superfund sites that are also former mining areas.  
**Website:** <http://www.epa.gov/aml/revital/index.htm>

# Resources

Resource	Organization	Program Description	Website
<i>General Agriculture Resources</i>			
Cooperative State Research, Education and Extension Service (CSREES)	USDA CSREES	USDA CSREES provides links to state and local resources and programs as well as agricultural research.	<a href="http://www.csrees.usda.gov">http://www.csrees.usda.gov</a>
National Agricultural Library (NAL)	USDA NAL	The NAL is a national agricultural information repository that provides access to seven specialized information centers.	<a href="http://www.nal.usda.gov">http://www.nal.usda.gov</a>
Agricultural Research Service (ARS) Initiatives	USDA ARS	USDA's ARS research initiatives focus on bio-based products and bioenergy, floriculture and nursery research, grape research and natural resources research.	<a href="http://www.ars.usda.gov/main/main.htm">http://www.ars.usda.gov/main/main.htm</a>
Agricultural Marketing Resource Center	Iowa State University, Kansas State University and the University of California	National multi-university center focused on value-added agriculture, with links to state and federal directories and resources.	<a href="http://www.agmrc.org">http://www.agmrc.org</a>
Marketing and Food System, Agricultural Policy and Ecosystem Service Initiatives	Iowa State University Leopold Center for Sustainable Agriculture	University center with programs to develop sustainable agricultural practices that are both profitable and conserve natural resources.	<a href="http://www.leopold.iastate.edu/research/research_programs.htm">http://www.leopold.iastate.edu/research/research_programs.htm</a>
Center for Agriculture in the Environment	American Farmland Trust	Non-profit organization center focused on farmland protection and natural resource stewardship.	<a href="http://www.farmland.org/resources/cae/default.asp">http://www.farmland.org/resources/cae/default.asp</a>
Food and Society Initiative	W.K. Kellogg Foundation	Non-profit organization with extensive information and publications on food systems and rural development. The foundation no longer provides project grants.	<a href="http://wkkf.org/default.aspx?tabid=54&amp;CID=4&amp;NID=17&amp;LanguageID=0">http://wkkf.org/default.aspx?tabid=54&amp;CID=4&amp;NID=17&amp;LanguageID=0</a>
Terrestrial Carbon Sequestration Assistance	U.S. Department of Energy and USDA Forest Service	Federal agencies provide general information on terrestrial carbon sequestration.	<a href="http://fossil.energy.gov/sequestration/index.html">http://fossil.energy.gov/sequestration/index.html</a>
Climate Change Website	EPA	EPA's climate change website provides information on carbon sequestration related to agriculture and farming.	<a href="http://www.epa.gov/sequestration/index.html">http://www.epa.gov/sequestration/index.html</a>
<i>EPA Resources</i>			
EPA Superfund Redevelopment Initiative	EPA Office of Superfund Remediation and Technology Innovation	EPA initiative focused on the reuse of Superfund sites.	<a href="http://www.epa.gov/superfund/programs/recycle">http://www.epa.gov/superfund/programs/recycle</a>
EPA ER3 Initiative -ER3 Pilot Projects	EPA Office of Site Remediation Enforcement	EPA initiative focused on the sustainable cleanup and redevelopment of contaminated sites.	<a href="http://www.epa.gov/oecaerth/cleanup/revitalization/er3/index.html">http://www.epa.gov/oecaerth/cleanup/revitalization/er3/index.html</a>
EPA Abandoned Mine Lands Team	EPA Office of Superfund Remediation and Technology Innovation	EPA team provides communities with reuse-related technical support and resources for Superfund sites that are also former mining areas.	<a href="http://www.epa.gov/aml/revital/index.htm">http://www.epa.gov/aml/revital/index.htm</a>

Resource	Organization	Program Description	Website
<i>Case Study Resources</i>			
Nebraska Ordnance Plant Site Alternative Energy Fact Sheet	EPA ER3 Initiative	Fact sheet summarizing the reuse of a portion of the Nebraska Ordnance Plant site as an alternative energy resource.	<a href="http://www.epa.gov/oecaerth/resources/publications/cleanup/er3/e3bio-fs.pdf">http://www.epa.gov/oecaerth/resources/publications/cleanup/er3/e3bio-fs.pdf</a>
Agricultural Research and Development Center (ARDC)	University of Nebraska-Lincoln	Summary of the agricultural research ongoing at the University of Nebraska-Lincoln's ARDC at the Nebraska Ordnance Plant site.	<a href="http://ardc.unl.edu">http://ardc.unl.edu</a>
Greensgrow Farm	Greensgrow Farm	An urban community farm located on a former Superfund site in Philadelphia, Pennsylvania.	<a href="http://www.greengrow.org">http://www.greengrow.org</a>
Liberty Lands Community Park	Northern Liberties Neighborhood Association	Neighborhood summary of the reuse of a contaminated site in Philadelphia as an urban community garden and park.	<a href="http://www.northernlibertiesnow.org/resources4.html">http://www.northernlibertiesnow.org/resources4.html</a>
American Tree Farm System	American Forest Foundation	A non-profit organization focused on sustainable forestry practices.	<a href="http://www.treefarmssystem.org">http://www.treefarmssystem.org</a>

## References

### Introduction

- Superfund site reuse information, available from EPA's Superfund Redevelopment Initiative, at: <http://www.epa.gov/superfund/programs/recycle>.
- USDA Economic Research Service's "Environmental Interactions with Agricultural Production" briefing, at: <http://www.ers.usda.gov/Briefing/AgAndEnvironment/background.htm>.
- May 2007 USDA Amber Winds article update "Policy Options for a Changing America," at: <http://www.ers.usda.gov/AmberWaves/May07SpecialIssue/Features/Policy.htm>.
- May 2006 USDA Economic Research Service "Major Land Uses in the United States" Economic Information Bulletin (EIB-14), at: <http://www.ers.usda.gov/Publications/EIB14>.
- December 2002 McGill School of the Environment report "Brownfield Remediation: Solutions for Urban Agriculture," at: [http://mse-research.mcgill.ca/envr401\\_2002/brownfields](http://mse-research.mcgill.ca/envr401_2002/brownfields).

### Nebraska Ordnance Case Study

- University of Nebraska-Lincoln's Agricultural Research and Development Center, at: <http://ardc.unl.edu>.
- E3 Biofuels website, at: <http://www.e3biofuels.com>.
- February 2011 Omaha World-Herald article "Suit Filed Over Ethanol Plant Blast," at: <http://www.omaha.com/article/20110210/MONEY/702109842>.
- March 2009 EPA fact sheet for the Nebraska Ordnance Plant site, at: [http://www.epa.gov/region07/cleanup/npl\\_files/ne6211890011.pdf](http://www.epa.gov/region07/cleanup/npl_files/ne6211890011.pdf).
- August 2008 interview and e-mail correspondence with EPA Remedial Project Manager Scott Marquess.
- September 2007 EPA fact sheet for the Nebraska Ordnance Plant site, at: [http://www.epa.gov/Region7/factsheets/2007/fs\\_removal\\_univ\\_ne\\_ARDC\\_ordnance\\_mead\\_ne0907.htm](http://www.epa.gov/Region7/factsheets/2007/fs_removal_univ_ne_ARDC_ordnance_mead_ne0907.htm).
- November 2006 EPA ER3 Initiative fact sheet for the E3 Biofuels complex, EPA publication # 330-F-06-004, at: <http://www.epa.gov/oecaerth/resources/publications/cleanup/er3/e3bio-fs.pdf>.

## Community Food Systems Introduction

- 2011 Cornell University website “Local and Regional Food Systems: Initiatives & Resources,” at: <http://foodsys.cce.cornell.edu/primer.html>.
- USDA Alternative Farming Systems Information Center, at: <http://www.nal.usda.gov/afsic/pubs/csa/csadef.shtml>.
- 2001 USDA Office of Community Development Technote 20 “Community Supported Agriculture,” at: <http://www.rurdev.usda.gov/rbs/CDP-TN20.pdf>.

## Greensgrow Farm and Liberty Lands Case Studies

- Greensgrow Farm website, at: <http://www.greengrow.org>.
- 2008 interview with Greensgrow Farm co-founder Mary Steton.
- 2008 EPA fact sheet “A Vision of Liberty Is Realized,” at: <http://www.epa.gov/brownfields/success/libertylandspass.pdf>.
- Northern Liberties Neighborhood Association website, at: <http://www.northernlibertiesnow.org/resources4.html>.
- May 1999 Philadelphia CityPaper article “Give Me Liberty Lands,” at: <http://www.citypaper.net/articles/042999/news.hit.run1.shtml>.

## Introduction to Forest Management

- U.S. Department of Energy’s Carbon Sequestration Program website, at: <http://fossil.energy.gov/sequestration>.
- Carbon Sequestration Leadership Forum website, at: <http://www.cslforum.org>.
- U.S. Department of Energy National Energy Technology Laboratory’s Carbon Sequestration Program website, at: [http://www.netl.doe.gov/technologies/carbon\\_seq/index.html](http://www.netl.doe.gov/technologies/carbon_seq/index.html).
- Energy Information Administration website, at: <http://www.eia.doe.gov>.
- April 2011 EPA report, “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009,” at: <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>.
- 2010 USDA Forest Service “National Report on Sustainable Forests,” at: <http://www.fs.fed.us/research/sustain/documents/SustainableForests.pdf>.
- September 2007 Congressional Budget Office report, “The Potential for Carbon Sequestration in the United States,” at: <http://www.cbo.gov/ftpdocs/86xx/doc8624/09-12-CarbonSequestration.pdf>.
- March 2007 U.S. Department of Energy National Energy Technology Laboratory report, “Carbon Sequestration Atlas of the United States,” at: [http://www.netl.doe.gov/technologies/carbon\\_seq/refshelf/atlas](http://www.netl.doe.gov/technologies/carbon_seq/refshelf/atlas).
- November 2005 EPA report, “Greenhouse Gas Mitigation Potential in U.S. Forestry and Agriculture,” at: <http://www.epa.gov/sequestration/pdf/greenhousegas2005.pdf>.
- February 1995 Montreal Process Working Group report, “Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests,” at: [http://www.rinya.maff.go.jp/mpci/rep-pub/1995/santiago\\_e.html](http://www.rinya.maff.go.jp/mpci/rep-pub/1995/santiago_e.html).
- USDA Natural Resources Conservation Service PLANTS database, at: <http://plants.usda.gov/index.html>.
- EPA provides resource information on carbon sequestration in agriculture and forestry on the Agency’s website, at: <http://www.epa.gov/sequestration/index.html>.
- The U.S. Department of Energy provides resource information on carbon sequestration on the Department’s website, at: <http://fossil.energy.gov/sequestration/index.html>.

# Agricultural Land Uses at Superfund Sites

PLANTING A SUSTAINABLE FUTURE



Office of Solid Waste and Emergency Response  
Superfund Redevelopment Initiative

Washington, DC

May 2011