association of illinois

CONSERVATION CATCHALL

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POLLUTION RISING, CHINESE FEAR FOR SOIL AND FOOD

Editor's Note: This is a lengthy article that appeared in the December 31, 2013 <u>New</u> <u>York Times.</u> Because of the length of the article, Lonnie Wilson's President's Message and Rich Nichols' Executive Director's Notes will not appear in this issue. You may wonder what this may have to do with Illinois' soil and water conservation districts and our agricultural food production. Actually I believe it may have a great deal to do with Illinois agriculture and the safe food supply we provide to the people of the United States and other parts of the world. There are many who advocate for converting agricultural land to non-erosive cover and for reduced use of nutrients — accepting a small sacrifice in the level of food production with the idea of making up the shortfall with imported food stocks. As this article clearly points out, we have no control over food quality or safety when other countries produce it.

By EDWARD WONG

CHENJIAWAN, China — The farm-to-table process in China starts in villages like this one in the agricultural heartland. Food from the fields of Ge Songqing and her neighbors ends up in their kitchens or in the local market, and from there goes to other provinces. The foods are Chinese staples: rice, cabbage, carrots, turnips and sweet potatoes.



"But the fields are ringed by factories and irrigated with water tainted by industrial waste. Levels of toxic heavy metals in the wastewater here are among the highest in China, and residents fear the soil is similarly contaminated. Though they have no scientific proof, they suspect that a spate of cancer deaths is linked to the pollution, and worry about lead levels in the children's blood.

Sim Chi Yin for The New York Times A farmer worked her land in the shadows of a lead factory in Hengyang, Hunan province, where scholars say soil pollution is especially acute."

"Of course I'm afraid," said Ms. Ge, in her 60s, pointing to the smokestacks

looming over her fields and the stagnant, algae-filled irrigation canals surrounding a home she shares with a granddaughter and her husband, a former soldier. "But we don't do physical checkups. If we find out we have cancer, it's only a burden on the children."

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(Continued from page 1) surge of anxiety in the last year among ordinary Chinese and some officials over soil pollution in the country's agricultural centers and the potential effects on the food chain. In recent years, the government has conducted widespread testing of soil across China, but it has not released the results, adding to the fear and making it more difficult for most Chinese to judge what they eat and pinpoint the offending factories.

An alarming glimpse of official findings came on Monday, when a vice minister of land and resources, Wang Shiyuan, said at a news conference in Beijing that eight million acres of China's farmland, equal to the size of Maryland, had become so polluted that planting crops on it "should not be allowed."

A signal moment came in May, when officials in Guangdong Province, in the far south, said they had discovered excessive levels of cadmium in 155 batches of rice collected from markets, restaurants and storehouses. Of those, 89 were from Hunan Province, where Ms. Ge farms.

The report set off a nationwide scare. In June, China Daily, an official English-language newspaper, published an editorial saying that "soil contaminated with heavy metals is eroding the foundation of the country's food safety and becoming a looming public health hazard."

One-sixth of China's arable land — nearly 50 million acres — suffers from soil pollution, according to a book published this year by the Ministry of Environmental Protection. The book, "Soil Pollution and Physical Health," said that more than 13 million tons of crops harvested each year were contaminated with heavy metals, and that 22 million acres of farmland were affected by pesticides.

But the government has refused to divulge details of the pollution, leaving farmers and consumers in the dark about the levels of contaminants in the food chain. The soil survey, completed in 2010, has been locked away as a "state secret."

"We think it's always the right of the public to know how bad the situation is," said Ma Tianjie, an advocate at Greenpeace East Asia who is researching toxic soil. "The Chinese public can accept the fact that our environment is polluted. The important thing is to give them the means to challenge polluters and improve the environment, and not just keep them in the dark."

There has been some acknowledgment of the problem by top officials. In January, the State Council, China's cabinet, announced that it would set up systems to comprehensively monitor soil pollution by 2015 and promote pilot projects for treatment.

Scholars say soil pollution is especially acute in Hunan Province, China's rice bowl. In 2012, Hunan produced 17 million tons of rice, 16 percent of the national total, according to one market research company.

The province is also one of China's top producers of nonferrous metals. As a result, it is the leading polluter of cadmium, chromium, lead and nonmetal arsenic, according to data collected in 2011 by the Institute of Public and Environmental Affairs, a research group based in Beijing.

That year, the province was responsible for 41 percent of the nation's cadmium pollution when measured by its presence in industrial wastewater; the number has not dropped below 30 percent since 2004, when the data were first collected by the group. The wastewater is discharged in rivers, where it flows into irrigation channels. "There's this pressure from the central government on Hunan to maintain a high level of yield for (Continued on page 3)

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(Continued from page 2)

rice production," said Mr. Ma, the Greenpeace program director. "On the other hand, rice production never gives you the same kind of G.D.P. growth that industrial development gives you."

Hunan's abundance of raw metals has led to a push by provincial Communist Party leaders to develop mining and smelting there further, leaving officials caught in what Mr. Ma calls a clash of two imperatives: "They have to feed the country with their rice, but they want to grow their economy."

Among the heavy metals seeping into Hunan's crops, the worst may be cadmium, which at high levels has been linked to organ failure, weakening of bones and cancer, scientists say.

"Cadmium has a tendency to accumulate in the kidney and liver," Chen Nengchang, a scholar at the Guangdong Institute of Eco-environment and Soil Sciences. "When the accumulation reaches a certain point, it will pose a serious health risk for the organs."

Cadmium that accumulates in rice plants gets not only into the rice on China's tables, but also into animals' meat, since the husks are fed to farm animals. There is no public data, though, that shows the level of cadmium pollution in food.



Sim Chi Yin for The New York Times Surrounded by industrial waste at a huge dump site in Hunan Province, farmers scavenge daily for recyclable materials to sell.

Increasingly, Chinese news organizations are reporting on clusters of villages that have high rates of cancer, raising questions about the potential link between cancer and various forms of pollution. Some scientists are now conducting studies.

In July, the Chinese Center for Disease Control and Pollution published some findings from a study that drew a direct connection between pollution of the Huai River, which crosses several provinces in central China, and high rates of cancer among people living by the river.

Here in Hunan, and particularly in this area administered by Hengyang City, which includes Ms. Ge's village, stories of cancer are common.

One woman in the village of Liujiacun said her husband had died in his late 50s of liver cancer. "He didn't do heavy labor, didn't smoke, and he would drink only a little bit," said the widow, who gave only her surname, Li.

As in nearby villages, crops here appear wilted, and the village well is clogged with green muck. These were all sharp changes from Ms. Li's childhood, she said. Twenty people live in Chenjiawan now, down from a population of about 100 in 2007, most of them elderly, Ms. Ge said, adding that many recent deaths had been from cancer.

There is no public data drawing a direct connection between these cases and

The First Decade: Team Reports On US Trials of Bioenergy Grasses

Editor's Note: Kelly Thompson will not have an article in this Months' Catchall. We have included the following information instead.

The first long-term U.S. field trials of Miscanthus x giganteus, a towering perennial grass used in bioenergy production, reveal that its exceptional yields, though reduced somewhat after five years of growth, are still more than twice those of switchgrass (Panicum virgatum), another perennial grass used as a bioenergy feedstock. Miscanthus grown in Illinois also outperforms even the high yields found in earlier studies of the crop in Europe, the researchers found.

The average annual yield of Miscanthus grown in seven Illinois locations over a period of eight to 10 years was 10.5 tons per acre, compared with 4.5 tons per acre for switchgrass grown in side-by-side trials in Illinois, the researchers report. Miscanthus yields in Europe are about half of those reported in the Midwest.

The study took into account differences in yield that were the result of annual weather changes (primarily heat and precipitation, both of which increased growth).

The new findings appear in the journal Global Change Biology: Bioenergy. University of Illinois plant biology and Institute for Genomic Biology professor Stephen P. Long, who led the study, founded and edits the journal. The Energy Biosciences Institute at the U. of I. supported the research.

Miscanthus does almost as well in poor soils as in fertile cropland, Long said.

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"That was the earlier finding in Europe and now we can confirm this for the Midwest," Long said.

"It takes a little bit longer to establish Miscanthus in poorer soils, but once it's established the yields seem to be almost as good as in the very best soils," he said. The difference in yield between richer and poorer soils was less than 10 percent.

Several growers in the U.S. pelletize Miscanthus for use as a renewable, carbon-neutral energy source. The pellets are burned to produce electricity or heat. There is a growing market for pelletized Miscanthus in the U.S. and in Europe, Long said.

"However, the expected long-term and larger market for Miscanthus is in digesting the celluloses in the biomass to sugars for fermentation to ethanol and other liquid fuels," Long said. "This would complement corn ethanol, since it would allow the use of land unsuited or marginal to corn and other row crops," he said.

Long and his colleagues calculated the total land area needed to produce enough Miscanthus to meet the U.S. Renewable Fuel Standard mandate for cellulosic ethanol production by the year 2022. They found that the RFS mandate of 16 billion gallons (60 billion liters) of cellulosic ethanol by 2022 would require 17 million acres of Miscanthus x giganteus or 39 million acres of switchgrass.

"That 39 million acres sounds like a lot and is a lot, but keep in mind that the 48 contiguous states are almost 2,000 million acres," he said. "We use only about a fifth of that in our row-crop agriculture -- cotton, corn, soybean, wheat, etc. And we actually have at least 550 million acres that have been abandoned from agriculture in the last 150 years. This is not land that has been lost to urban sprawl."

Because Miscanthus grows well in poor soils, it could be planted on former agricultural lands left unused after the Dust Bowl to prevent soil erosion, Long said. Or it could be grown on Conservation Reserve Program lands, agricultural areas left fallow to avoid farm surpluses in the U.S., he said.

"We have 40 million acres in the Conservation Reserve Program," he said. "A crop like Miscanthus would be suitable for that land because it doesn't have the same erosion problems of an annual crop. You're not plowing the land every year, and you have a dense perennial root system that binds the soil. "In fact, Miscanthus is arguably

Illinois Soil & Water Conservation District	c	Page 5 conservation Catchall - December 2013
Employee	ISWCDEA CORNER - SHERRY HUFFSTUTLER ISWCDEA REGION ONE REPRESENTATIVE	website: http://www.il.ncdea.org
Greetings!		

On December 3rd & 4th SWCD employees from across the state gathered at the Northfield Inn, Springfield, to attend the yearly Winter Training. The Employee Association was excited to see an increase in attendance for both days compared to previous years. The sessions that were offered during the two-day event were great and well-attended. From the responses that were given, everyone walked away learning something new.

The ISWCDEA board for 2014 is listed as follows:

<u>REGION 1</u> Kara Downin Sharon Matson Shannon Pence Lorna Chezem <u>REGION 2</u> Sondra Baker Spring Duffy Thad Eshleman Vicki Heath REGION 3 Jane Brangenberg Betty Buckert Cindy Moon Abby Sperry REGION 4 Tara Hopkins Stephen Miller Cindy Poppenhager Renee Weitekamp REGION 5 Keith Livesay Meghan Polacek Jodi Hawkins Carla Barnes

Those serving as 2014 AISWCD Officers are:

Co-Chairman:Kara Downin, RC, Knox CountySondra Baker, AC, DeWitt CountyVice Co-Chairman:Keith Livesay, RC, Union CountySpring Duffey, AC, McHenry-Lake CountiesSecretary:Meghan Polacek, RC, Randolph CountyTreasurer:Vicki Heath, AC, LaSalle CountyVicki Heath, AC, LaSalle CountyVicki Heath, AC, LaSalle County

Please contact the representatives from your region if you have any concerns, questions or ideas. The officers and board is an enthusiastic and energetic bunch and they are looking forward to serving the SWCD employees during 2014.

On behalf of the ISWCDEA I would like to wish each and every employee and our agency partners a blessed Christmas and New Year!

Until Next Time!!



ILLINOIS CHAPTER - IAAP - JANE BRANGENBURG, PRESIDENT jane.brangenber@il.nacdnet.net

THANK YOU to all of you that purchased raffle tickets this year. The proceeds from the raffle will go towards training session at Summer Conference. The winners of the Annual "Holiday Gift Card Raffle" were Dennis Brangenberg, Cindy Moon and Renee Weitekamp.

Winter Training is behind us! The IAAP and IDOA co-sponsored a program given by Amy Stolte from Lincoln Land College. The presentation covered fillable forms in Adobe & Microsoft Word. The handouts from the session are posted on the ISWCDEA website. The chapter and ISWCDEA co-sponsored the General Session inspirational speaker, Lori Kerans. Ms. Kerans is the Milliken University Women's Basketball Coach and a two time cancer survivor. I hope everyone that attended enjoyed it as much as I did.

We are starting with the planning of Summer Conference. Amy Stolte will be joining us again with training for Advanced Excel. If you have anything in particular you would like for her to cover please e-mail me and I will forward it on to her. The other session we will be co-sponsoring is Advanced QuickBooks.

If you are interested in joining the IAAP (International Association of Administrative Professionals) please contact any member of the organization or go to our website http://iaap-swcd.tripod.com and view what is happening.



The IAAP wishes everyone a "Merry Christmas and a Happy New Year!

POLLUTION RISING, CHINESE FEAR FOR SOIL AND FOOD (Continued from page 3)

the factories that loom over the farmland. But a 2009 study published in a Chinese journal said that the area's main crops were "at a high risk of heavy metal contamination," and that only less than half could be rated "secure" or "good."

Chinese farmers "have such a profound connection with the land," said Mr. Chen, the Guangdong soil scientist. "Since China's household registration system makes it difficult for them to relocate to other areas, there is a sense of fatalism, and they accept whatever comes their way."

That sense of futility ripples throughout central Hunan. In one part of Hengyang, a mound of industrial waste that has destroyed adjacent farmland has drawn outraged comments from villagers on the Internet. But they expect no action because the nearby factories are tied to local officials, villagers said in interviews.

"There's no way to close these factories because of local protectionism," said one farmer, Wang, who wanted to be identified only by his surname for fear of retribution.



Sim Chi Yin for The New York Times A pool of water behind a lead factory in the heavily industrial Shuikoushan area of Hengyang City, where pollution is high.

For Hunan officials, the mines and factories around Hengyang are central to maintaining the province's leading role in the production of nonferrous metals, essential for industrial processes like the manufacture of lead-acid car batteries. "It's difficult to lobby against those companies," said Sun Cheng, a spokesman for Green Hunan, an advocacy group.

Hunan officials are eager to expand the nonferrous metals industry. In a development plan for the five years ending in 2015, officials have pledged to increase the industry's revenue by an annual rate of 18 percent, and have approved 80 new projects that have a total investment of under \$10 billion.

Given the nationwide health risks, some environmental officials in Beijing have praised recent experiments done by scientists that show certain plants could help clean the soil by absorbing poisons. Still, there has been no sign of action on the State Council's announced goal for comprehensive monitoring and treatment of soil pollution. Many farmers working their ravaged lands remain fearful and fatalistic.

"You're born on this earth, you grow up on this earth, and you can't do anything about it," Ms. Ge said, sitting in an alley next to a pail of carrots. "Those who are most vulnerable have died. We're still here wasting away."

Chris Buckley contributed reporting from Hong Kong, and Patrick Zuo contributed research from Beijing and Chenjiawan.

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Office Assistant's Information - Gina Bean

gina.bean@aiswcd.org

I hope everyone's Thanksgiving break was wonderful and you all could spend as much time with family as possible. We recently attended Winter Training which was very informative. I always love to be able to go to events and spend time with the people we are always talking on the phone with but never get to see in person. I've already used the tips on tabs I learned in Amy Stolte's session. She was very easy to follow and blew my mind with things I never thought I could do in Microsoft Word. At the end of her session, she asked for ideas on what people wanted to know about Microsoft Excel so that she can bring as much information and answer any questions during her Summer Conference session. You can email Amy your suggestions/questions at amy.stolte@llcc.edu.

We also, just finished up with December Quarterly Board meetings and the AISWCD Christmas Party. This is my second for both events and they were even better then last year!

Earlier this year, Kelly Thompson and I participated in the City of Springfield Earth Fair. We had a great time, saw some interesting ways to recycle, and cannot wait to go next year. Our booth consisted of setting up the Enviroscape and passing out magnets made out of old brochures we had around the office. For this coming year, we wanted to do something different. When I started looking around the internet to create some ideas for our booth, I came across a file, <u>http://www.montgomery.nj.us/twpcommittee/EarthDaySustainabilityActivities.pdf</u>, with interesting information and ideas. It provided great interactive games for kids that would work well in a variety of different settings.

Also, in this file I learned that some cities and even countries ban the use of plastic bags! In some cases, if they are not banned, they will charge a customer a tax or a fee to use a plastic bag. Some stores, such as Urban Outfitters, are doing their part and put your purchases in a reusable bag instead of plastic. Perhaps reusable bags would make the perfect Holiday gift this year? I think so.

Have a Wonderful Holiday Season! See you next year!





The First Decade: Team Reports On US Trials of Bioenergy Grasses (Continued from Page 4)

better than leaving this land fallow," he said. "Not only is it a productive use, but the rapid growth of its root system will bind and improve the soil more rapidly. As well as being productive above-ground, Miscanthus was shown in Illinois to accumulate more roots over a period of five years than fallow land or even a native prairie ecosystem."

An added advantage is that Miscanthus can be grown with little or no added fertilizer, he said. In the autumn and winter the nutrients drain out of the stems and leaves and are retained in the roots, stimulating new growth the following spring.

The recycling of nutrients is not 100 percent efficient, however, and the team wanted to know if adding nitrogen would compensate for the age-related yield declines.

In another study published in Bioenergy Research, Long and his colleagues report that adding nitrogen to Miscanthus and switchgrass significantly improved yields over time (by 25 percent and 32 percent, respectively). This eliminated the age-related declines in yield seen in switchgrass and about 40 percent of the loss found in Miscanthus. But the increases were small compared to the effects of fertilizing crops such as Zea mays (corn), and probably not large enough to justify the added cost of fertilizer, the team reported.

"The bottom line is if we simply plant Miscanthus and leave it, we don't see the same yield at year eight and year 10 that we saw in years three and five," Long said. "But we're still seeing a very high yield."

Source: ScienceDaily Dec. 4, 2013 University of Illinois at Urbana-Champaign. "The first decade: Team reports on US trials of bioenergy grasses."

Time for Your Annual Water Well Checkup

Just as you seasonally check your furnace or smoke detector batteries, the National Ground Water Association recommends an annual water well checkup.

Locally, contact National Ground Water Association member contractor:



National Groundwater Awareness Week March 9–15, 2014 Find out more at www.WellOwner.org.





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Look who has already joined!

<u>District Members:</u> Warren County SWCD

Corporate Members: Patten Cat Affiliate Members: Marc Anderson Sheryl and Richard Phillips Sue Davis

HHH

MARK YOUR CALENDAR!

- Martin Luther King Day January 20, 2014, Holiday, Office Closed
- Lincoln's Birthday February 12, 2014, State Holiday, Office Closed
- President's Day February 17, 2014, Holiday, Office Closed

2013—2014 QUARTERLY BOARD MEETING DATES

- March 2014 Quarterly Board Meeting To Be Determined, Northfield Inn Springfield, IL Executive Committee Meeting To Be Determined (Board meeting will be combined with a planned Legislative Day)
- June 2014 Quarterly Board Meeting June 9th & 10th Northfield Inn Springfield, IL
- 66th AISWCD Annual Meeting and Conference July 28 29, Northfield Inn Springfield. IL

AISWCD Mission: To represent and empower Illinois' SWCDs

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