



Periodic Report

The ADM Institute's Periodic Reports provide updates on recent and upcoming activities, reports, events and accomplishments.

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ADM Institute, RCRE Start New Postharvest Loss Research in China

In 2013, the University of Illinois at Urbana-Champaign signed a Memorandum of Understanding with the Research Center for Rural Economy (RCRE), China, to foster collaboration on postharvest loss research. As part of the agreement, the ADM Institute for the Prevention of Postharvest Loss (ADMI) and RCRE are undertaking a project to examine postharvest loss of wheat in Henan Province, China.

The total annual postharvest loss and waste in China is estimated to be more than 50 million metric tonnes. If the amount of loss can be reduced, availability of wheat can increase, and food



The project will be conducted in Henan Province, China.



Grains lay on the ground without cover at an origination site in Henan Province. Credit: ADMI/Grace Kenney

security can be enhanced.

Aiming to examine the extent of wheat postharvest loss in China and to develop strategies for reduction, the project includes a questionnaire survey involving approximately 600 farmers, actual measurement of wheat postharvest loss in the same survey region, and a number of case studies documenting the components and postharvest loss issues of the wheat supply chain in this region.

"I'm very excited about this because if we had both actual measurements and estimates of the same situations, this might be the first time that anyone has ever been able to correlate these two approaches to gain data," said Steve Sonka, former Director of the ADMI.

The project is planned to be completed by the end of 2014. Actual measurements and case studies will be finalized by May, and questionnaires will be collected in June or July. ¶

ADM Institute a Key Partner In New Feed the Future Innovation Lab for Reduction of Post-Harvest Loss

In January 2014, a research consortium of lead academic institutions and international partners co-led by Kansas State University (KSU) and the ADM Institute (ADMI) launched the Feed the Future (FtF) Innovation Lab for the Reduction of Post-Harvest Loss, with the support of a multi-million dollar grant from USAID and cost-sharing by KSU and ADMI. The consortium will focus on preventing the loss of staple crops, oilseeds, tuberous root crops, and peanut and legume crops. The cross-cutting issues of gender, nutrition,

environment, and economics are also incorporated and implemented in all projects.

ADMI will play a key leadership role and will coordinate the project website and information-sharing platform. It will also lead research efforts in Bangladesh with the International Rice Research Institute, focusing on piloting technologies, developing sustainable business models, and improving the lives of smallholder farmers through prevention of PHL and development along the rice value chain.

The Lab's current scope includes three other FtF countries - Ethiopia, Ghana, and Guatemala. Expanding country foci and securing further funding from in-country USAID missions is an option for the future.

The project will last for five years under the \$8.5 million grant. Additional information on the project can be found [here](#). A website will soon be launched with further detail on the projects, partners, and goals of the Innovation Lab. ¶

Measuring Harvest Loss of Soybean and Corn in Brazil

Initial results of a study on postharvest losses in Brazil are available, finding that farming enterprises can lose thousands of dollars per day if combines aren't adjusted properly during harvest. Dr. Marvin Paulsen, professor emeritus in the Department of Agricultural and Biological Engineering, and collaborators at Universidade Federal de Viçosa, Universidade Federal de Goiás, and Universidade Federal de Mato Grosso-Sinop have measured soybean and corn harvest losses, following the Embrapa procedure, in Brazil since 2012 with funding from the ADM Institute and [Aprosoja](#). They will continue measuring soybean and corn harvest losses in Brazil for the third year in 2014.

In 2012, Paulsen and collaborators

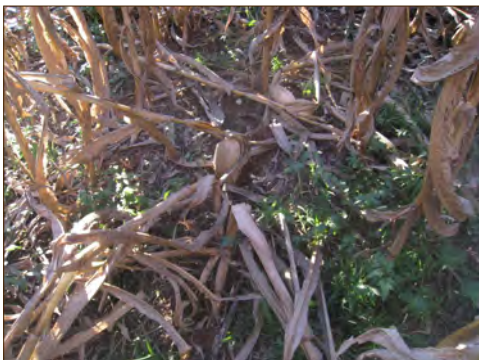


*Picking for soybean losses in a 2 m² area.
Credit: Marvin Paulsen*

tested 8 combines for soybean harvest loss and 11 combines for corn harvest loss in Mato Grosso and Goiás, which are leading states for soybean and corn production in Brazil. They documented pre-harvest loss, combine header loss, combine threshing/separation loss,

combine operations, combine characteristics, as well as harvesting conditions. Combine loss is composed of header loss and threshing/separation loss, in which header loss can be broken down further according to different crop harvesting.

Paulsen and collaborators' measurement showed that total soybean combine loss was about 1.2% to 5.5% of yield (47.4 to 260.5 kg/ha), which mostly came from header loss. For soybean, header loss is composed of shatter, loose stalk, lodged stalk, and stubble losses. Shatter loss and stubble loss are the two main contributors to soybean header loss, which could actually be reduced by harvesting at higher moistures and reducing combine ground speed.



Conditions of a lodged corn field.

Credit: Marvin Paulsen

Appropriate combine adjustment could also be helpful in loss reduction.

As for corn, total combine loss was about 0.33% to 3.64% of yield (41.3 to

320.6 kg/ha) which, similar to soy, mostly came from header loss. Paulsen and collaborators pointed out that loss was reducible if the combine was driving at a lower speed and was adjusted properly. Additionally, a lodged corn field could cause a large amount of combine loss as lodged ears can not be lifted into the header.

Paulsen and collaborators further calculated the time value of reducing combine ground speed and adjusting the combine properly for soybean harvest. If soybean loss is reduced by 2 bags (120 kg) per hectare, about 238 to 277 U.S. dollars could be saved each hour. “A

combine operator who does not check and adjust the combine for losses can easily cost the enterprise thousands of dollars even in less than one day,” stated Paulsen and collaborators.

The results of 2012 measurements were presented at the [2013 ASABE Annual International Meeting](#). Paulsen and collaborators’ work is part of the ADM Institute-funded “[Measurement, Documentation and Postharvest Processing for the Prevention of Postharvest Losses of Soybeans and Corns](#)” project led by Dr. Mary-Grace Danao. The overall project includes measurement and documentation of storage loss and transportation loss which will be featured in future ADM Institute periodic reports. ¶

Communicating Science in the Age of Information

In November 2013, ADM Institute staff member Kari Wozniak participated in a unique communications training, CGIAR’s “[Social Media Bootcamp](#)”, which intended to equip science communicators to take advantage of the latest information communication tools and technologies (ICTs) in their work. Held in Warsaw, Poland, alongside the Global Landscapes Forum (GLF), a large-scale conference on agriculture, environment, and climate change, the Bootcamp drew professionals from every region of the world.

Today’s ICTs make it possible to connect and engage with millions of other people, groups, and institutions around the world in near-instant time. The driving perspective behind the Bootcamp is that academics, researchers, scientists, and professionals can and should take advantage of these benefits both to further develop their

work as well as to increase the impact of their research.

The 6-day training covered how to strategically use technologies such as the widely-known social networking platforms of Twitter, Facebook, and LinkedIn, as well as many other digital communication, productivity, and virtual collaboration tools. Participants learned how planned communications can help support and enhance research projects throughout their development, rather than just when results are available. It also involved a practicum component, where participants practiced their newly learned skills by joining the GLF’s social reporting team. This involved blogging, live-tweeting, and capturing multimedia footage throughout the 2-day conference.

Learnings from this training have been incorporated into ADM Institute work, which can be seen in particular on the

ADMI blog, “[Preventing Postharvest Loss](#)” and its Twitter account, [@PHL_Institute](#), as well as other online platforms. ¶



“It’s better to be read than published”, says Peter Holmgren (pictured above), Director of the Centre for International Forestry Research, a co-organizer of GLF. Credit: Neil Palmer, IWMI

Student India Trip Includes Blogging, A Success

The ADM Institute (ADMI), with partial support from the John Deere Foundation, sponsored a study tour in India this January for business and engineering students for the third time. Each year, the trip continues to have significant educational and personal impact on Illinois students. This year, ADMI provided support for on-site communications throughout the trip to share the students' work and learning in real-time, and expose them to an additional skill set.



From planting to market, students observed nearly all supply chain stages. Credit: ADMI/Kari Wozniak

The purpose of the annual trip, led by College of Business Supply Chain Management program director Professor Udatta Palekar, is for students to observe and understand the extent of postharvest losses in agricultural supply chains in India. It involves several days of interviews, field observations, and site visits in various locations across southern and northern parts of the country. On this recent trip, students produced original blog posts that gave accounts of the days' work as well as recorded their reactions. The on-site communications coordinator also shared



Students shared their reactions on the days they visited storage and milling facilities. Credit: ADMI/Kari Wozniak

updates throughout the trip on Twitter and Facebook, as did several students.

The initiative was a great success. Each of the 15 student participants said the activities added value, one student saying, "Blogging, tweeting, and other social media was used to document our experiences, making me feel that I am contributing to awareness of postharvest loss." The shared materials reached audiences important to postharvest loss prevention efforts, followed in at least 67 countries around the world and engaged with by several important actors in the field. For more information on the impact and reach, see the [performance report](#). ¶



"Blogging forced me to think deeper about my experiences," one student said. Credit: ADMI/Kari Wozniak

Student Blog Series:

- [Following the Flowers: A First Look at Indian Supply Chains](#)
- [Losses Along the Way](#)
- [Taste of India](#)
- [Southern Indian Hospitality](#)
- [For Field and Family: A Woman's Life Farming in Rural India](#)
- [Newer Facility Shows Efficient Grain Management in India is Possible, But Not Yet Justified](#)
- [Comparing Storage Facilities, Different Methods Lead to Postharvest Loss](#)
- [The Relevance of Research: Taking the Classroom to the Mills and Fields of India](#)



Students found interviews and interactions with locals very meaningful. Credit: ADMI/Kari Wozniak

Student Research Team Estimates 30% of Rice is Lost in Sierra Leone Supply Chains

The final report of a student-led study of postharvest loss of rice in Sierra Leone is now available. The study was performed as the service-learning portion of a semester-long course on agribusiness management and international trade in Sierra Leone by a team of students from the University of Illinois and Njala University. Sponsored by the ADM Institute, the student research team examined and documented postharvest losses by conducting interviews, documenting the rice supply chain, and providing key learnings on issues and actors in the rice postharvest sector.

The course was led by Dr. Paul McNamara from the University of Illinois' Department of Agricultural and

Consumer Economics, and allowed students from Illinois and Njala to complete a project together that delivered outcomes directly applicable to a real-world problem. The ADM Institute provided resources while serving as the project client and the students designed, planned, and executed an interview-based study, conducting more than a dozen interviews with farmers, merchants, laborers, and professionals throughout Sierra Leone.

According to their report, the study found that approximately 30% of rice is lost in the postharvest rice supply chain, with the greatest amounts occurring at drying and storage stages. They found

that farmers, merchants, and laborers lack the resources, notably financial resources, and knowledge needed to reduce loss. The questionnaires gathered both descriptions of loss issues as well as physical estimates of loss from respondents. The team found that it was difficult for farmers, laborers, and merchants to quantify losses, and many were most aware of losses that occur during storage.

More results from the study, such as the various reported causes of loss at each stage, can be found in the [final report](#). ¶

Experts Discuss Postharvest Loss and Tech Innovation at State Department Workshop

The ADM Institute participated in a workshop on postharvest loss and technology held by the U.S. State Department in November 2013 called an "Ideation Jam." The purpose of the workshop was to convene cross-sector stakeholders to identify where priority opportunities might exist to develop and use technological innovations for postharvest loss prevention.

Over 30 participants from several academic institutions, private companies, and federal agencies attended the workshop in Washington, D.C. Facilitators led discussions on what major loss challenges exist in countries all over the world, providing a [document](#)

comprised of information gathered by US embassies on in-country challenges as reported by local counterparts. The document also included major sources of agricultural data for each country included in the report.

As reported in the [event summary](#), participants agreed upon a need for better documentation of postharvest loss, as well as improved access to data. "The Ideation Jam was valuable to attend as it allowed us to see the priorities for PHL across different sectors. It was also interesting to see what questions representatives had, as it illustrated what key information is still

missing", said Grace Kenney, staff representative from the ADM Institute.

To better understand the knowledge needs of the postharvest loss prevention network, the ADM institute documents and analyzes questions and key topic areas from events such as this workshop.

The Office of Agriculture, Biotechnology, and Textile Trade Affairs is leading the State Department's postharvest loss initiatives, though it is unclear whether there will be further events held in the Datapalooza series. More information on these efforts can be found [here](#). ¶

Recent Events

The ADM Institute has been involved both domestically and internationally in events concerning postharvest loss and agricultural development. Below is a partial listing of recent events in which representatives of the ADM Institute have participated:

November 2013

- 6-7th Research Professor Steve Sonka traveled to Beijing, China, to visit the Research Center for Rural Economy to discuss the wheat postharvest loss project framework. He also presented at a seminar series of the Chinese Academy of Agricultural Engineering on sustainable development and postharvest loss.
- 11-17th Project Coordinator Kari Wozniak participated in the [COP19 Social Media Boot Camp program](#) hosted by CGIAR in Warsaw, Poland. Hands-on knowledge and skills on online media strategy and social reporting were gained and utilized in developing the institute communication strategy.
- 13th Project Coordinator Grace Kenney participated in the [Postharvest Loss Ideation Jam](#) hosted by the Department of State in Washington, D.C. Experts from academia, government entities, and industry gathered to discuss postharvest loss challenges and how to address them.

December 2013

- 4-6th Research Professor Steve Sonka visited institute collaborators at [Nalanda University](#), [Bihar Agricultural University](#), and [Rajendra Agricultural University](#) in Bihar, India, with the International Rice Research Institute to visit sites and partners in their shared research and piloting project.
- 11-12th Research Professor Steve Sonka visited the [International Rice Research Institute](#) in Manila, Philippines, and presented the ADM Institute activities in postharvest loss.

January 2014

- 5-15th Agricultural and Biological Engineering and Supply Chain Management students were accompanied by institute faculty and staff on a field trip visit to study postharvest loss in India for the third time. Throughout the trip, students reported their learnings on the [ADM Institute's blog](#).

If there is a conference or event that should be brought to the ADM Institute's attention, please do not hesitate to inform us.



With clear evidence of success, the student trip made it to the university spotlight. (Photo: Illinois homepage)



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