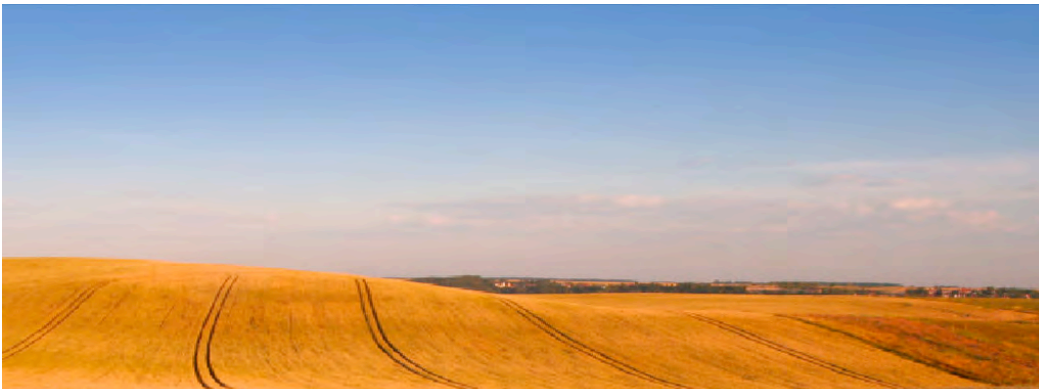


Periodic Update

ADM Institute for the Prevention of Postharvest Loss

May 31, 2011



About the University of Illinois at Urbana-Champaign

Illinois is a world leader in research, teaching and public engagement.

We are distinguished by the breadth of our programs, broad academic excellence, and internationally renowned faculty.

Our prominent alumni are Nobel and Pulitzer Prize winners, outstanding athletes, including Olympic medalists, astronauts and scientists, leaders of international corporations.

Illinois has more than 41,000 students and 3,000 faculty members.



Message from the Director

On an approximately quarterly basis, the ADM Institute for the Prevention of Postharvest Loss will prepare a short report chronicling progress since the previous periodic update. In addition to the file available for download, information on many of activities reported will be available on the ADM Institute homepage. The May 31, 2011, *Periodic Update*, is comprised of the following sections:

- Establishment of the ADM Institute – pages 2-6
- Organizational Development – page 7
- Collaboration Opportunities – page 8
- Institute Website Preparation – page 8
- Initial Funding Allocations – pages 9-10



About ADM

Every day, the 29,000 people of Archer Daniels Midland Company (NYSE: ADM) turn crops into renewable products that meet the demands of a growing world. At more than 240 processing plants, we convert corn, oilseeds, wheat and cocoa into products for food, animal feed, chemical and energy uses. We operate the world's

premier crop origination and transportation network, connecting crops and markets in more than 60 countries. Our global headquarters is in Decatur, Illinois, and our net sales for the fiscal year ended June 30, 2010, were \$62 billion. For more information about our Company and our products, visit www.adm.com.



Vision Statement

The ADM Institute for the Prevention of Postharvest Loss will serve as an international information and technology hub for evaluating, creating and disseminating economically viable technologies, practices and systems that reduce postharvest loss in corn, wheat and oilseeds.

Establishment of the ADM Institute



In January 2011, the announcement of the creation of the ADM Institute for the Prevention of Postharvest Loss resulted in several news reports published by various newspapers, websites and organizations.

Select stories appear on the following pages:

- Press Release – page 3
- AP news story – page 4
- Farm World – page 5
- Inside Illinois – page 6



Press Release

postharvestinstitute.illinois.edu

ADM Gives US\$10 Million to Found Institute to Reduce Global Postharvest Loss of Grains, Oilseeds

Jan. 19, 2011

University of Illinois research center will work to preserve more of what's grown worldwide

Archer Daniels Midland Company (NYSE: ADM) today founded the ADM Institute for the Prevention of Postharvest Loss with a US\$10 million grant to the University of Illinois at Urbana-Champaign. The global institute will work with smallholder farmers in the developing world to help preserve millions of metric tons of grains and oilseeds lost each year to pests, disease, mishandling and other factors.

"As we look ahead to the middle of this century, global population is expected to reach more than 9 billion people, and the demand for agricultural products is expected to as much as double," said Patricia A. Woertz, ADM chairman, CEO and president. "Clearly, preserving what is already grown is fundamental to feeding the world, and to making the most of the land, water, energy and other inputs already used to grow crops."

"Today, just 5 percent of all agricultural research dollars goes to the study of postharvest handling and infrastructure," Woertz added. "The ADM Institute for the Prevention of Postharvest Loss will focus on helping farmers around the world preserve more of what they grow through training, tools and technologies that can help eliminate pests and disease, enable more efficient grain storage and handling, prevent spoilage and improve crop quality overall."

According to the Food and Agriculture Organization of the United Nations, about 30 million metric tons of corn, 20 million metric tons of wheat, and nearly 3 million metric tons of soybeans – with an aggregate value estimated at more than US\$14 billion – went to waste worldwide in 2007, the latest year for which the FAO has made data available. The University of Illinois has noted that the amount of wheat and rice lost during that year could have satisfied the cereal-grain dietary needs of more than 380 million people. Much of the loss occurs in developing nations, which lack essential infrastructure, technology and training needed to prevent spoilage and waste.

University of Illinois president Michael Hogan said: "We are proud to partner with ADM to help advance practical strategies to combat postharvest losses. Our administration and faculty are committed to making this institute a leading research hub for preserving the global harvest of corn, oilseeds, wheat and rice – staple crops that account for a large percentage of the world's food."

The ADM Institute for the Prevention of Postharvest Loss's educational, research and outreach functions will include:

- promoting technology advancements and improved supply-chain and information systems;
- establishing strategic partnerships with government organizations, other academic institutions and NGOs to identify research needs and to enhance implementation of research results;

- developing courses to provide training on best practices and technologies for minimizing postharvest losses; and
- establishing an authoritative, Web-based postharvest loss data clearinghouse and resource center to accelerate the transformation of science into practice throughout the global corn, rice, wheat and oilseed supply chains.

Funding for the ADM Institute for the Prevention of Postharvest Loss will be provided by ADM Cares, a corporate social-investment program that directs up to 1 percent of ADM's pretax profits to initiatives and organizations that drive meaningful social, economic and environmental progress worldwide.

Steven T. Sonka, Ph.D., professor of agricultural management in the Department of Agricultural and Consumer Economics at the University of Illinois at Urbana-Champaign, will serve as the global institute's faculty director. Sonka has authored or coauthored over 220 books, articles and publications, and been recognized for distinguished teaching by the American Agricultural Economics Association and the National Association of Colleges and Teachers of Agriculture.

"ADM's widely recognized expertise in crop storage, transportation and handling will no doubt prove valuable to our global institute as we work to advance the real-world applicability of promising research findings," said Sonka.

AP News Story

dailyherald.com/article/20110119/news/110119326

ADM, U of Ill. start new food-waste research

By DAVID MERCER,
Associated Press
Jan. 19, 2011, 5:58 pm ET

URBANA, Ill. – Farmers in Argentina have found that simply using jumbo plastic bags can help protect their harvested corn from the elements before it's sold and heads for processing.

Measures like that — which could cut down on the millions of pounds of grain that spoil or otherwise go to waste each year — will be the focus of a new effort at the University of Illinois to find ways to help feed the developing world.

Archer Daniels Midland CEO Patricia Woertz and university officials announced plans Wednesday for the new ADM Institute for the Prevention of Postharvest Loss at the university's campus in Urbana. ADM plans to spend \$10 million over the next five years on the effort.

"There are existing technologies today that we know are not being implemented in developing countries," University Vice Chancellor Steve Sonka, who will lead the institute, said in an interview. "We need to know why."

The United Nations estimates that 10 to 15 percent or perhaps more of the world's grain goes to

waste each year. At the same time, roughly a billion people around the world don't have enough to eat — ADM cited University of Illinois research that indicates the wheat and rice lost around the world in 2007 could have fed about 380 million people.

"Clearly, preserving what is already grown is fundamental to feeding the world, and to making the most of the land, water, energy and other inputs already used to grow crops," said Woertz.

ADM, based 50 miles southwest of the university in Decatur, is one of the largest processors of corn, soybeans and other grains in the world.

The new institute will start work by trying to find and develop easy-to-use technologies like the corn bags in Argentina, studying why they're not being used in the developing world and figuring out to put them to work there, Sonka said.

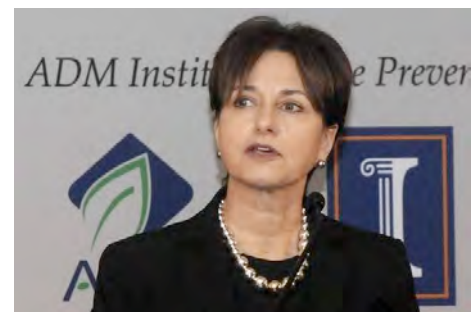
"What's being done and what are the impediments?" Sonka said. "Just assessing the current situation in a rigorous fashion."

Then he anticipates using the money to put researchers to work and getting the technology to the farmers and others who can put it to use. He isn't sure how many people he will need.

The institute also plans to work with similar efforts at schools like the University of California-Davis, where research focuses on wasted fruits and vegetables, Sonka said. He also hopes to work with government agencies and other groups around the world.

While ADM's commitment to the institute lasts five years — at \$2 million a year — Sonka hopes the work attracts attention and funding from governments and other companies.

"We believe this is a topic that has legs," he said.



Archer Daniels Midland CEO Patricia Woertz and university officials announced plans for the new ADM Institute for the Prevention of Postharvest Loss at the University of Illinois campus in Urbana.

Farm World

www.farmworldonline.com

Postharvest Loss Institute Focusing on Cutting Waste

By **TIM ALEXANDER**
Illinois Correspondent

URBANA, Ill. — The University of Illinois' new ADM (Archer Daniels Midland Co.) Institute for the Prevention of Postharvest Loss, established with a \$10 million grant from the company, will focus its initial efforts towards reducing world hunger in India and Brazil, according to Steven Sonka, UoI professor of agricultural management.

“(ADM’s) gift is a very large and generous gift, and the problem is enormous,” said Sonka, reflecting on the challenge the fledgling enterprise faces in identifying and reducing causes of postharvest losses that measure millions of metric tons of grains and oilseeds each year to pests, disease, mishandling and other factors.

With global population expected to reach 9.2 billion by 2050, preserving more of the Earth’s bounty of crops is fundamental to feeding the world, according to Patricia A. Woertz, ADM chair, CEO and president.

“This institute will help farmers around the world through training, tools and technologies that can help eliminate pests and disease, enable more efficient grain storage and handling, prevent spoilage and improve crop quality overall,” she stated.

The initiative, announced Feb. 20, is funded through the “Strong Roots”

branch of the company’s “ADM Cares” program, a corporate social investment initiative which examines problems and solutions pertaining to global agriculture.

“ADM leadership has publicly noted that postharvest waste is at high levels in some crops and in some countries. If we can reduce the waste, it will provide more food,” said Sonka.

Institute members will be added in the coming weeks, though their initial agenda is already defined.

“In particular, this institute will focus on staple crops such as corn, soybeans and wheat. We will be working with small-holder agriculture, not giant agricultural combines. We’ll be looking in developing countries, particularly where a lot of harvesting is done by hand,” Sonka explained.

“We have selected India and Brazil as our first targets because of their importance in terms of having large, small-holder agriculture segments and also because we have existing ties we will draw from.”

The next few months will be devoted to studying past data and crafting a more well-defined mission statement before the Institute begins fieldwork as early as in the fall, Sonka said.

Foremost experts in their fields employed by several departments of the university will spearhead the research.

“We have faculty from our College of ACES (Agricultural, Consumer and Environmental Sciences), our College of Business and College of Engineering (involved),” Sonka said.

“This is a global problem, but the characteristics are very local. Postharvest waste depends on socioeconomics but also climatic conditions. Our goal is to contribute to the more rapid identification and implementation of approaches that will help to reduce postharvest loss.

Methods and processes are at the heart of this, and we hope to contribute to developing improved and appropriate methods and processes.”

K.C. Ting, head of UoI’s Department of Agricultural and Biological Engineering for the College of ACES, said reducing crop waste in developing countries relies on site-specific approaches.

“We need to find the appropriate technologies for developing countries. Many of our solutions to these problems are technology- and facility-sensitive, but in developing countries you have to provide solutions that match the local environment,” according to Ting.

“The real challenge is to address and solve their problems in a way, and at a cost, that can be delivered to those producers within their infrastructure.”

Inside Illinois

A Publication of the News Bureau at the University of Illinois at Urbana-Champaign

news.illinois.edu

ADM funds news postharvest institute

February 17, 2011

Archer Daniels Midland Co. announced a \$10 million grant to establish the ADM Institute for the Prevention of Postharvest Loss at the UI. The global institute will work with farmers in the developing world to help preserve millions of metric tons of grains and oilseeds lost each year to pests, disease, mishandling and other factors.

“By the year 2050, global population is expected to reach 9.2 billion, and the demand for agricultural products is expected to double,” said Patricia A. Woertz, ADM chairman, CEO and president.

“Clearly, preserving what is already grown is fundamental to feeding the world. This institute will help farmers around the world through training, tools and technologies that can help eliminate pests and disease, enable more efficient grain storage and handling, prevent spoilage, and improve crop quality overall.”

Steve Sonka, vice chancellor for public engagement, will serve as

the global institute’s faculty director.

“ADM’s widely recognized expertise in crop storage, transportation and handling will no doubt prove valuable to our global institute as we work to advance the real-world applicability of promising research findings,” Sonka said.

Sonka will work with researchers in the College of Agricultural, Consumer and Environmental Sciences and in other colleges to develop research projects to solve postharvest problems.

The department of agricultural and biological engineering is one of the units in ACES and the College of Engineering that will work closely with the new institute.

K.C. Ting, the head of the department, said: “We need to find the appropriate technologies for developing countries. Many of our solutions to these problems are technology and facility intensive, but in developing countries you have to provide solutions that match the local environment.

The real challenge is to address and solve their problems in a way, and at a cost, that can be delivered to those producers within their infrastructure.”

The costs of feeding the world’s hungry will be addressed by researchers in the department of agricultural and consumer economics in ACES.

“Assessing the economic costs of quality and quantity losses along the relevant supply chains will be essential in developing low-cost sustainable solutions for improving handling, processing and storage,” said Paul Ellinger, a professor and the head of agricultural and consumer economics.

“Economic feasibility assessment of viable solutions combined with training materials for producers and handlers will also be essential to maintain sustainable outcomes.”

Funding for the new institute will be provided by ADM Cares, a corporate social-investment program.

Organizational Development

Efficiently achieving the ambitious goals of the ADM Institute requires establishment of an organizational structure, which is both robust in terms of capabilities and flexible in terms of utilization of a small staff component. The following organizational components have been implemented or are in process:

- 1) **External Advisory Committee:** a global panel that contributes to the development and implementation of the institute’s overall direction and facilitates access to the broader network of institutions relevant to the institute’s programs. The composition of this group is being defined with the goal of having the committee’s first meeting in early fall.

- 2) **Steering Committee:** responsible for development and for overseeing the implementation of the institute’s programs.
 - a. The Steering Committee is comprised of the following individuals:
 - i. Initial Director, Steve Sonka
 - ii. Four faculty members
 1. Andrew Alleyne
 2. Peter Goldsmith
 3. K.C. Ting
 4. Udatta Palekar
 - iii. Steve Mills as the ADM liaison

- 3) **Visioning Process:** The faculty and staff of the ADM Institute are engaged in the process to further refine the operational themes that will form the framework of the Institute’s activities. Mr. Chris Schroeder, Director of Centrec Consulting, is providing facilitation assistance for the process. The process will be completed by the end of June 2011.



Visioning Process Participants

Andrew Alleyne
Mechanical Science and Engineering

Pete Goldsmith
Agricultural and Consumer Economics

Barry Pittendrigh
Entomology

Karen Bender
Corporate Relations

Rob Hornbaker
Agricultural and Consumer Economics

Megan Puzey
Program Coordinator, Public Engagement

Maria Julia Bello Bravo
Field Extension Specialist

Pradeep Khanna
Associate Vice Chancellor, Public Engagement

Chris Schroeder
Director, Centrec Consulting Group

Ximing Cai
Civil and Environmental Engineering

Mindy Mallory
Agricultural and Consumer Economics

Steve Sonka
Director, ADM Institute

Mary Grace Danao
Agricultural and Biological Engineering

Stacey Nosler
Office Support Specialist, Public Engagement

K.C. Ting
Agricultural and Biological Engineering

Steve Eckhoff
Agricultural and Biological Engineering

Udatta Palekar
Business Administration

Madhu Viswanathan
Business Administration

Collaboration Opportunities

Since public announcement of the ADM Institute, a number of potential collaborating organizations have been in contact with leaders of the ADM Institute. Proposals have been developed (and others are in development) with those institutions. As the outcomes of those efforts become known, they will be described in future Periodic Updates.

ADM Institute faculty and staff are in the process of meeting with potential collaborating entities. For example, Steve Sonka and Pradeep Khanna visited with a number of entities that have potential interest in research collaborations while in India for other purposes during the week of February 27, 2011. Part of that interaction included a visit to farms and post harvest facilities. A photo from that visit is shown at right and a brief overview of that visit is included as Appendix 1 at the end of this document. Additional interactions with entities in India and Brazil are scheduled for Summer 2011.



Steve Sonka and Pradeep Khanna visit Bulandsahar, India on March 1, 2011 to learn about the storage of grains throughout the food chain, specifically at home, as shown in this photo.

Institute Website Preparation



The ADM Institute website went live in January 2011 to coincide with the announcement. The site provides the vision statement, structure, leadership, focus areas, research initiatives and resources. The resources section currently contains links to relevant external postharvest literature, tools, databases, projects, videos and events. In the future, the outreach section of the website will feature ADM Institute reports and events. Continue to check the website for updates.

Initial Funding Allocations

The Visioning Process will be concluded in the near future. It will identify themes and set directions for the vast majority of the institute's programs. In anticipation of those efforts, a number of research activities have been initiated to create research capacity to support the institute. Brief descriptions of those efforts are provided here.



Department of Agricultural and Biological Engineering Steve Eckhoff, Grace Danao and K.C. Ting

The Department of Agricultural and Biological Engineering (ABE) is currently in the process of compiling and assessing relevant literature on the severity of the postharvest losses in the target countries and on the costs of newer storage, handling technology. A wiki site was set up to allow researchers access to an online database of information and the resources that have been identified thus far are also available on the ADM Institute for the Prevention of Postharvest Loss website. During the spring 2011 semester, ABE graduate student Ning Wang worked with the Institute and with other graduate students to compile relevant data. ABE plans to distribute a white paper on their findings in fall 2011. ABE is also in the process of identifying potential partners in the targeted countries.

Department of Computer Science Tarek Abdelzaher

Tarek Abdelzaher is in the process of creating a pilot project to build an automated information collection and management service that allows a provider to prompt large groups of individuals to share data via their cell phones on selected issues of concern. He is using crowd sourcing to extract accurate information by involving the general population in data collection and feedback. By using this method, he should be able to improve awareness of bottlenecks, inefficiencies, and the causes of postharvest loss.

Department of Business Administration Udatta Palekar

Udatta Palekar is currently working on two projects. The first project is developing a hands-on technique to help analyze postharvest loss at a micro-level by repurposing a successful technique from Lean manufacturing. He is creating a process map that will help identify the sources of waste and plan for an improved future state process plan. One of Udatta's undergraduate classes finished a group project on the agricultural supply chain in the spring 2011 semester.

Udatta Palekar is also working on modeling the agricultural supply chain. This project considers more systemic causes of postharvest loss by studying the supply chain model in a game theoretic context.

Initial Funding Allocations

Department of Agricultural and Consumer Economics Rob Hornbaker

Rob Hornbaker is currently undergoing an extensive assessment project to determine the current level of preventable postharvest losses and to identify alternative scale appropriate technology for reducing postharvest loss. He is currently in the process of conducting a literature review to assess historical losses in India and will also do the same review for Brazil. The final deliverable of Rob Hornbaker's work will include a white paper outlining the supply chain for at least one or two of the crops of interest in Brazil and India that will include initial estimates of the postharvest loss for the key stages of the supply chain.



Department of Agricultural and Consumer Economics Pete Goldsmith

Pete Goldsmith is currently in the process of identifying potential collaborators in Brazil. Pete is planning a trip to Brazil in early June to meet with these potential collaborators to establish: research partnerships; operating processes and procedures; and the boundaries of the research activities.

Pete Goldsmith is also working on a project titled "Understanding PHL and On-Farm Storage in Mato Grosso: Liquidity, Transparency, Risk and Access to Capital." The research will study the issue of the under supply of private on-farm and cooperative storage in developing countries. In particular, the working hypothesis is that the business, legal, and institutional environment in developing countries elevate risk and induce capital market failures associated with storage investments.

Department of Agricultural and Consumer Economics Mindy Mallory

Mindy Mallory has started two white papers on the policy implications on postharvest loss in both Brazil and in India. As a part of her research, she will identify policies that either help or hinder investment in postharvest infrastructure in the two countries.

Department of Civil and Environmental Engineering Ximing Cai

Ximing Cai is in the process of investigating optimal engineering solutions and infrastructure investment required to minimize postharvest loss in crop quantity and quality. His group is modeling a large scale crop supply system including harvesting, handling, storage, processing, transportation and distribution in markets. The first area currently being investigated are the risks associated with physical, environmental and social factors and an assessment of the economic benefits and costs of technical options. The second area being investigated is a project to determine the multi-echelon supply chain design to reduce postharvest loss under stochastic and dynamic/seasonal demand.

Contact the ADM Institute

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Supply Chain of Grains - Post Harvest Practices

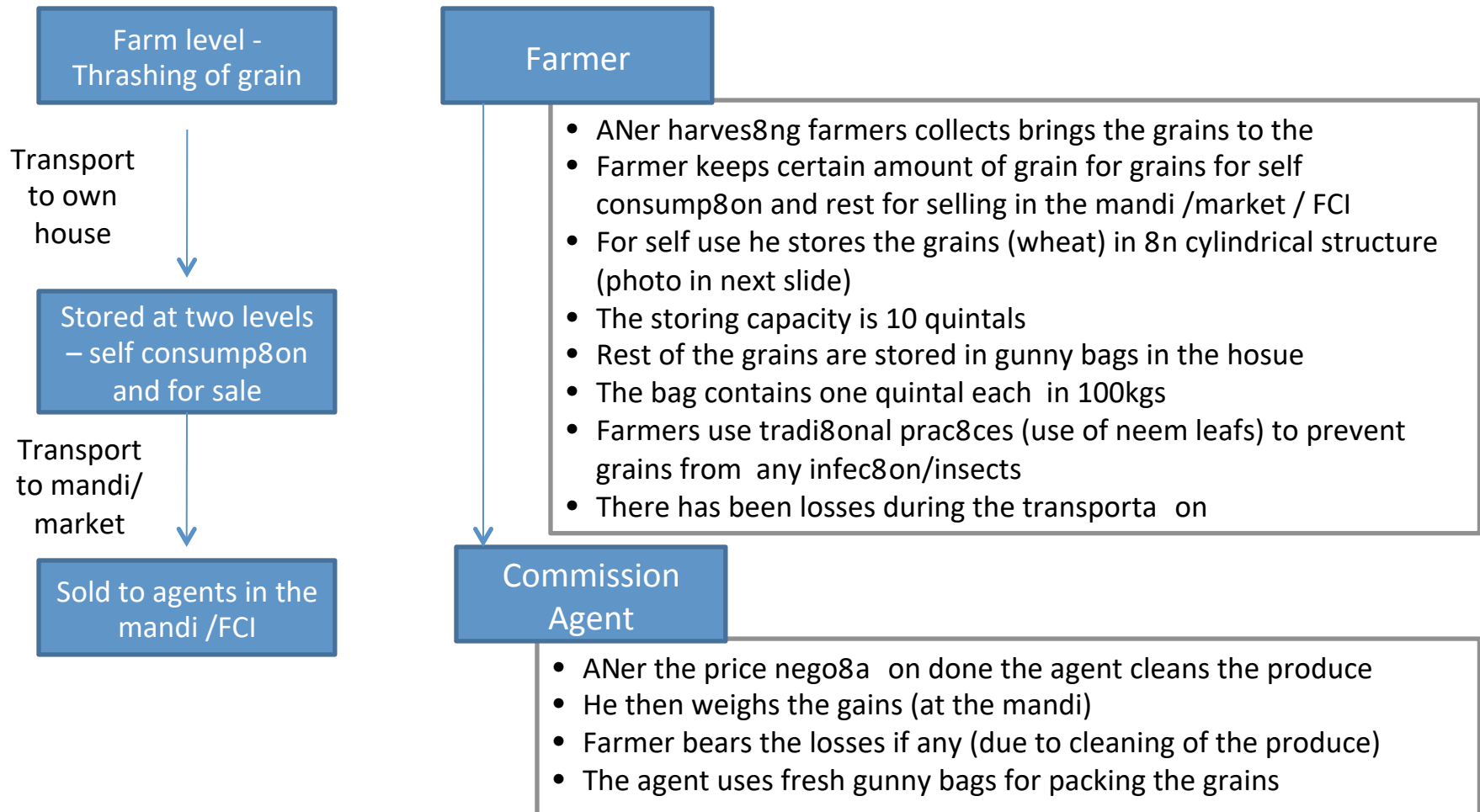
Exploratory Visit to Bulandsahar, UP

March 1, 2011

Stakeholders Interacted

- Visit to village – Interactions with farmers
- Visit to Mandi – Interaction with commission agents and wholesalers
- Visit to Warehousing Storage – Interaction with Officer In-charge

The Supply Chain – Farmer to Comm Agent



Household - Storing of Grains



Kept for self
consumption

Grain packed in gunny bags



Freshly packaged grains by farmers - ready to be transported to Mandi

The Supply Chain - Mandi Level

Commission agent



Wholesalers

- The commission agent immediately sells the produce to wholesalers in the mandi
- The agent does not store the produce
- All the agents claim that there is no loss and wastage after the gains are packed in the mandi level
- These agents transact on cash with farmers and there have been huge dependency of farmers on these agents.
- Agents mostly provide financial support to the needy farmers and create vicious bond due to which the farmer generally sales to the same agent
- The agent sales the produce to the wholesaler for which he earns the commission

- The wholesalers in the mandi buys from the agents
- Wholesaler keeps grain in the store &ll the &me he sells it in higher markets / big buyers / millers etc.
- These wholesalers have smaller godown in the mandi and can store up to 5 to 10 tons
- Most of the wholesalers keep the grain in WHC storages
- Some big wholesalers have their own storage system
- They are generally aware about the practices to fumigate and cleaning of grains

Photographs of Mandi



Warehouses

- The warehousing facilities are available at the mandi / town level
- The capacities varies – (the one we visited has capacity of 17000 quintals)
- FCI, Agencies like NAFED, big traders and wholesalers and farmers keep grains here
- Technical team has been placed to take care of grains from any insecticides etc.
- Grains stored here up to a maximum of 2 years.
- Most of the warehousing structures are quite old (more than 30 years)
- There is a need for more such storages to match to increase in production of grains
- Around 20% of grains still managed in open yards due to which there have been instances of heavy wastage (due to sudden rain etc.)



Key Points

- The grain movement from farm gate to market passes through many channels and at each level there has been some wastages
- It seems the maximum loss happens between farm gate to mandi level market
- The need to educate all stakeholder including the farmers is very apparent
- There is a need to understand these issues more scientifically by analysing the entire supply chain of grains to find out points of wastage and leakages and likely solutions
- The specific points of interventions, in terms of appropriate technologies and practices to reduce losses, should properly researched