C-FAR: The Food and Agricultural Research Arm for Illinois

Research Outcomes & Leveraging Highlights

Illinois Council on Food and Agricultural Research

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The Illinois Council on Food and Agricultural Research (C-FAR) is a statewide partnership that supports relevant, high-quality research and related outreach programs for Illinois' food, agricultural, and related systems. C-FAR was founded to address the critical need to increase state funding of food and agricultural research, and to provide public input into setting research priorities.

C-FAR research funding, appropriated by the State of Illinois, has an immense impact on the quality of life of Illinois citizens and the economy of the state. Research investments are guided by Illinois citizens via the C-FAR membership to ensure that the most critical research needs of the state are met. The following are just a few examples of C-FAR-funded research outcomes that are benefiting the people of Illinois.

Biomass energy crops developed for use as alternative fuel source

Miscanthus, a tall perennial grass, is being developed as a potential renewable energy source for Illinois and profitable alternative crop for Illinois producers. This research was instrumental in a large-scale bioenergy initiative being established in Illinois. The energy company BP selected the University of Illinois at Urbana-Champaign to partner in its new Energy Biosciences Institute. Illinois will receive about $100 million over 10 years (2007-2017) to conduct its portion of the research.

"The support we have received from C-FAR was a critical factor in Illinois being selected for this new, large-scale research program. I am certain we would not have been considered if it had not been for the C-FAR initiative on biomass energy crops," said Stephen Long, a UIUC professor of crop sciences and plant biology and lead EBI investigator for Illinois.

Center promotes soybean production and consumer nutrition

The Illinois Center for Soy Foods promotes the global consumption of soy foods, thereby providing benefits to soybean growers, processors, and consumers in Illinois. The center addresses: soy product development, soy consumer acceptance, soy processing technology transfer, and soy education and outreach.

"The Soy Foods Center has been most helpful in carrying out the School Lunch program with Archer Daniels Midland Company sponsorship," said Ken Dalenberg, Illinois Soybean Association board member and United Soybean Board director. "The inclusion of soy products in the school systems has been beneficial to children with lactose intolerance. This option for students will help them learn of the benefits of eating soy in their future."

Illinois water nutrient standards based on science

The Illinois Environmental Protection Agency and Illinois Department of Agriculture are using scientific data from C-FAR research to help establish nutrient water quality standards for Illinois. State agencies and researchers collaborated to determine the relationship among nutrients, chlorophyll-a, and dissolved oxygen in streams and rivers throughout the state.

"We are fortunate to have such an important effort underway in the region," said Jo Lynn Traub, former Water Division director for the United States Environmental Protection Agency. "The C-FAR effort is making a major contribution to the work of developing scientifically defensible nutrient water quality criteria for the surface waters in Region 5."

Illinois' livestock industry strengthened

Research is providing pertinent information to Illinois producers regarding livestock facility siting, using distillers grains in livestock diets, integrating animal grazing systems into a conventional crop rotation system, and animal identification for enhanced food quality and monitoring livestock health. Twenty-two workshops were held throughout the state from December 2006 to March 2008 reaching a total of 481 producers, contractors, and educators.

Ethanol production spurs new opportunities for Illinois agriculture

As ethanol production increases, so does the amount of available distiller's grains, a co-product of the ethanol distillation process. Researchers are seizing this opportunity to develop distiller's grains as a value-added livestock feedstuff ensuring that Illinois' corn and livestock industries, and ultimately all citizens, benefit from this new dynamic in Illinois agriculture.

"Ethanol and livestock are the two largest consumers of Illinois corn," said Rod Weinzierl, executive director of the Illinois Corn Growers Association. "This research will make it possible for both industries to exist and flourish, maintaining valuable markets for Illinois' rapidly increasing corn crop."

Farmers increase revenues while consumers enjoy higher quality meats

New marketing resources and networks are helping Illinois livestock producers boost their income and better meet consumer demand by providing a greater selection of meat products. One example is the Premium Beef Project which is linking Chicago independent grocers with downstate beef producers. Consumers are able to purchase locally produced high-quality beef products marketed under the Illinois Crown Beef label.

"Since we became involved in this project, we've learned a tremendous amount about Illinois-produced beef and believe it offers us and other independent grocers a tremendous advantage," said Dale Instefjord, general manager of the Blue Goose Supermarket in St. Charles

Rural development initiative generates economic impact over $150 million

A strategic research initiative focused on rural community development in Illinois resulted in a combined economic impact of over $150 million. This includes 88 new or expanded value-added agricultural enterprises, 457 new jobs, $18 million in new annual payroll, $45 million in value-added sales increases, $6 million in new capital investment, and $3.3 million in leveraged project dollars.

"This is an extremely positive public interaction in rural development with significant public policy implications. It has special value to some of the more economically distressed areas of our state, including southern and western Illinois," said late U.S. Senator Paul Simon

Did You Know?

C-FAR was highly instrumental in the establishment of collaborative, multi-institutional food and agricultural research initiatives now taking place among Illinois' four universities and other research entities in the state.

Food safety programs prevent foodborne illness in Illinois

Hazard Analysis Critical Control Point (HACCP) training programs, food safety curriculums, and public service announcements continue to educate food service personnel and the general public on safe food handling. More than 1,000 Illinois food service professionals and 150 local environmental health specialists have been trained in HACCP procedures. HACCP programs have been developed for small meat processing facilities and farms, day care centers, school meal programs, long-term care facilities, hospitals, restaurants, and more. Foodborne illnesses affect more than 3,200 Illinois residents annually who must seek medical attention.

"The development of more visual, multimedia, near-wordless training materials in food safety is strongly encouraged and needed," said Jim Bloom, former food program manager of the Division of Food, Drugs and Dairies at the Illinois Department of Public Health. "The wordless materials eliminate language barriers regardless of an individual's background."

Worldclass research facility finding solutions for future Illinois crops

An open-air laboratory is determining the effects of rising atmospheric carbon dioxide and surface ozone on Midwestern crops. Located at the University of Illinois at Urbana-Champaign, it is the world's largest Free Air Concentration Enrichment (FACE) facilities.

"We need to seriously re-examine our predictions of future global food production," said Steve Long, crop scientist and a lead investigator at the University of Illinois at Urbana-Champaign. Output is "likely to be far lower than previously estimated."

New technologies support sustainable swine industry

New management systems and technologies have been developed to support an environmentally sustainable, socially acceptable, and economically viable swine industry in Illinois. Odor and manure management technologies using anaerobic digestion, dedusters/wet scrubbers, and composting systems have been developed and are being transferred to commercial application. Computer-based models are aiding in facilities siting and odor and manure management decisions.

Over 43,000 students learn the importance of food safety

Food Safety: It's A Life Science is a program developed for elementary students, coordinated with State Learning Goals, which focuses on the importance of food safety. Over 43,000 students in 1,400 4th- through 6th-grade classrooms, located in and around Chicago participated in this program, which helped the students learn to apply food safety concepts and information to their everyday lives while learning language, mathematical, and analytical skills.

"Thank you so much for supporting the food education project. Learning about food safety is very important to us," said Adriana Leal, sixth grade teacher at Rosario Castellanos School in Chicago

Did You Know?

The availability of C-FAR funds have been pivotal in attracting and retaining top scientists with the interest and expertise to conduct research aligned with the needs of Illinois.

Groundbreaking website for watershed management
The Illinois Watershed Management Clearinghouse website at *www.watershed.uiuc.edu* offers unbiased data, sound research andeducational links and resources related to watersheds and watershedplanning. This cutting edge website is co-sponsored by C-FAR, the University of Illinois Extension, the Illinois Department of Natural Resources, and the Illinois Environmental Protection Agency.

"The watershed management website provides practical information to agricultural producers, Soil and Water Conservation Districts, and other individuals and groups working to protect one of Illinois' greatest resources – water," said Mike Beaty, former manager of the Division of Natural Resources at the Illinois Department of Agriculture

Farmdoc website provide invaluable tools for farmers

Comprehensive Web-based information systems have been developed and are assisting Illinois producers. The farmdoc website at *www.farmdoc.uiuc.edu* offers farmers and other agricultural decision-makers comprehensive risk- and business-management tools. The website averages 35,000 different visitors per month.

"Farmdoc has been of great value to me both personally and professionally. I use it regularly to check markets, weather and find the latest information on a wide array of current issues affecting agriculture," said Alan Puzey, C-FAR member, farmer and insurance agent. "As a rural insurance agent, farmdoc provides one of the best explanations of the Federal Crop Products available to my clients. I refer them to the site on a regular basis."

Tomato-based vaccine developed to save lives
A plant-based edible vaccine has been developed against one of the most serious human respiratory diseases – the human respiratorysyncytial virus (RSV). Tomato plants may soon be used to produce and deliver an edible oral vaccine that protects humans in the U.S. and around the world against this potentially deadly virus.

"This novel and original research offers Illinois agriculture a new and exciting opportunity to grow crops for the purpose of biopharming – growing specialty high-value crops for pharmaceutical use," said Dr. L. Art Spomer, professor of plant physiology at UIUC

Superior apple varieties developed

Using leading-edge genetic engineering, researchers have identified the gene responsible for resistance to apple scab found in a crabapple line, and they have cloned the gene for transfer into select apple varieties. By transferring the cloned disease-resistant gene into common apple varieties, it is anticipated that producers will be able to reduce chemical spray usage while consumers continue to enjoy their preferred apple varieties.

"As an apple grower, I am very concerned about the environment and the cost of apple production," said Randy Graham, co-owner of Curtis Orchard in Champaign, and member of the Illinois State Horticultural Society. "C-FAR research is critical for Illinois apple producers because applicable research must be carried out in the region where it will be used."

Did You Know?

C-FAR research advances technologies and creates new opportunities in food safety, human nutrition, crop and livestock production, rural economic development, natural resource protection and areas extending far beyond those associated with traditional agriculture.

New landscaping products boost Illinois' green industry

Consumer interest in use of native plants for landscaping has increased in recent years offering a new marketing niche for Illinois' green industry. Six flowering perennial plants native to Illinois have been identified with significant market potential for Illinois' nurseries. They include wood mint, purple prairie clover, Bradbury beebalm, spotted horsemint or beebalm, wild bergamot or horsemint, and royal catchfly. These attractive plants were selected based on their overall quality coupled with their ease of production.

"The use of natives in commercial, public and residential landscapes is among the fastest growing areas in the Illinois Green Industry. Traditionally, Illinois nurseries have not produced native perennials in mass. However, the demand for these native plants are increasing at a record pace, thus creating the need for research in this area," said Dave Bender, executive director of the Illinois Nurserymen's Association

Food safety technology reaches commercialization

A fast, inexpensive and reliable bacteria detection system has been developed to test for potentially dangerous pathogens in food such as *Salmonella, Listeria, E. coli,* and *Campylobacter.* The Centers for Disease Control and Prevention (CDC) estimates that foodborne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year – and Illinois has ranked among the top three states in the number of foodborne illness outbreaks.

"Pathogen detection is critical for food and meat processing facilities as well as government agencies and health care organizations," said Dr. Myung L. Kim, founder and CEO of Kim Laboratories, Inc. in Champaign. "This new technology offers ultra-sensitive, reliable results typically within one hour. This is significantly faster than competing test methods that require one to seven days to obtain results."

Clean Hands Coalition website keeping thousands healthy

The Clean Hands Coalition is a unified alliance of public and private partners working together to create and support coordinated, sustained initiatives to significantly improve health and save lives through clean hands. The Clean Hands Coalition website at *www.cleanhandscoalition.org* and members' websites reach over 10,000 people each week on the importance of handwashing.

Illinois foods protected through new technology

A non-thermal microbial inactivation technique using high-pressure processing was developed and is being used commercially. The first two high-pressure-processed products (guacamole and oysters) are now available in the U.S. market.

Increased protein proving beneficial to individuals with type 2 diabetes
Type 2 diabetes is rapidly increasing in the U.S. and the developed world. Diets with increased high-quality protein and reduced levels of high-glycemic carbohydrates have been shown to contribute to enhanced regulation of blood glucose and insulin when compared with more traditional diets containing high carbohydrates and low protein intakes.

Confectionery manufacturers share information to strengthen industry
The Chicago metropolitan area is home to 46 companies whose primary business is confectionery manufacturing. These companies produce a wide range of products including gum, non-chocolate candies, and chocolates. They are both market leaders in most categories of confectionery products, as well as leading small niche players. A survey of U.S. confectionery manufacturers gathered pertinent information on this industry to share with Illinois confectionery manufacturers, trade associations, and other researchers.

Organic produce tools available via Internet
Ninety-five percent of organic produce purchased in Chicago is sold through large supermarkets, accounting for over $60 million in revenue. Only a very small percentage of this organic produce is grown in Illinois. Tools have been developed to assist Illinois' current organic farmers and those interested in transitioning into organic production. This information is available at http://asap.sustainability.uiuc.edu/.

Rural landowners receive assistance regarding recreational leasing
Fifty-two Illinois farm managers completed a recreational leasing survey. Respondents manage a total of 585,000 acres, of which 18,300 acres are under recreational leases. This study is providing farmers, landowners, and professional farm managers with important information about the recreational lease market in Illinois.

YouthWorks: strengthening the future of Illinois' rural communities
Meaningful partnerships between local youth and adult community members are being built to further the engagement of young adults in Illinois' agricultural and entrepreneurial systems and to enhance local youths' commitment and future contributions to their community.

Vegetables fight prostate cancer
Tomatoes and broccoli, eaten in combination, may be an effective dietary treatment for slowing prostate cancer growth. Using a laboratory rat model, researchers have demonstrated that the two foods curtail tumor growth more effectively when consumed together.

Soybean disease resistance technology transferred to private sector
DNA markers for advanced selection methods for disease resistance have been transferred to the private sector. Utilizing this technology, producers are expected to be able to reduce yield losses associated with soybean sudden death syndrome by 50% within the next 10 years and improve grower annual income by $156 million.

"This work has been extremely important to Illinois producers, as well as to the state's economy," said Steve Scates,C-FAR board member and former chair of the Illinois Soybean Program Operating Board

Swine research spins off new company and 15 patents
Research in transgenics, stem cell, and microfluidics in swine has generated 15 patents. A startup company, Vitae, LLC., which has received support from the U.S. Department of Agriculture and National Institutes of Health, has licensed the technology.

"Developing new technologies is crucial in assisting pork producers in Illinois and the United States to remain competitive in an ever-increasing global marketplace," said Jim Kaitschuck, executive director of the Illinois Pork Producers Association

Recycling technologies developed for urban and rural waste

Innovative technologies are being used to recycle livestock and urban waste into value-added compost. Fifteen compost sites are either currently in development or already in production across Illinois. Three new compost products are being marketed, including *Sweet Earth*, which is approved by the Illinois EPA and can be produced by any farmer who meets product specifications.

"New composting technology has produced a win-win situation for both our livestock operation and our city friends. By combining hog waste from our farm with urban waste such as grass clippings and brush from Elgin and points east, we are able to produce excellent compost with an appealing earthy aroma. This is a great way to recycle farm and urban waste and put valuable organic matter back into the soil," said Bill Dumoulin, swine producer from Kane County

Value-added agriculture expansion adds more than $42 million to farm income
Illinois farmers are increasing their farm income through new opportunities to produce and market value-added farm products. Since 1999, it is estimated that value-added crop production expansion has increased Illinois farm income by more than $42 million.

"The Value Project has become one of the most effective forces for integrating research and extension activities in the area of specialty farm product development," said former Illinois Farm Bureau President Ron Warfield.

Higher corn yields and reduction in fertilizer use benefit all

Ten percent higher corn yield during drought conditions and increased feed value during good rainfall years are now being realized through new corn production technology. Fertilizer requirements are also reduced which results in less fertilizer runoff into surrounding water supplies.

New technology used throughout the world
A software program called Enhanced Farm Research Analyst allows farmers, consultants, and researchers to conduct complex field experiments on-farm. It is an extension for ArcView GIS 3.x (ESRI, Inc.), which is the most widely used GIS product in the world. This software is currently being used by researchers and producers throughout the world.

Did You Know?
The annual economic rate of return on public investments in food and agriculture research is 35 to 60% according to numerous nationally recognized studies.

Did You Know?

The C-FAR membership includes 60 statewide organizations representing nearly all Illinois food and agricultural industry sectors; 40 university and research-based entities; and a host of individuals who also support food, agricultural, and related research in Illinois via C-FAR.

Revolutionary technology assists in resource management

The Resource Management Mapping Service (RMMS) was developed to improve the protection and management of Illinois' natural resources. This online tool has been used extensively by Illinois watershed management groups. In February 2006, the Illinois Environmental Protection Agency became the granting sponsor of RMMS with additional support from the Illinois State Geological Survey (ISGS).

Farm retail businesses increase revenues

Farm supply managers are making important business decisions on price setting, purchasing, marketing, hiring, loans, and more through an innovative interactive business simulator called ProStar. The ProStar simulator is a valuable tool to agribusiness professionals throughout Illinois. It has been successfully used in business management training programs at GROWMARK for the past five years.

*"The **ProStar** simulation program is an extremely valuable tool to GROWMARK, Inc. and to the local FS member cooperatives throughout Illinois," said Ed Rose, GROWMARK business development manager*

Butanol: a potential biofuel for Illinois

New technologies have been developed that significantly reduce the cost of production of bio-based butanol. Butanol is miscible with gasoline and diesel fuel and has high energy content. Butanol production from corn will benefit the environment, reduce petrochemical dependence, and provide a potential new market for farmers.

Improved feed benefits poultry industry

Approximately 80% of the diets fed to the 260 million laying hens in the U.S. now contain the phytase enzyme to improve phosphorus utilization and to reduce excretion of phosphorus in the manure. Approximately 15% of the diets fed to the 8 billion broiler chickens in the U.S annually now contain the phytase enzyme for the same reasons. 1-alpha-hydroxy cholecalciferol has been patented for improving phosphorus utilization in poultry.

Innovative hay covering pays dividends for farmers

A durable, edible covering for large round hay bales has been developed to protect these products from weather damage and provide valuable nutrients to the animal. The economic implication of reducing losses through improved harvest and storage technologies is significant considering the 68-78 million metric tons of alfalfa lost annually in the United States is valued over $10 billion.

New management practices produce more high-quality beef

Revolutionary new management systems are changing the beef production systems of many Illinois beef producers. Livestock producers throughout Illinois have adopted innovative systems to produce high quality beef at lower cost.

"The Illinois Beef Quality Initiative focused on ways that producers can enhance carcass quality and yield grade. This is extremely beneficial to the state's beef producers," said Larry Corah, assistant executive director of the supply development branch of the Certified Angus Beef Program

MarketMaker website making connections across Illinois and beyond

The MarketMaker website was created to connect Illinois producers, processors, retailers, consumers, and other food supply chain participants. The success of this program has led to a 13-state partnership collaborating in a national MarketMaker network with an additional 18 states expressing interest in the project. It is the nation's most extensive collection of searchable food industry-related data with over 300,000 food related enterprises listed, including expanded profiles for 5,100 farmers who are registered on the site.

"MarketMaker is a great resource. It improved our understanding of food marketing and provided us with better access to regional markets," said Jeanne Harland, Illinois beef producer. "The first time we stood in front of the meat case in a Chicago area store and saw beef that had been raised on one of our farms, it was an awesome experience."

Wool producers market value-added products

The Illinois Value-Added Wool Producers, Inc. cooperative was formed to develop and market products manufactured from Illinois wool. Illinois lamb and wool producers are enhancing the value of their wool and identifying new markets to boost their industry with assistance in product feasibility, new product development, and marketing. Prototype wool filters have been developed for possible use in reducing odors in swine confinement buildings.

"There is a real need to find a market for Illinois wool. Hopefully, with the help of C-FAR, a good solution to low wool prices will be found," said Gene McGrew, wool producer from McDonough County

Horse breeders improve production and save dollars

Researchers have developed a way to prevent and cure uterine infections in mares that is less expensive, faster, safer, and more effective than the usual approach of prescribing antibiotics. A mannose-based solution is being used to flush out disease-causing bacteria (mannose is a plant sugar).

"Lost production due to uterine infections costs the U.S. horse industry tens of millions of dollars each year," said Sheryl King, director of the equine program at Southern Illinois University at Carbondale

Visit the C-FAR website at www.ilcfar.org/research/reports.html for final reports for C-FAR-funded research initiatives completed in 2000 to current.

Did You Know?

The C-FAR appropriation is the core base of State of Illinois non-salary operating funds to conduct food and agricultural research in Illinois.

C-FAR Investment Attracts Millions of Dollars to Illinois

C-FAR research investments are leveraged to attract millions of additional dollars into Illinois' economy. Researchers successfully leverage their C-FAR funds to gain additional dollars for high-impact research. In recent years, every dollar appropriated for research has been leveraged to obtain roughly four dollars in matched funding.

The C-FAR appropriation often serves as "seed money" to begin a research initiative, which can lead to substantial funding from federal, private, and other funding entities. The following are just a few examples of how C-FAR research investments are being leveraged.

Project Title	Leveraged Funding Source(s)	C-FAR Investment	Leveraged Funding
Biomass Energy Crops for Power and Heat Generation in Illinois	BP and National Science Foundation	$1.2 million	**$102 million**
Development of a Post-Menopausal Animal Model for Evaluation of Effects of Soy Isoflavones on Mammary Tumor Growth and related projects	National Institutes of Health and Department of Defense	$419,340	**$10.4 million**
Cost Effective Catalytic Methods for Odor Reduction in Swine Facilities	Defense Advanced Research Projects Agency (Department of Defense)	$407,000	**$7.3 million**
Soybean Sudden Death Syndrome Marker Assisted Selections	U.S. Department of Agriculture, National Science Foundation, Illinois Soybean Association, North Central Soybean Research Program, United Soybean Board, Illinois Missouri Biotechnology Alliance, Monsanto, Syngenta Seeds, FFR, Land O'Lakes, and Golden Harvest Seeds	$368,000	**$7.3 million**
Research and Discovery Program to Abate the Threats and Harness the Potential of Atmospheric Change to Benefit Illinois	U.S. Department of Energy, the U.S. Department of Agriculture, National Science Foundation, Archer Daniels Midland, Pioneer Hi-Bred, BASF International, Argonne National Laboratory, and Brookhaven National Laboratory	$1.9 million	**$4.1 million**
Establishing an Illinois Soy Foods Center for Research and Education	U.S. Department of Agriculture, American Soybean Association, and Illinois Soybean Association	$1.4 million	**$4.0 million**
Characterization of Nitrogen Use Efficiency in the Illinois Protein Strains	National Science Foundation Plant Genome Program, Pioneer, BASF, Ceres, and Syngenta	$112,000	**$3.6 million**
Broccoli and Health and related projects	U.S. Department of Agriculture	$342,000	**$3.1 million**

Project Title	Leveraged Funding Source(s)	C-FAR Investment	Leveraged Funding
Transgenic Swine Program	U.S. Department of Agriculture, Biotechnology Research and Development Corporation, the National Science Foundation, and Infigen, Inc.	$642,961	**$2.7 million**
Impact of Soy Components on Quality of Life During Aging	National Institutes of Health	$305,984	**$2.5 million**
Innovative Finishing and Marketing Strategies for Small Beef Producers and related projects	U.S. Department of Agriculture	$192,000	**$2.2 million**
Harnessing the Benefits of an Apple Scab Resistance Gene	National Science Foundation	$104,400	**$1.65 million**
Farm Decision Outreach Central (farm.doc)	U.S. Department of Agriculture	$365,000	**$1.54 million**
The Post-Antibiotic Era of Food Production	National Institutes of Health	$90,000	**$1.35 million**
Comparative Effects of Soybean Constituents on Cardiovascular Risk: In Porcine	National Institutes of Health	$108,969	**$1.3 million**
Neurochemistry of Growth and Leptin	U.S. Department of Agriculture and National Institutes of Health	$69,000	**$1.3 million**
Evaluating Corn GMOs for Safety, Equivalence, and Environmental Impact and related projects	U.S. Department of Agriculture, National Science Foundation, Illinois Missouri Biotechnology Alliance, Illinois Corn Marketing Board, Frasch Foundation, Monsanto, Syngenta Seeds	$104,000	**$1.2 million**
Oocyte Penetration: An Indicator of Sperm Fertility and a related project	U.S. Department of Agriculture and National Institutes of Health	$84,820	**$1.16 million**
Creating Niche Market Opportunities in Animal Feeding for Small Farmers with Soybeans	Pyxis, Illinois Soybean Association, U.S. Poultry and Egg Association	$900,000	**$1.01 million**
Various Capacity Aerodynamic Dedusters for Livestock Buildings	Deere & Company and Office of the Illinois Attorney General (Vitamin Anti-Trust Settlement)	$204,150	**$936, 518**
Thermochemical Conversion of Swine Manure to Produce Fuel and Reduce Odor and Waste	U.S. Department of Energy, Grainger Foundation, Worldwide Water Solutions, and Archer Daniels Midland	$182,000	**$897,564**
Genetic Analysis of Salmonella Isolates from Swine Production Units	U.S. Department of Agriculture NRI program on Epidemiology and Food Safety	$57,493	**$885,294**
Plant Disease Molecular Diagnostic Initiative	U.S. Department of Agriculture, National Research Initiative	$180,000	**$856,842**
Crop Rotation Collapses as a Pest Management Tool for Western Corn Rootworms	U.S. Department of Agriculture, private sector	$1.7 million	**$767,938**

Project Title	Leveraged Funding Source(s)	C-FAR Investment	Leveraged Funding
Developing an Agricultural Remote Sensing Program at the University of Illinois	NASA/USB., Deere & Company, U.S. Department of Agriculture	$901,104	**$750,000**
Decision Support for Watershed Management and Planning	U.S. Department of Agriculture and U.S. Environmental Protection Agency	$21,000	**$718,000**
Increasing Butanol Yield by Fermenting Degermed Corn to Benefit Illinois Farmers and related projects	U.S. Department of Agriculture, U.S. Department of Energy, Illinois Missouri Biotechnology Alliance, Illinois Corn Marketing Board, and Archer Daniels Midland	$380,000	**$700,000**
Genistein Induces Thymic Atrophy: A Potential Human Health Risk and related projects	National Institutes of Health	$218,000	**$700,000**
Dietary Protein & Exercise are Keys to Body Weight, Fat & Blood Lipids	National Cattlemen's Beef Association and Kraft Foods	$86,000	**$689,932**
Assessment of Best Management Practices in the Lake Springfield Watershed	Novartis, Monsanto, Association of Illinois Soil and Water Conservation Districts, Illinois Corn Growers Association, Illinois Department of Agriculture, City of Springfield, and Sangamon County Board	$105,000	**$669,000**
Determining the CLA Production Capacity of Ruminant Diets	U.S. Department of Agriculture and Office of the Illinois Attorney General (Vitamin Anti-Trust Settlement)	$108,000	**$652,438**
Measurement of the Wind Resource at the ISU Farm at Lexington	Illinois Clean Energy Community Foundation and the Corn Belt Electric Corporation	$13,437	**$630,000**
Impact of Distiller Grain and Genetics on Beef Quality	U.S. Department of Agriculture and American Angus Association	$113,829	**$620,000**
Manipulation of Photoperiod to Enhance the Sustainability of Illinois Dairy Farms and related projects	U.S. Department of Agriculture and National Pork Board	$308,589	**$617,848**
A Novel Management Strategy for PRRS Virus in Swine: Reducing Vaccine Failure	U.S. Department of Agriculture	$125,000	**$520,000**
Multidisciplinary Research and Discovery Program to Convert Renewable Plant/Crop Biomass into Renewable Fuels and Chemicals	U.S. Department of Agriculture	$293,000	**$500,000**
Soy and Osteoporosis	National Institutes of Health	$173,122	**$482,339**
"Smart Sprayer" Expert System for Site-Specific Weed Management	NASA, CASE-IH, John Deere, USDA, and the United Soybean Board	$118,000	**$481,295**
Control of the Growth of the Foodborne Pathogen Listeria monocytogenes	U.S. Department of Agriculture	$190,470	**$478,000**

Project Title	Leveraged Funding Source(s)	C-FAR Investment	Leveraged Funding
Sources of Genetic Resistance to Reduce Fumonisin in Corn-Based Food	U.S. Department of Agriculture	$34,925	**$460,552**
Alternative Crops Breeding and Production Program for Western Illinois	U.S. Department of Agriculture and private industry	$272,343	**$453,824**
Soybean Health: Rust Gene Discovery Initiative	United Soybean Board	$230,000	**$450,000**
Modeling Nitrogen Dynamics at the Watershed Scale	U.S. Department of Agriculture	$40,000	**$450,000**
More Efficient Pen Design for Growing Pigs	U.S. Department of Agriculture	$50,000	**$450,000**
Effects of the Rendement Napole Gene on Growth, Carcass, and Meat Quality Characteristics	U.S. Department of Agriculture and commercial company support	$47,000	**$450,000**
Oligosaccharide Effects on Swine Gut Microbial Populations and Immunity	Ross Laboratories and Alltech, Inc.	$130,000	**$360,000**
Economic Performance of Market Advisory Services for Illinois Producers	U.S. Department of Agriculture Initiative for Future Agriculture and Food Systems	$82,000	**$345,090**
Identifying and Reducing Sources of Nitrates in Illinois Waters	Fertilizer Research and Education Council	$120,000	**$323,803**
Wheat Scab Resistance: Breeding and Research on Molecular Markers	U.S. Department of Agriculture	$203,000	**$313,808**
Irradiation of Processed Pork Products to Increase Profits in the Pork Industry	U.S. Department of Agriculture, Iowa State University	$16,553	**$300,000**
Viruses, Antibiotics, Bacteria, and Nutrients in Groundwater at Swine Facilities	U.S. Department of Agriculture	$51,084	**$300,000**
Measurement of 3-Dimensional Airborne Particulate Spatial Distribution in Indoor Environments	U.S. Environmental Protection Agency and CDC/Boeing	$117,000	**$298,527**
Manipulating Prepartum Nutrient Intake to Improve Transition Success in Dairy Cows	U.S. Department of Agriculture	$89,000	**$275,000**
The Enhanced Child Development Laboratory Research Database Program	National Science Foundation	$87,000	**$245,644**
The Use of Transgenic Corn for Control of Ear Rot and Mycotoxins	U.S. Department of Agriculture	$89,000	**$210,000**
Dietary Protein Control of Insulin Action and Blood Glucose	Kraft Foods and National Dairy Council	$106,000	**$195,198**

Project Title	Leveraged Funding Source(s)	C-FAR Investment	Leveraged Funding
Identification of Genes Influencing Pork Quality	U.S. Department of Agriculture Initiative for Future Agriculture and Food Systems	$130,000	**$195,096**
A Geostatistical and Econometric Analysis of Site Specific Management in Illinois	International Arid Lands Consortium and Fertilizer Research and Education Council	$70,890	**$179,000**
Identification of Soybean Genotypes with Resistance to Charcoal Rot	North Central Soybean Research Program	$78,515	**$146,577**
Internet-Based Management Tools for Evaluation of Precision Farming Practices for Farm Supply Dealerships	U.S. Department of Agriculture, Illinois Board of Higher Education and GROWMARK, Inc.	$58,105	**$143,000**
Use of Organic Acids to Improve Phosphorus Utilization in Poultry and Swine and related research	BASF, Purina Mills, Exseed Genetics, and Midwest Poultry Consortium	$125,000	**$126,000**
Water Quality of Subsurface Drainage from Alternative Cropping Systems	U.S. Department of Agriculture	$38,300	**$105,000**
Particle Image Velocimetry (PIV) to Study Ventilation Patterns in Livestock Buildings	U.S. Environmental Protection Agency and BESS Lab	$98,000	**$105,000**
Effects of Fumonisin on Atherosclerotic Disease	North American International Life Sciences Institution	$62,910	**$100,000**
Effects of Soy Protein Feeding on Diabetic Nephropathy	Protein Technologies International	$98,000	**$100,000**
Modeling Hydrology, Sediment and Agricultural Chemicals in Illinois Watersheds	Midwest Technology Assistance Center	$89,797	**$99,977**
Evaluation of E-Diesel as an Alternative Fuel in Agricultural Machinery	Great Lakes Regional Biomass Energy Program (DOE), Illinois Corn Marketing Board and Deere & Company	$96,000	**$94,124**
Alternative, Flexible Pollination Systems for Sustainable Fruit Production	U.S. Department of Agriculture	$67,183	**$81,412**
Testing and On-Farm Application of Odor Reduction Technologies for Swine Facilities	National Pork Board and Illinois Pork Producers Association	$144,667	**$78,426**
Evaluation of the Role of New Generation Pricing Contracts for Illinois Corn and Soybean Producers	U.S. Department of Agriculture Risk Management Agency	$125,000	**$75,000**

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