Since C-FAR’s establishment in 1993, there have been many reasons to celebrate our organization’s existence and purpose and the positive results of our collaborative efforts. There may be, however, no greater point of celebration than our membership itself.

At the Beginning
In the early 1990s, as efforts were being forged for the creation of C-FAR, there was a very significant number of founding members who pledged their support. They did so based solely on a vision; an aspiration of what C-FAR could mean to our food and agriculture industry. There was certainly no promise of research appropriations at that time. There wasn’t even legislation to allow for such an appropriation! And yet, the unwavering commitment of these early members, and soon of many more, is the sole reason our organization has demonstrably and positively changed the dynamics of our state’s food and agricultural research program. Most importantly, research outcomes that would not otherwise have been possible have greatly benefited Illinois’ economy and its citizens.

Our Growth
As the inaugural C-FAR appropriation was enacted in 1995, and as subsequent appropriations grew, it became obvious that the vision of our early members was duly anchored. At the same time, this early growth of our organization and the appropriation caught us somewhat off-guard. And yet, we didn’t stumble, thanks to our membership. Our members rose to the occasion and worked together and diligently in developing programs in partnership with our university partners to effectively employ the appropriations entrusted to our guidance. By any measure, the C-FAR membership had a mighty hand in developing the sound research programs we enjoy.

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The C-FAR Membership: Through THICK and THIN
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today. Is there room for improvements in these programs? Of course there is. But let’s remember, had it not been for our membership’s commitment to seizing this opportunity, our organization would likely have faltered several years ago.

A Rebuilding
Today, with a depressed appropriation level, we face a different calling – a rebuilding of the appropriation in cooperation with the State of Illinois. This challenge, however, has a greater degree of clarity than our previous, more obscure, assignments of the past. Just like the demands placed on our membership during our organization’s birth and growth, we can and will meet this challenge through a committed membership.

As we work to reverse the current appropriation reduction, I am convinced our membership will again be the moving influence. This will require a sustained and growing membership; a membership that extols the same vision expressed during previous demands. Fortunately, we can anchor our efforts in rebuilding the appropriation on an extremely sound track record of producing results.

C-FAR’s Membership – Today and Tomorrow

Unlike the never-before-seen opportunities of C-FAR’s founding, today’s mission is not a matter of defying the odds. It is a more focused charge for the C-FAR membership to remain standing strong, standing unified, and standing unequivocally for an appropriately funded and implemented food and agricultural research program in Illinois. C-FAR is proud and grateful for its strong and steadfast membership – a unique quality of our organization. With your continued membership and engagement, we are highly poised to meet and surpass the challenges we face today, and in the future.

Jim Charlesworth
Membership Chair and Member of the Board

C-FAR Day at Western Illinois University (November 11)

Join us for C-FAR Day at Western Illinois University! On November 11, C-FAR members will have the unique opportunity to hear firsthand from WIU researchers about C-FAR–funded research taking place at the university.

Highlights of the day will include research presentations on micropropagation techniques for wintergreen, alternative crops, nitrogen rates for grazing corn, and comparative analysis of the average daily gain and feed efficiency of sheep and goats. Members will also have the opportunity to view a milkweed harvester demonstration and tour the university’s tissue culture laboratory and beef and ram/goat facilities. Don’t miss this special opportunity to engage directly with WIU researchers! Additional information will be mailed to members prior to the event.

C-FAR RESEARCH FUNDING IS STATE-APPROPRIATED GENERAL REVENUE FUNDS. C-FAR GRATEFULLY ACKNOWLEDGES THE STATE OF ILLINOIS — ROD R. BLAGOJEVICH, GOVERNOR.
New and unprecedented opportunities and challenges exist in Illinois agriculture due to the increasing production of corn-based ethanol. Illinois ethanol production is serving a critical role in enhancing fuel supplies as the U.S. strives to reduce its reliance on foreign oil and boost our domestic economy. At the same time, there are questions regarding the potential impact of increasing ethanol production on corn supplies for livestock feed and industrial uses.

Illinois ethanol production plays an important role in the national energy formula.

- Illinois currently has 10 ethanol plants producing about 1.1 billion gallons per year.
- Illinois’ ethanol production represents about 13% of total U.S. ethanol production.
- By August 2009, three additional plants are expected to come online, and existing plants are expected to be expanded, resulting in total production reaching 1.5 billion gallons. Illinois will then represent approximately 14% of the total U.S. capacity, utilizing 550 million bushels of corn, or roughly 27% of Illinois’ corn production.

As ethanol production increases, so does the amount of available distiller’s grains, a co-product of the ethanol distillation process. A modern dry-mill ethanol refinery produces approximately 2.8 gallons of ethanol and more than 17 pounds of distiller’s grains from a bushel of corn. By August 2009, over 4.6 million tons of distiller’s grains are expected to be produced annually in Illinois.

Through a series of targeted research initiatives, C-FAR has teamed up with Illinois researchers and the corn and livestock industries to address critical issues that will allow Illinois’ livestock industry to realize maximum benefit from the upsurge in the availability of distiller’s grains.

“The results of these C-FAR research initiatives will be pivotal in ensuring that Illinois’ corn and livestock industries, and ultimately all citizens, benefit fully from this new dynamic in Illinois agriculture,” says Chuck Cawley, C-FAR research vice chair.

Development of a Value-Added Feedstuff

Paul Walker, ISU professor of animal sciences, is leading a research initiative to evaluate higher dietary inclusion rates of soybean hulls, distiller’s grains, and corn gluten feed in livestock diets. Research has shown that finishing rations for cattle can include up to 30–40% distiller’s grains/corn gluten feed and 30–40% soy hulls and still be profitable. Feeding higher levels of distiller’s grains is not without concern, however. Dietary concentrations of distiller’s grains at or above 40% of the diet can result in sulfur toxicity. Another related concern regarding diets containing 30% or more distiller’s grains is cattle exhibiting polioencephalomalacia (PEM), a neurologic disease. Historically, PEM was a potential concern only when diets contained 40% or more distiller’s grains, but as the sulfur concentration has risen in distiller’s grains, so has the possibility of PEM occurrence when lower levels of distiller’s grains are fed. Supplementing diets containing higher levels of distiller’s grains with thiamin can prevent PEM.

Researchers are evaluating higher dietary co-product inclusion rates’ effects on manure (i.e., the volume of manure excreted, the phosphorous content of the manure, and the implications for nutrient management plans). Cattle consuming diets containing distiller’s grains and corn gluten feed may excrete more manure because of the increase in dietary fiber and because such cattle often consume more total feed per day. Distiller’s grains and corn gluten feed also contain higher phosphorous concentrations. These issues may translate into more acres being required for land application of the manure.

The effect of including distiller’s grains into finishing cattle diets and its effect on cattle fecal concentrations of *Escherichia coli* and *Salmonella* is also being evaluated. To date, these studies have not observed a relationship between the distiller’s grains level in the diet and fecal concentrations of these two pathogen groups.

“These studies are providing insight into maximum, as well as optimum, dietary inclusion levels and specific diet supplements that should be added along with the ethanol production co-products to safe-guard animal health and to maximize producer profitability,” said Walker. “An additional benefit is that as livestock producers increase the amount of co-products they feed, especially distiller’s grain and corn gluten, corn processing plants are realizing increased returns, and consequently prices paid to corn producers are remaining at record levels.”
Impact on Reproductive Performance
Rebecca Atkinson, SIUC assistant professor of animal sciences, and colleagues are examining the optimum inclusion level of wet distiller’s grains that can be fed to late gestation and early lactation beef cows without negatively affecting reproduction. Research has been conducted with the inclusion of distiller’s grains from 4 to 30% of the diet with no adverse effects being observed. Currently, researchers are feeding diets that contain as much as 55% distiller’s grains to determine whether this will have adverse effects on animal health, including calf birth weight and dystocia (abnormal or difficult labor). “Traditional cattle diets contain soybean meal for protein and corn for energy. Distiller’s grains are beneficial in that they can provide both energy and protein,” said Atkinson.

Effect on Beef Quality
Larry Berger, UIUC professor of animal sciences, is leading an effort to determine the impact of distiller’s grains form and level on quality grade and tenderness in sire-identified steers. Genetics both within and between breeds has been demonstrated to have a major impact on marbling. Using ultrasound, researchers will determine the effect of distiller’s grains on the rate of marbling and on backfat deposition. Preliminary data suggest that feeding up to 40% dried distiller’s grains in properly formulated diets does not reduce quality grade.

Complimentary studies at ISU and SIUC have shown that finishing diets containing exceptionally high levels of distiller’s grains (greater than 50% of the diet’s dry matter) can reduce average daily gains and decrease marbling scores (quality grades), unless the feeding period is extended. Researchers are evaluating dietary inclusion levels of distiller’s grains as high as 70% and corresponding feeding management practices to optimize producer return.

Feedlot steers are being fed distiller’s grains to determine whether the inclusion of this co-product produces meat that is lower in saturated fatty acids. Some research has suggested that distiller’s grains in the diet boost the production of polyunsaturated fatty acids, which can have positive implications for consumer heart health. “If dried distiller’s grains increase the content of unsaturated fatty acids and decrease saturated fatty acids in the beef, then retail cuts from these animals can be sold as a value-added product,” said Atkinson.

Feed for Nonruminants
Vijay Singh, UIUC associate professor of agricultural and biological engineering, and colleagues have developed an “elusieve” process to separate fiber from dried distiller’s grains. Separation of fiber from distiller’s grains increases protein and fat contents and reduces fiber content in the residual feed. This process uses a combination of sieving and elutriation (aspiration). The resulting product after fiber removal (enhanced DDGS) is expected to have greater nutritional value for nonruminants such as poultry and swine.

Dried distiller’s grains with solubles samples were obtained from two commercial dry-grind ethanol plants and processed using the elusieve process. The enhanced distiller’s grains are being evaluated in poultry- and swine-feeding studies by Carl Parsons and Jim Pettigrew, UIUC professors of animal science. Enhanced DDGS has been found to have increased protein and metabolizable energy for poultry. In the swine study, metabolizable and digestible energy of enhanced DDGS has proven to be higher than conventional DDGS per unit of dry matter.

A Novel Method for Disease Control
There is a widespread belief among U.S. swine producers that dried distiller’s grains in the diet ease the severity of ileitis (an important intestinal infection) in growing pigs, a belief based on practical experience. Jim Pettigrew is measuring the impact of dietary distiller’s grains on pigs challenged with enterotoxic Escherichia coli and on chicks challenged with coccidia (Eimeria acervulina). Results to date suggest that dietary distiller’s grains do not prevent enteric infection in either species, but they do appear to speed recovery in pigs. Such a response would be valuable to swine producers.

“Ethanol and livestock are the two largest consumers of Illinois corn,” said Rod Weinzierl, executive director of the Illinois Corn Growers Association. “We want both industries to have adequate inputs available at reasonable prices. If valuable byproducts can be produced, they will replace the corn that used to complete livestock diets. Additionally, they give extra value to the ethanol plants allowing their industry to grow. This research will make it possible for both industries to exist and flourish, maintaining valuable markets for Illinois’ rapidly increasing corn crop.”
The External Competitive Grants Program (External Program) is a vital component of C-FAR’s research portfolio. The program aims to fund highly practical, high-quality research carried out by qualified researchers at Illinois universities as well as at other nonprofit institutions, organizations, and agencies throughout the state. The research program is unique because it is driven entirely by C-FAR working group participants, with the assistance of scientific advisors. Although other C-FAR research programs engage C-FAR members as well, the External Program does so in a very robust manner.

Eighty pre-proposals requesting a total of $8.7 million were submitted for funding through the FY09 External Program. Driven by C-FAR working group participants’ evaluations, 27 full proposals were submitted by invitation. The C-FAR working groups met during February and March to review and prioritize for funding proposals submitted to their respective research focus area. Their funding priorities were preliminary until the FY09 C-FAR appropriation was enacted.

“The working groups’ challenge of prioritizing this year’s proposals was likely greater than it has been in many years,” said Jerry Hicks, research chair. “The reason was the exceptional quality of proposals submitted, and we extend our thanks to Illinois’ research community for putting forth such sound proposals.”

The External Program, per legislation, is funded at a minimum of 15% of the annual appropriation (in practice, the program has been funded at 15%). The reduced FY09 C-FAR appropriation level has presented a challenge in funding a viable number of initiatives utilizing the program’s usual funding protocol. Historically, multiyear initiatives have been fully funded upfront from program funding in the year the project was initiated.

Hicks shared that “Being able to fund only two or three research initiatives was a particular concern because of the significant efforts researchers made in submitting what is considered to be one of the highest quality set of proposals in the program’s history and the tremendous efforts of the working groups in reviewing and prioritizing these proposals for funding.”

After much consideration, the Board of Directors adopted an alternative funding protocol for FY09 initiatives. The first year of research will be funded from the FY09 External Program’s allocation, with the second and third year of multiyear initiatives being funded from the FY10 program allocation, either in full or in part. It was also decided to not conduct an FY10 program, so that these funds are available to meet the funding commitments of initiatives started in FY09.

“Although this is a slight change in funding protocol, it is more in line with the nationally accepted method of funding multiyear research initiatives year-to-year,” said Kraig Wagenecht, executive administrator.

After final review by the working group chairs and vice chairs based on the priorities established by the working groups during their February/March meetings, the following seven research initiatives have been identified for funding through the FY09 program.

Can Tropical Maize Sweeten Ethanol Production?
Fred Below, University of Illinois at Urbana-Champaign
The increasing demand for biofuels has created a market for new feedstocks for the ethanol industry. Tropical maize accumulates large amounts of sucrose in its stalk, which can be easily fermented into alcohol or used as high-energy forage. This project will evaluate tropical maize’s biological potential for sugar production, its value as a feedstock for making biofuels, and its value as a forage for ruminant animals.

Creating Strategies for an Entrepreneurial Culture in Rural Illinois Communities
Christopher Merrett, Illinois Institute for Rural Affairs
A paradox in rural Illinois communities is a desire for economic development, and at the same time, a tendency to resist specific development opportunities. Strategies will be identified to help communities create and support businesses while creating community wealth and community acceptance of these enterprises.
Comparison and Evaluation of Sow Housing Options During Gestation
Janeen Salak-Johnson, University of Illinois at Urbana-Champaign

The swine industry faces substantial challenges to enhance profitability and sustainability while improving sow performance, health, and well-being. There is mounting concern among pork producers and consumers regarding the impact of current housing systems on the welfare of the gestating sow. The goal of this research is to design, optimize, and implement alternative housing and management systems that will enhance sow well-being while sustaining productivity and profitability of swine production in Illinois.

A Novel Method for Early Detection of Foreign Substances in Milk
Amer AbuGhazaleh, Southern Illinois University Carbondale

Dairy production is considered a vulnerable industry from a security standpoint. A single load of undetected contaminated milk from one dairy farm could rapidly and broadly taint large milk supplies as it is combined with milk from other farms at the processing plant. Current milk contamination detection techniques can take anywhere from two days to two weeks and requires sophisticated equipment. This research will examine the effectiveness of using lactic acid bacteria as an effective, reliable, simple, and rapid tool to identify adulterated milk. Efforts will also be made to develop a color-based kit to detect contaminated milk.

Identifying Trends in Soil Profile Nutrient Resources in Illinois
Harold Reetz, Foundation for Agronomic Research

Although agronomic recommendations in Illinois help to maintain soil test levels in the top six inches of soil, questions have developed regarding the subsoil fertility levels and how those deeper fertility levels are maintained. This project will compare soil tests of archived samples from research farms and soil survey work to contemporary soil tests from the same locations. The comparison will help determine the effect of management practices on soil fertility resources at one or more depths in the soil profile.

Comprehensive Legal Guide for Illinois Direct Farm Businesses
Bryan Endres, University of Illinois at Urbana-Champaign

Less than 0.2% of Illinois agricultural products are sold directly to Illinois consumers, and 95% of organic food sold in Illinois is grown and processed outside the state. This results in an export of food dollars from Illinois to the detriment of all communities. Currently, significant barriers exist to information gathering and understanding of the legalities associated with direct farm enterprises. This research will identify and analyze legal impediments and create a guide with an accompanying website to assist Illinois farmers in navigating the legal environment for direct farm businesses.

Enhancing Soybean Plant Resistance to Soybean Rust via Genetic Engineering
Vera Lozovaya, University of Illinois at Urbana-Champaign

Asian soybean rust, first reported in the United States in 2004, has become a significant potential threat to Illinois’ soybean production. Caused by an airborne fungal pathogen, the disease can be very severe and can result in yield losses of 40–80%. In this research, critical targets for genetic engineers and breeders aimed at rust resistance will be identified by correlating rust disease development with metabolic changes in leaves of inoculated plants of different genotypes, including genetically engineered lines.

“We are extremely pleased to launch this dynamic set of research initiatives,” said Hicks. “The diversity of this research and the practical needs and opportunities they represent for Illinois is tremendous.”
Get to Know a C-FAR Leader

Molly Ann Godar grew up on her family grain farm in Logan County near San Jose. The sixth generation of her family is now living on and working the farm, in which she is a partner. For 12 years Molly and her husband, Dennis, owned and operated a feeder pig farm near Rochester. For the past 10 years, the Godars have been growing their agronomy consulting business, ManPlan Inc. Their business prepares nutrient management plans to help grain and livestock producers, primarily in Illinois, Iowa, and Missouri comply with environmental regulations and conservation programs.

Engaged in C-FAR for over 10 years, Molly is a representative of the Illinois Pork Producers Association, Checkoff Division. Molly has served as C-FAR’s Agricultural Production Systems working group chair since 2003. Dennis is also a C-FAR member, representing the Illinois Pork Producers Association.

“I enjoy working with C-FAR because it brings agricultural producers, researchers, consumers, and the citizens of Illinois together as stakeholders with common goals,” says Molly. “Few organizations can match the dedication, intellectual capacities, and foresight this collective group brings to the table.”

Molly received her bachelor of science degree in agriculture from the University of Illinois at Urbana-Champaign. She earned a master of science degree in environmental science education from Montana State University. Molly has completed three Winrock International Farmer-to-Farmer assignments – two to India and one to Nepal. All three assignments involved working with livestock production and disease control. She currently serves as a Winrock International Farmer-to-Farmer technical advisor.

“Agricultural production is crucial to the world, and Illinois plays a very important role with its bountiful natural resources and capacity for food, fiber, and energy production,” Molly says. “Illinois agriculture is very important to our state economy and vitally necessary as part of the world system we live in. We should never become complacent in regard to world food supplies. Expectations for ever-increasing agricultural yields should not be taken for granted. Sound agricultural research is essential to finding new ways to increase yields for the increasing food and energy requirements of the world and also for finding cures and alternatives to potentially devastating crop diseases and pestilence.”

Molly also teaches microbiology, biology, and Earth science at Rochester High School. In 2008, she was one of only 50 U.S. teachers awarded a Best Buy Teach Award to purchase $10,000 worth of technology equipment to enhance her classroom curricula. In addition to being an active C-FAR member, she participates in the Illinois Pork Producers Association, Mississippi Valley Morgan Horse Association, and Illinois Horse and Pony Breeders and Exhibitors Association. She is past chairman of the Sangamon-Menard County Extension Council, serves as a 4-H Leader, and is a Civil Air Patrol Aerospace Educator for the USAF Auxiliary.

Molly and Dennis reside in Rochester. They have a daughter, Hannah, and three sons, James, Clay, and Ryan.

“Molly brings a tremendous wealth of experiences to C-FAR,” says Kraig Wagenecht, executive administrator. “Her successful professional engagements in production agriculture, education, small business, and the international arena are a rare combination. She is indeed an accomplished professional.”
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2008-2009 CALENDAR

November 5  Board of Directors Meeting (Urbana)
November 11  C-FAR Day at Western Illinois University (Macomb)
January 7, 2009  Board of Directors Meeting (Urbana)
February 17  Annual Meeting (Crowne Plaza, Springfield)
February 25  Board of Directors Meeting (Urbana)

Please call the C-FAR office or check the calendar on the C-FAR website at www.ilcfar.org for further details.