FOCUS: Economic Issues For Nebraskans

Winter 2002

FOCUS Fall/Winter 2002

Follow this and additional works at: http://digitalcommons.unl.edu/agecon_focus

Part of the Agricultural and Resource Economics Commons

http://digitalcommons.unl.edu/agecon_focus/6

This Article is brought to you for free and open access by the Agricultural Economics Department at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in FOCUS: Economic Issues For Nebraskans by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
Economic Issues For Nebraskans

In this issue:
- The 2002 Farm Bill
- New directions for rural policy
- Benefits of crop rotation
From the department head’s desk:

Moving ahead in the face of budget difficulties

Our readers are well aware of the recent state revenue shortfalls and the associated need for reductions in the budgets of state agencies and institutions of higher education, including the University of Nebraska–Lincoln. The UNL Department of Agricultural Economics has been, of course, affected by these budget reductions.

In January, the department lost an extension farm management faculty position due to retirement and was unable to refill it as part of the first round of recent budget reductions. Meanwhile, the Nebraska Farm Business Association, which is closely associated with the department and whose data is important to our research and extension programs, incurred a major budget reduction that threatens the quality and viability of that program. Combined, these reductions will have a significant impact on this department’s ability to conduct farm management programs, which we expect to be increasingly important given the difficulties farmers and ranchers are facing in today’s agricultural economy.

As part of the second round of budget reductions that occurred in the spring, the department lost a second faculty position, one that had been committed to the department but was currently vacant. The department was spared any direct cuts in the third round of reductions that were announced this fall. However, a faculty member assigned to the South Central Research and Extension Center in Clay Center will need to be reassigned and relocated.

Although the department has been fortunate thus far in not having to release any faculty or staff members involuntarily, the loss of faculty positions will undoubtedly have an adverse effect on our ability to deliver the quality and breadth of programs our stakeholders expect from us. Most seriously challenged will be our teaching and extension programs. Currently, the agricultural economics faculty located on the Lincoln campus is 78 percent of the size it was in 1997. Our full-time equivalents in teaching and extension are respectively 80 percent and 48 percent what they were five years ago.

As we continue to move ahead during this period of budget reductions and uncertainties, we will need to commit ourselves to “working harder and smarter,” as the old administrative maxim prescribes. Shrinking state contributions to higher education also reinforce the importance of our faculty members continuing to work hard at obtaining supplemental funding for their programs from extramural grants and contracts.

We are optimistic that our ongoing strategic planning process and upcoming academic program review, scheduled for May, will help us establish our priorities and devise ways for conducting our programs more efficiently. As always, if you have comments or suggestions you think might help, please feel free to share them with us.

Jeffrey S. Royer
Professor and Head
Feature Articles

The 2002 Farm Bill: perspective and prospect ........................................ 4
   A. L. (Roy) Frederick

Economic and Technological Changes Suggest
New Directions for Rural Policy .............................................................. 7
   Raymond J. Supalla

The Impacts of Rotations on Risk ............................................................ 11
   Glenn A. Helmers, Stephen Mason, Gary Varvel, and Nouri Maman

Agricultural Cooperative Management Training at UNL:
A “Cooperative” Venture ........................................................................ 15
   Darrell R. Mark

Agricultural Economics Student Publishes Book on Rural Nebraska ...... 17
   Kirsten Hansen

Departmental Programs and News

Focus on teaching and research .............................................................. 18
Focus on people ..................................................................................... 19
Focus on outreach ................................................................................ 20

Focus is published twice a year by the University of Nebraska Department of Agricultural Economics, P.O. Box 830922, Lincoln, NE 68583-0922.

Current and past issues are available online at agecon.unl.edu.
President George W. Bush signed the Farm Security and Rural Investment Act into law on May 13, 2002. Commonly referred to as the farm bill, the legislation will be in effect for six years from 2002 through 2007.

As has been the case for all other farm bills of the past 30 years, the new farm bill is comprehensive. It has 10 titles (sections):

- Commodity programs
- Conservation
- Trade
- Nutrition programs
- Credit
- Rural development
- Research and related matters
- Forestry
- Energy
- Miscellaneous

Much of the early focus in Nebraska has been on Title I, the commodity programs section. However, over the coming months other parts of the farm bill will receive additional attention. For example, the conservation title significantly increases support for both old and new conservation programs. Much of the increased support will occur incrementally, with fiscal year 2003 representing the first full year of enhanced conservation programming.

My purpose here is not to provide a provision-by-provision overview of the farm bill, either in total or for selected titles. These details are readily available in other publications and on the Internet. Rather, what follows is a highly eclectic selection of impressions, issues and concerns that have emerged from farmers, Farm Service Agency (FSA) personnel and others in the months since passage of the bill. At its core, the discussion focuses on operational and efficacy matters.

Commodity Programs

Farmers’ Overall Response

In general, farmers’ responses to the bill have been neither strongly positive nor strongly negative. At this stage, attitudes are more “wait and see.”

Nearly everyone likes the provisions for continued planting flexibility, which were carried over from the 1996 farm bill. And although some had hoped that higher supports would be offered in exchange for annual land set-asides, there’s been no outcry about their absence. Perhaps the 2002 drought and the resulting higher crop prices mask any lingering concerns about the potential need for supply adjustments.

Producers have five different options for determining 2002-07 crop bases. Options 1, 2, 3, and 5 retain all or part of the old (Production Flexibility Contract) bases on the farm. Except for option 1, soybeans or other oilseeds may be added to or substituted for old bases.

Option 4, in contrast, calls for a complete updating of crop bases, based on average acres planted (or considered planted) for the four-year period, 1998-2001. If and only if option 4 is selected, producers may partially update old yields for purposes of determining the counter-cyclical payment. To complicate matters further, the partial yield update is determined by multiplying actual 1998-2001 yields by one of two alternative factors. Producers should select the factor that, on balance, gives the highest yields for all crop bases on a farm.

Most producers find that they must carefully analyze the crop base and yield options available to them. No two farms are exactly alike, so while the goal should be to choose base and yield options that
promise the highest return, the selection may vary from farm to farm. Producers with several different FSA farm numbers often will choose different options for each farm.

Expectations regarding future market prices also are important to selecting base options. However, trying to anticipate prices through 2007 is challenging, to say the least. Ultimately, whether or not one chooses the highest-return option may depend to some degree on luck. No one can anticipate exactly what prices will be next month, let alone several years into the future.

**Determining Actual Yields**

Yields used for determining benefits under the old PFC program typically went back to the mid-1980s. These same yields are used to calculate direct payments in the 2002 farm bill. However, because the PFC program did include oilseeds, the new legislation specifies a method for converting 1998-2001 actual oilseed yields to direct-payment yields. The objective is to make direct payments on oilseeds equitable with wheat and feed grains. In addition, actual yields are needed for oilseeds, wheat and feed grains to calculate counter-cyclical payments under option 4.

A farm’s actual yields for the 1998 to 2001 period may or may not be easy to determine. In one straightforward example, a settlement sheet from soybeans sold to a local elevator would indicate total production. Together with the acreage previously reported to the Farm Service Agency, a yield could be calculated rather easily.

Sometimes, however, a farm may have changed hands, and records from prior years are unavailable, even if the commodity was marketed through normal commercial channels.

Farm-stored commodities may have been co-mingled with production from another farm and/or from other years. In such cases, an allocation will be necessary to determine a specific farm’s production in a single year.

Feed grains, like corn, can represent a particular challenge. Unlike soybeans or wheat, corn may have been fed to livestock without ever being measured in any official sort of way. Or the crop may have been cut for silage, hay or grazed out.

A further complication is that average yields for any crop in the 1998 to 2001 period may have been hurt by disasters in one or more years. The farm bill provides for a “plug” of 75 percent of the county average yield for any years in which yields are unknown or simply fall short of the 75 percent mark. That’s better than taking a zero. Still, in many cases, yields will be primarily responsible for per-acre payment differences between farms.

If nothing else, the new yield provisions underscore the value of good record keeping.

**Payment Types and Sequence**

Under most circumstances, producers can count on direct payments at specific levels through 2007. Payments generally will not be affected by crops planted or market prices for covered commodities. The exception would be if fruits or vegetables are harvested on base acres. As in the past, good conservation also must be practiced.

Counter-cyclical payments are another matter. The latter will be made only if national average prices for 12 months after harvest fall below certain levels. For corn in 2002, this level is $2.32 per bushel. For soybeans, it is $5.36.

Payments will be spread out over an extended period of time, more so than under the previous farm bill. Half of the direct payment may be made as early as December prior to the subsequent crop year. However, the remainder will not be issued until the following October.

Counter-cyclical payments for fall-harvested crops may be made in up to three installments, including October and February prior to the crop year as well as the following October. Summer-harvested small grains will be on a counter-cyclical payment cycle that coincides with the earlier ending to the crop year.

If advance counter-cyclical payments prove to be greater than payments actually earned because of rising market prices, reimbursement will be required. Typically, such overpayments will be subtracted from direct payments due the following year. Importantly, overpayments may mean that smaller crops have been produced, pushing prices higher. However, total revenues may or may not be higher in short-crop years.

In recent years, producers could collect direct payments prior to the start of the crop year. In addition, emergency market-loss-assistance payments have been made in full near the time of the fall harvest. Thus, the payment sequence specified in the 2002 farm bill potentially spreads out cash flow over a longer period.

**International Trade Considerations**

About one-quarter of U.S. agricultural production moves into export markets. Still, both producer groups and policymakers aspire for a higher total.

Our ability to export depends to a considerable degree on domestic policies around the world. Three types of trade-impeding policies typically are identified: export subsidies, market-access restrictions (e.g., quotas and tariffs), and production-enhancing internal supports.

Through the World Trade Organization (WTO) and other forums, the United States has actively sought remedial action on the first two types of policies. Perhaps that’s because the U.S. currently makes little use of either. However, we fre-
criticism of the farm bill. As a result, the secretary of agriculture has been given authority to modify counter-cyclical payments to meet current or future WTO agreements. Make no mistake about it, though. Any reduction in U.S. commodity supports to meet worldwide commitments will be the subject of intense policy debate at home.

**Conservation Programs**

Conservation programs tend to be less controversial than commodity supports. Both producers and consumers want to preserve and enhance America’s natural resource base. Moreover, foreign competitors generally do not challenge conservation initiatives.

Annual spending on conservation programs, as authorized in the farm bill, is expected to increase by at least 75 percent over the prior legislation. Some of this increase will be in such traditional programs as the Conservation Reserve Program and the Wetlands Reserve Program.

Perhaps the most noteworthy increase for ongoing programs will be in the Environmental Quality Incentives Program (EQIP). By 2006, EQIP spending will have quintupled over 2001. Livestock producers, in particular, will benefit from EQIP, because it will provide much-needed assistance for building livestock waste facilities.

Another EQIP provision has special relevance for many Nebraska crop producers. For those who convert to water-saving irrigation methods, such as from gravity to center-pivot irrigation, the government will provide up to 40 percent of the cost of doing so. While this provision is heavily oversubscribed at present, producers are encouraged to watch for opportunities to participate in future years.

The Conservation Security Program (CSP) is perhaps the most publicized of the new conservation initiatives. Operating rules and procedures for this program, which begins in 2003, have yet to be finalized. However, this much is known: Crop producers will be compensated for good conservation practices in one of three tiers. The higher the tier of participation, the larger the payments. Significantly, the CSP will offer compensation for ongoing good conservation practices, not just new ones that might be initiated in response to the program.

Another new offering is the Grasslands Reserve Program. With more than 23 million acres of grazing land in Nebraska, this program seems sure to be relevant for many cattlemen in the state. It, too, begins in 2003.

**Concluding Remarks**

Farm bills continue to be important to Nebraska producers. For many years they have provided a price and income safety net for wheat and feed grains producers. Since 1985, they also have offered important conservation incentives.

The 1996 farm bill was widely touted as a transition to reduced government support for agriculture. However, the 2002 farm bill does not continue down that path. In fact, it could be argued that the new farm bill offers more support to producers than ever before. In part, that’s because oilseeds have been added to the list of commodities eligible for government payments. Livestock producers also will benefit greatly from expanded EQIP provisions.

The new farm bill is not without its share of critics, both at home and abroad. How will such criticism affect the future? Could it mean that this farm bill does, in fact, represent the high-water mark for government support of agriculture and natural resources? Or will future bills continue the increased focus on conservation, perhaps at the expense of commodity programs? Only time will tell. Producers should be prepared to adjust accordingly.

*For more information, please e-mail Roy Frederick, rfrederick1@unl.edu.*
Two recent developments suggest a need to reflect on the efficacy of rural policy.

The first involves changes in the economic well-being of farm households and in the major sources of farm household income. In a recent presidential address to the American Agricultural Economics Association, Susan Offutt, administrator of the Economic Research Service (ERS) sharpened the desirability of continued emphasis on sustaining farm income as a national rural policy focus, given current farm household income conditions (Offutt, 2002).

The second development was the abrupt and unexpected shift in fiscal 2002, from a large federal budget surplus to a large deficit. When resources are tight, program priorities are more likely to be closely scrutinized.

This article reports on some of the major economic trends which are shaping the future of rural Nebraska and addresses some potential implications for rural policy and related educational programs.

**Economic and Technological Trends**

Most observers of U.S. agriculture are very familiar with the large impact that the historical increases in agricultural labor productivity has had on reducing the number of farmers and the number of people living in rural communities. The quiet revolution which has taken place in the economic characteristics of farm households is less well recognized. For many decades rising agricultural productivity exerted an unrelenting downward pressure on commodity prices and farm income, resulting in continued subpar economic conditions for farm households. Recent research conducted by the ERS, however, suggests that most farm households are no longer economically disadvantaged relative to nonfarm households and are less and less dependent on the farm business for their economic well being (Mishra et al., 2002, Offutt, 2002). ERS analysts have found that average national farm household income has been above the level for nonfarm households since the mid 1990s, and that farm household wealth at the national level is two to four times nonfarm wealth holdings, depending on farm size (Figures 1 and 2). This general trend also holds for the Nebraska case, but the current income and wealth condition of Nebraska farm households does differ significantly from the national average. Nebraska farm households are wealthier than national farm households, but Nebraska farm household income is still slightly less than the national average for all nonfarm households.

Much of the historical improvement in farm household income is due to earnings from off-farm sources rather than to improvements in income from the farm business. From 1964 to 2000, national farm household earnings from off-farm sources increased more than tenfold, from $10.1 to $111.4 billion, while income from the farm business grew at less than half this rate (Mishra et al., 2002). Most of the growth in off-farm earnings has come from wages and salaries as more farm operators and spouses found off-farm jobs. Nationally, about 55 percent of farm operators

![Figure 1. Trends in Farm and Nonfarm Income](source: Compiled from Mishra et al., and from ARMS survey data supplied by ERS, USDA.)
and nearly 50 percent of farm operator spouses now hold off-farm jobs (Figure 3). Although directly comparable state level data are not available, the relative importance of wage and salary income for Nebraska farm households suggests that Nebraska farm operators are slightly less likely to be employed off-farm than the national averages, due perhaps to differences in population density and off-farm employment opportunities. A net result of these trends is that currently only about 10 percent of national farm household income and 25 percent of Nebraska farm household income is from the farm business (Figures 4 and 5). These data have major implications for what needs to be done to sustain the economic well-being of rural areas. However, before considering this question, we need to examine the forces which are shaping rural change.

**Forces Shaping Rural Change**

The major driving force is agricultural technology, which has sharply reduced the labor involved in crop production, with larger farm machinery, reduced tillage and improved weed and pest control procedures having the greatest impact. Because less labor is required, many farmers can operate relatively large farms while also holding a full-time off-farm job.

Agricultural technology has not only provided farmers with the time to work off-farm, but it has also increased the number of off-farm opportunities that farmers can choose from. In some cases it is no longer necessary to find a job near the farm because reduced farm labor requirements make longer commuting times possible and/or make it possible to move off the farm to a point closer to off-farm employment. Telecommunications technology also has helped to expand labor markets by making it possible for many farm operators to work from home for a firm that is located a long distance away.

Many farm households have taken advantage of these opportunities and made themselves less and less dependent on the farm business as a source of income. ERS research findings imply that on average each 10 percent change in national farm income, changes average farm household income by one percent. Of course, lost in these averages is the fact that some farm households have not been able to reduce their dependence on the farm business as an income source, some of whom continue to experience subpar and highly variable incomes. About 6 percent of all farms are limited-resource farms having less than $100,000 in sales, less than $150,000 in farm assets and total household income of less than $20,000 (Mishra, 2002). Although household members from this group also work extensively off-farm, they are nevertheless very adversely affected by even small changes in farm business income, because their total income from all sources is so low that any income change materially affects household expenditures and well-being.
Implications for the Structure of Agriculture

For over 60 years changes in agricultural labor productivity have meant larger farms and fewer farmers. Perhaps this trend will continue, but as farm labor diminishes and off-farm income opportunities improve there is a possibility that the number of households engaged in farming could increase. Although reduced labor requirements make it possible for both part-time and full-time farmers to operate larger farms, thus reducing farm numbers, it is also true that producers can improve risk management and labor utilization by entering the off-farm labor force or starting another business as an alternative to expanding farm size. The growing ease of entering agriculture on a part-time basis increases the likelihood that existing operators who have off-farm opportunities will choose employment over farm expansion and/or that others who are fully employed may choose to enter farming. Finally, as prospective part-time farmers with good nonfarm incomes become interested in bidding for land that is further and further away from their off-farm employment site, we may find that they outbid expansionist minded farmers for additional land. The prospects for slowing or reversing the historical decline in the number of farmers also may be enhanced if, in the wake of these economic changes, we see reduced emphasis on commodity programs and increased emphasis on rural development.

Implications for Rural Policy

Although the generosity of the recently passed farm bill makes one wonder if the political strength of production agriculture is not increasing rather than waning, it seems unlikely that the current level of support for farm commodity programs can be sustained as the public becomes aware of who gains from farm program payments. Even the most ardent and well-funded lobbyist is going to have difficulty justifying conventional commodity programs when a doubling of farm business income will only increase farm household income by an average of 10 percent. Political justification is made even more difficult by the fact that 50 percent of government payments go to farm households that have an average income which is more than three times the national average for nonfarm households (Agricultural Policy, 2001).

If commodity programs are reduced, we should expect to see reduced profitability, increased risk from price volatility and downward pressure on land values, at least in real terms. This in turn will increase the pressure for public finance reform in Nebraska as it becomes increasingly difficult to support local government and education with the property tax.

For rural areas, an important positive consequence of the increased dependence of farm households on off-farm income is the increased justification for rural development programs. If the research work of ERS and other scholars leads to widespread recognition that one can do

**Figure 4. Sources of Farm Household Income: U.S.**

![Figure 4. Sources of Farm Household Income: U.S.](chart1)

**Figure 5. Sources of Farm Household Income: Nebraska**

![Figure 5. Sources of Farm Household Income: Nebraska](chart2)
more for farm households through rural development than through commodity programs, some of the resources now spent on commodity programs could be redirected to rural development. As part of an expanded rural development effort we should expect to see more emphasis on value added and off-farm employment programs. Most of these programs directly assist farmers who seek both income stabilization and additional uses for the family labor that is no longer used in traditional enterprises. We also should expect to see more federal support for rural infrastructure investments such as high-speed Internet access, which indirectly enhances off-farm opportunities by making rural areas more attractive to business investment of all kinds.

Another important rural development consideration is the place of residence flexibility which results from reduced farm labor requirements and greater communications technology. As it becomes possible for farm operators to commute greater distances to off-farm jobs, or to actually live off-farm, an increased rural development focus on the larger, and hence, more developable rural communities may become both practical and more appropriate.

**Programmatic Implications for Research and Education**

The teaching and extension impacts from these changing economic conditions are unclear at this point, but effective program planning requires some speculation. It seems likely, for example, that an expanding percentage of tomorrow’s farm population will have a primary occupation other than farming. This suggests a growing need for service courses which introduce non-agricultural majors to basic agricultural science. Curricula in community and rural development is another probable growth area. More people will be needed to administer future rural development programs and tomorrow’s agricultural policy specialists are going to have to become increasingly conversant in development economics. Increased emphasis on agricultural risk management, industrial organization, price analysis and business planning also appears to be needed. If commodity programs are de-emphasized, producers will have to find ways of managing increased agricultural price risk, which will require more training in statistics, operations research and commodity marketing than what is contained in most current agricultural curricula. Increased exposure to industrial organization, micro-economic theory and price analysis is also needed to understand recent and prospective changes in how agricultural inputs and outputs are priced, or to evaluate who gains and who loses from industrial mergers, ethanol subsidies and numerous other activities which impact the agricultural sector. Finally, business planning and finance is an increasingly critical skill for farmers and other entrepreneurs who must constantly evaluate increasingly diverse ways of meeting their income objectives.

The programmatic implications for research mirror many of the teaching and extension impacts. Expanded work on rural policy options is needed to better understand rural needs and to increase the likelihood that public investments which are made to improve rural well being are as effective as possible. As the structure of agriculture continues to evolve, research is needed to assess the infrastructure and financial implications for local government, the effectiveness of community development programs and the welfare effects on individual producers, input suppliers, processors, communities and ultimately consumers. Finally, we need to better understand the potential long-term effects of reduced commodity program expenditures and a changing farm structure on the competitive position of U.S. agriculture.

What do these trends and potential policy changes mean for students, producers, tax payers, educators and others concerned about rural policy?

First, it is important to keep in mind that policy change is notoriously hard to predict. Changes that seem logical and expected may never occur, yet it seems foolhardy to ignore the possibilities. Students contemplating careers in production agriculture may find part-time farming an attractive career option and one that will be easier to pursue than the traditional route to full-time farming. Existing producers may want to pay more attention to non-farm income opportunities as a risk management strategy and as an alternative to farm expansion as a means of increasing income. Taxpayers interested in efficient government may want to encourage a reappraisal of farm income support programs that provide the most help to those who need it least, while doing little to help low income households or to produce economically vibrant rural communities. Finally, educators must continue to aggressively adjust their curricula to provide tomorrow’s agriculturalists with the tools to operate in a rapidly changing and uncertain work environment.

*For more information, please e-mail Raymond Supalla, rsupalla1@unl.edu.

**References**


Using crop rotations involving two or more crops has generally been thought to reduce risk compared to monoculture (continuous) cropping. The benefit of crop rotations in reducing risk lies in the impact it has on three risk factors. First, conventional rotations involve diversification, which can have an “offsetting” phenomenon on returns. Low returns in one year for one crop are often offset by relatively high returns from a different crop. Second, rotation cropping is generally thought to reduce yield variability compared to monoculture practices. Variability or volatility is a conventional way of measuring risk. Third, rotations may result in overall higher crop yields as well as reduced production costs. These factors enhance returns, and when risk is thought of as the failure to obtain a particular level of returns, enhancing returns also reduces risk.

In this article we examine how effective crop rotations are in reducing risk in eastern Nebraska cropping agriculture.

Cropping System Risk

Risk is generally considered to be important to business decision making because it is one way that profit alternatives can be compared. Higher risk may or may not accompany higher profit alternatives. If higher profit alternatives involve less or no greater risk than lower profit alternatives, the higher profit alternative is the obvious choice. When higher profit alternatives involve greater risk, however, a choice must be made.

Cropping system risk results from variability in returns across time and arises from year to year changes in yields, crop prices, and input costs. A number of risk concepts exist but here we consider just two.

Variability is often used to measure risk. A cropping system which experiences a high volatility of returns across time is considered riskier than one with low volatility of returns. A statistical measure of volatility or dispersion is termed “the standard deviation of returns.” Another perspective of risk is how far and/or often returns fail to reach a target return level. This risk concept is focused on the frequency and level of low return years, particularly disaster years. We measure it here by accumulating the dollar deficits over the experimental time period that returns failed to reach a target level.

Procedure

To isolate the risk contribution to income stability from rotations, an analysis was done using two eastern Nebraska experimental dryland yield trials. The first (termed “corn soybeans”) was for the 1985-98 period involving corn fertilized at 120lb. N/acre and soybeans at 0 lb. N/acre grown both in monoculture and in rotation with the other crop. The second experiment (termed “grain sorghum soybeans”) involved grain sorghum (90 lb. N/acre) and soybeans (0 lb. N/acre) also grown in monoculture and in rotation. Both experiments involved other crops and other fertilization levels, but only two crop/fertilization choices are examined here.

In developing net returns for each system, each year’s harvest price for corn, grain sorghum, and soybeans was used along with estimated operating costs for each year. For the corn soybean systems net returns (returns to land, labor, machine ownership, and overhead/management) varied between years because of yield, product price, and operating input cost variability. The estimated net returns for the 14-year period for four cropping sequences are shown in Figure 1 for the corn and soybean experiment. These cropping
sequences include continuous corn (CC) and continuous soybeans (SBSB). An annual net returns series for a diversified system constructed by averaging continuous corn and continuous soybean returns for each year and is also presented in Figure 1 (CC-SBSB). It is termed “diversified” because no rotation is involved, yet both crops are grown. This system could be termed “50 percent continuous corn and 50 percent continuous soybeans”. In addition, the net return series for a rotation-diversified system (C-SB) is also presented in Figure 1. This is found by averaging net returns for corn following soybeans and soybeans following corn for each year. This alternative is termed “rotation-diversified” because in addition to having corn and soybeans grown each year, each crop is grown in rotation.

The diversified system (CC-SBSB) is rarely practiced and can be considered artificial. Yet its construction is useful for analysis. Comparing its risk with the diversified-rotation system allows the identification of the risk benefits of rotations. The diversified-rotation system involves risk benefits from both diversification and rotation while only the risk benefits of diversification is observed for the diversification system. Diversification may reduce risk because a year which encounters low returns for one crop may be offset by high returns from another crop. Rotation risk involves two additional aspects. The first is the phenomenon that by growing one crop after another, yield variability may be affected. The rotation yield variability component can be stabilizing (risk reducing) or destabilizing (risk increasing). The second risk component derived from rotations arises if there are net return benefits of rotations resulting from higher yields and reduced growing costs. The risk benefits of rotations arising from these two aspects (changed yield variability and higher yields) can be observed by comparing risk for all systems where risk is defined as accumulated returns below a target level as well as where risk is defined by volatility of returns (standard deviation) for the 1981-96 time period.

For the grain sorghum soybean systems the estimated net returns are shown in Figure 2. The four systems are continuous grain sorghum (GSGS), continuous soybeans (SBSB), diversified using continuous grain sorghum and continuous soybeans (GSGS-SBSB), and the grain sorghum-soybean rotation (GS-SB). For the grain sorghum soybean systems, costs for land, labor, and machinery ownership were removed hence, net returns for these cropping systems are considerably less than for the corn soybean experiment. This difference is not important, however, in examining comparisons within each experiment. Two years (1984 and 1995) are not
included in the series due to experimental difficulties.

The four corn and soybean cropping systems were evaluated for average net returns and risk with their estimates placed in Table 1. Risk is calculated as the standard deviation of net returns as well as by totaling the dollar deficits for all years where returns fall below $100/acre. For example, for monoculture corn this occurs in years 1986, 1987, 1988, 1995, and 1998. Adding the deficits for these years totals $180.12. For most cropping systems net returns were noticeably low in 1989 and 1995. Similarly, the same risk measures are presented in Table 2 for the grain sorghum and soybean experiment. Again, it must be noted that this analysis involves more cost items than the corn soybean experiment thus, returns are lower. In addition to standard deviation of net returns, risk is also measured by the accumulated net returns below a target but here the target is set at zero.

**Results**

Comparison of net return variability (standard deviation of net returns) in Table 1 for allows a determination of the yield stability phenomenon. In this case, diversification significantly reduces net

<table>
<thead>
<tr>
<th>Continuous Corn</th>
<th>Continuous Soybeans</th>
<th>Diversified Corn-Soybeans</th>
<th>Rotation Corn-Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CC)</td>
<td>(SBSB)</td>
<td>(CC-SBSB)</td>
<td>(C-SB)</td>
</tr>
<tr>
<td>Average Net Return</td>
<td>129.43</td>
<td>112.15</td>
<td>120.79</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>64.20</td>
<td>50.80</td>
<td>45.83</td>
</tr>
<tr>
<td>Accumulated Returns Less Than $100/acre</td>
<td>180.12</td>
<td>226.71</td>
<td>132.18</td>
</tr>
</tbody>
</table>

*Estimated costs include only operating expenses.

<table>
<thead>
<tr>
<th>Continuous Grain Sorghum</th>
<th>Continuous Soybeans</th>
<th>Diversified Grain Sorghum-Continuous Soybeans</th>
<th>Rotation Grain Sorghum Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>(GSGS)</td>
<td>(SBSB)</td>
<td>(GSGS-SBSB)</td>
<td>(GS-SB)</td>
</tr>
<tr>
<td>Average Net Return</td>
<td>13.31</td>
<td>33.62</td>
<td>23.48</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>67.33</td>
<td>51.73</td>
<td>41.31</td>
</tr>
<tr>
<td>Accumulated Returns Less Than $100/acre</td>
<td>169.75</td>
<td>169.75</td>
<td>80.93</td>
</tr>
</tbody>
</table>

*Estimated costs include operating expenses, land, labor, and machine ownership.
return variability ($45.83) compared to continuous corn ($64.20) and soybean ($50.80) continuous cropping. This is due to the offsetting phenomenon where when returns of one crop are low, returns of the other crop tend not to be low. However, net return variability is greater for the rotation-diversified system ($56.64) compared to the diversified system. This is due almost exclusively to increased yield variability for the rotation. Thus, rotation cropping is seen here to be destabilizing with respect to yields.

For the grain sorghum soybeans systems rotation cropping also increases average net returns over each continuous system. While, as evidenced by standard deviations, both the diversified and rotation systems reduced return variability over the two continuous systems, the rotation had a slightly lower standard deviation than did the diversified system. This difference is small (39.97 vs. 41.31) but it is directionally opposite than for the corn soybean systems indicating here a slight yield stabilizing impact of the rotation. For both experiments net returns from rotation cropping are clearly greater than for the diversified system.

For both experiments the results from Tables 1 and 2 demonstrate that when risk is measured as returns failing to meet a target return, rotation systems perform well. This is seen most dramatically in the grain sorghum soybean results (25.53 vs. the other systems). However this phenomenon is also seen in the corn soybean experiment (101.78 vs. the other systems). The cause for this lies in the enhanced level of net returns from rotation cropping resulting from higher yields and reduced cost. Hence, when risk is defined as the failure to meet a target return, when returns are enhanced there is less tendency to fall below the target.

Conclusions

Two cropping experiments involving continuous cropland and rotation cropping were examined here for their risk implications. The two experiments involved slightly different years but generally resulted in similar conclusions. Crop mixes offer a number of potential economic advantages over continuous cropping. One is diversification and we constructed a cropping system for each experiment made up of a mix of two continuous cropping alternatives to represent a diversified system. Clearly for both experiments diversification reduced risk over continuous cropping. In addition, rotation cropping involves three additional elements affecting risk beyond that of diversification. One is enhanced yields, another is reduced costs, and a third is the potential of increased yield stability. For the corn soybean study, rotations were found to lead to increased yield instability but the opposite (by a small margin) was observed for the grain sorghum soybean experiment. In both cases, however, the increased profitability of rotations led to reduced risk when risk was defined as the failure to reach target returns.

For more information, please e-mail Glenn Helmers, ghelmers1@unl.edu.

When compared to continuous cropping systems, rotation cropping increases diversification, may reduce yield variability and results in overall higher crop yields.
For over 25 years, the Department of Agricultural Economics at the University of Nebraska-Lincoln has provided training programs for management teams of farm supply and marketing cooperatives. While the educational programs have evolved significantly over the years, the central focus remains on supplying timely information to improve cooperative managers’ and directors’ decision-making skills.

In a unique cooperative arrangement, the Department of Agricultural Economics has teamed with the Nebraska Cooperative Council (NCC) and CoBank to provide practical and applied management training programs for agricultural cooperatives. By combining the expertise of these stakeholders with that of UNL agricultural economists, the education programs routinely offer a full range of economic, strategic management, finance, and legal topics. Further, participants in the programs are exposed to a diverse group of dynamic speakers, offering them the opportunity to develop several alternatives to address challenges facing their cooperative.

Training for Both Directors and Managers

Nearly 200 managers and directors of agricultural cooperatives participate in the annual Director/Manager (DM) Workshops offered by the department, NCC, and CoBank. Held at four locations across Nebraska each year, the one-day DM Workshop focuses on providing cutting edge information for local cooperative management teams. A grass-roots driven program, local cooperative managers and directors identify the topics addressed at the DM Workshop each year. UNL agricultural economists, NCC staff, and CoBank staff then develop workshop materials and presentations to address those topics. Recent DM Workshops have concentrated on cooperative legislation, mergers, member communication, personnel management, and the local cooperative’s role in producers’ profitability. The topic of the 2002 DM Workshop, which will be held in mid-December, is “The Value That Local Cooperatives Provide.”

Originally introduced in 1978, the Director Certification Program (DCP) has become the flagship cooperative management training program offered by the Department of Agricultural Economics and has been attended by thousands of cooperative directors. Over 150 cooperative directors annually participate in the DCP, which is comprised of four one-day courses held in two locations in Nebraska each year. Phase 1 introduces directors to basic cooperative principles and assists them with understanding their roles and responsibilities as directors. The second phase provides directors with a working knowledge of successful cooperative planning techniques and how to develop board policies. Phase 3 concentrates on understanding cooperative financial statements and monitoring the cooperative’s performance. In Phase 4, directors learn how to develop manager job descriptions and performance standards as well as how to evaluate their cooperative’s manager.

The DCP is conducted jointly by UNL, Iowa State University (ISU), CoBank, NCC, and the Iowa Institute for Cooperatives in six locations throughout Nebraska and Iowa. At each location, agricultural economists from UNL and ISU, along with CoBank staff, lead two phases of the DCP each day. The success of the DCP in Nebraska and Iowa has led to the development of similar cooperative management training programs in surrounding states.

Once directors have completed the four-phase DCP program, they have the opportunity to attend Graduate Director Seminars (GDS), which build on the knowledge acquired in the DCP program and further enhance the skills directors acquire through their experiences on their cooperative’s board of directors. GDS topics include advanced financial management, the role of management in a growth cooperative, and establishing their cooperative’s value.

The agricultural economics department also facilitates a daylong conference exclusively for officers of cooperative boards of directors. Board Officer
Training (BOT) is unique in that participants submit issues and discussion topics to the entire group for consideration. Before the end of BOT, participants develop a strategy that they can use at their local cooperatives to address the topics of concern. UNL agricultural economists assist in providing background information and advancing the group to a practical strategy.

**Impacts of Cooperative Management Training Programs**

Directors and managers of farm supply and marketing cooperatives in Nebraska have used the practical information in the department’s management training programs to improve the financial performance of their cooperatives. Research has shown that Nebraska cooperatives experienced a 27 percent increase in sales, 20 percent increase in return on assets, and a 35 percent increase in return on sales from 1996 to 1999. The management training programs have also provided resources to assist with member communication and mergers of cooperatives.

Much of the information presented in the training programs is the result of applied research conducted by the Department of Agricultural Economics and other institutions. The value of the educational programs to the Nebraska cooperative community is evident in their support for cooperative research projects. Currently, Nebraska cooperatives are financially supporting research on the value that agricultural cooperatives create for local communities and they have plans to fund additional research and extension projects in the future.

**Future Opportunities**

The Department of Agricultural Economics remains committed to offering training for managers and directors of Nebraska cooperatives. Future training programs will evolve as the structure of agricultural cooperatives continues to change. For example, in response to more cooperatives pursuing value-added activities or considering different organizational structures (e.g., limited liability corporations), the department is currently joining with two other leading land-grant universities in offering training specifically for directors of value added cooperatives and limited liability corporations. Additionally, special programs to address current and timely issues, such as capital growth and acquisition, will be offered as needed.

The future of Agricultural Economics’ management training programs will be in cooperatively working with other land-grant universities and industry trade associations to provide practical and timely information for cooperative management teams. By working with other stakeholders, the department can offer a greater set of resources to Nebraska cooperatives, including management and financial experts, materials, and research facilities. However, the goal to cooperatively providing cooperative education programs will continue to be addressing issues that are, as one previous participant said, “...exactly what co-ops are up against today.”

For more information, please e-mail Darrell Mark, dmark2@unl.edu.
A UNL agricultural economics student has recently published a new book that captures the spirit of rural Nebraska life and is rooted in his deep appreciation for his rural upbringing.

Chris Gustafson, who grew up on his family’s farm near Mead, Neb., edited and published *Rural Voices: Literature from Rural Nebraska*. The 370-page compilation of short stories, poetry, and remembrances was written by Nebraskans about rural life. The book, published in August, is the culmination of three years of work.

While publishing a book is an ambitious task for any student and somewhat unusual for an agricultural economics major, Gustafson said it combined his love for literature with his appreciation for rural Nebraska and its people. “It was something that intrigued me,” he explained. “I decided to follow an interest that I hadn’t pursued academically.”

Gustafson said the project grew from his realization of how much farming has changed since his ancestors came to farm in Saunders County in the late 1870s. He said he hopes the book helps preserve the experiences and realities of rural Nebraska—its people, their thoughts, and their stories—for people in Nebraska and elsewhere.

“I think this book gives an insight for those who don’t know what it’s like living in a rural area, and it gives something for those living here to appreciate,” Gustafson said, adding that the book’s diverse opinions and writing styles should interest anyone who enjoys literature.

Gustafson said he would like to work on a similar project again and perhaps even write his own book someday. For now, Gustafson is attending classes and preparing to graduate in December.

*Rural Voices* is available for $12.55 each, including tax. To purchase a copy, mail a check or money order to Dirt Road Press, 1020 CR Q, Mead, NE 68041. Shipping is $2.00 for the first book and $1.00 for each additional book. The book also can be purchased online at http://www.nebraskaruralweb.com/dirtroadpress.
Focus on teaching and research

Faculty Exchange Program With Russia and Ukraine In Its Fourth Year

The Institute of Agriculture and Natural Resources Departments of Agricultural Economics and International Programs teamed up again this year with the USDA and hosted the faculty exchange program with Russia and the Ukraine. The program is in its fourth year and is directed by Lynn Lutgen, Department of Agricultural Economics and Susan Miller, International Affairs.

The exchange faculty are given the opportunity to learn new technologies, develop new course outlines, and to write articles during their six-month stay in Nebraska. The acquired information will be used by faculty members upon returning to their respective countries. The exchange faculties also work with the Panhandle Research and Extension Center and the Scottsbluff Extension to learn about extension and distance education.

2002 participants (pictured below) are Angelika Krutova, Kharkiv State University of Food Technology and Management, Economic Faculty; Iryna Firsova, Kharkiv State Technical University of Agriculture, Management Faculty; Irina Skachkova, Omsk State Agrarian University, Department of Agricultural Economics; Tatyana Ermakova, Saratov State Social-Economic University, Department of Economy and Management of International Business.

For more information, please e-mail Lynn Lutgen, llutgen@unl.edu.

Innovation Activity in a Mixed Oligopoly: The Role of Cooperatives

Innovation activity is a critical element of business conduct affecting the competitiveness of firms, the arrival rate of innovations in the economy, productivity growth and social welfare. This study develops a sequential game theoretic model of heterogeneous producers to examine the effect of cooperative involvement on innovation activity in the agricultural input and service providing sectors. Analytical results show that the cooperative involvement in research and development can be productivity and welfare enhancing. The presence of the co-op can increase the arrival rate of innovations and productivity growth while reducing the prices of agricultural services. The effectiveness of the co-op, however, is shown to depend on the size of research and development costs, which are linked to the ability of the co-op to raise capital for research and development activity. In this context, strategies/policy initiatives directed towards reducing the costs of cooperative research and development (perhaps by addressing the capital and horizon problems agricultural co-ops typically face) can be welfare enhancing and, thus, socially desirable.

Konstantinos Giannakas

For more information, please e-mail Konstantinos Giannakas, kgiannakas@unl.edu.

2002 faculty exchange: Angelika Krutova; Iryan Firsova: Irina Skachkova; and Tatyana Ermakova.
Department Welcomes New Faculty Member

Dr. Amalia (Emie) Yiannaka joined the department in August as an assistant professor in agribusiness after receiving her Ph.D. in agricultural economics from the University of Saskatchewan. A native of Greece, Yiannaka holds a B.Sc. in agricultural economics from the Aristotle University of Thessaloniki and an M.Sc. in agricultural and resource economics from the Mediterranean Agronomic Institute of Chania. Her research and teaching interests include the study of the industrial organization of agriculture, the economics of intellectual property rights, agribusiness marketing, and environmental and resource economics. Her current research focuses on the design of privately and socially optimal patent protection for drastic product and process innovations, and the empirical study of factors affecting the breadth of patent protection in the agricultural biotechnology industry. She will teach AECN 425, “Agricultural Marketing in a Multinational Environment,” spring semester.

Faculty members receive awards

Ronald J. Hanson, professor, received the 2002 NACTA Teaching Award of Excellence from the North American Colleges and Teachers of Agriculture on June 20. Hanson also was elected the association’s 2002-03 president during its annual conference in Lincoln, June 19-22. In addition, Hanson received the Western Agricultural Economics Association’s 2002 Undergraduate Teaching Award for individuals with more than 10 years of experience. That award was presented July 30 in Long Beach, California, at the joint annual meeting of WAEA and the American Agricultural Economics Association. Hanson currently serves as the Neal E. Harlan Professor of Agribusiness.

Amalia Yiannaka, assistant professor, received the 2001-02 Outstanding Journal Article Award from the Canadian Agricultural Economics Society on May 30 for the article, “Implementing the Kyoto Accord in Canada: Abatement Costs and Policy Enforcement Mechanisms,” which was coauthored by Hartley Furtan and Richard Gray and appeared in the March 2001 issue of the Canadian Journal of Agricultural Economics.

Sam M. Cordes, professor, received a 2002 Distinguished Alumni Award from the South Dakota State University Alumni Association on October 4. The award recognizes Cordes for being nationally known for his expertise in the area of rural health policy. Cordes received his bachelor’s degree in agricultural economics from South Dakota State in 1967.

Graduate student awarded fellowship

Bingxin Yu, a Ph.D. candidate in agricultural economics, was named a Presidential Graduate Fellow at the University of Nebraska for the 2002-03 academic year in a June 13 announcement by NU President L. Dennis Smith. Yu is one of seven NU graduate students to win the system-wide fellowships, which are awarded on the basis of high scholastic performance and personal accomplishment. The intent of the fellowships is to allow the recipients to work full-time on their studies, and each carries a stipend and provides for tuition, fees, and health insurance. Yu holds a bachelor’s degree in management science from the University of Sciences and Technology of China and a master’s degree in biometry from UNL. Her research focuses on a statistical analysis of agricultural productivity in sub-Saharan Africa.

Staff Appointed to Chancellor’s Commission

Diane Wasser, project assistant, has been appointed by Chancellor Harvey S. Perlman to a three-year term on the Chancellor’s Commission on the Status of Women. She will represent office/service staff members on east campus concerning women’s issues at the University.
Focus on outreach

Women in Agriculture: The Critical Difference

For the past 17 years the Women in Agriculture: The Critical Difference conference has focused on women who make the critical difference on their farms and ranches. The 18th annual conference that was held Sept. 12-13 in Kearney continued the tradition by providing 350 Nebraska ag women with relevant and up-to-date information taught by dynamic speakers.

The conference has become an annual event that ag women from Nebraska and surrounding states look forward to attending. Ag Women take on the roles of homemaker, marketer, manager, tractor driver, “gopher”, record keeper, vice-president, president, nurturer or any combination of these. They are asked to make a variety of business and personal decisions in their operation. The Women in Ag conference offers 18 workshops that focus on the challenges that all ag women encounter, helping them improve the skills they need to become better managers and partners.

It is the goal of the Women in Ag conference to recognize and acknowledge the critical difference that Nebraska ag women make in their operation and to Nebraska agriculture. For more information contact Deb Rood at 1-800-535-3456 or visit the Women in Ag Web site at http://wia.unl.edu.

University of Nebraska’s Beginning Farmer and Farm Transition Program

The University of Nebraska began the Beginning Farmer and Farm/Ranch Transition assistance program in late 1999. The extension program provides one-on-one consultation for beginning farmers/ranchers, retiring farmers/ranchers and producers experiencing financial problems. Objectives of the program include: 1. Provide financial management information, loan availability and eligibility information and general transfer assistance and planning to beginning farmers and ranchers; 2. Provide pre-retirement planning and business transfer assistance for older generation Nebraska producers; 3. Aid those producers experiencing financial problems with option availability and decision making assistance; 4. Provide educational programs to assist farm/ranch transitions in Nebraska.

One-on-one consultation is currently available at no cost to the participants. Dave Goeller, UNL’S transition specialist, has worked with over 400 Nebraska farm/ranch businesses, as well as providing information to numerous lenders and ag professionals.

For more information, e-mail Dave Goeller, dgoeller@unl.edu or phone (402) 472-0661.

“In The Cattle Markets” Newsletter

University of Nebraska Cooperative Extension and Kansas State University Research and Extension have recently begun publishing an online weekly newsletter called “In The Cattle Markets.” The newsletter provides concise analysis of fundamental supply and demand conditions expected to affect fed and feeder cattle prices in the upcoming weeks and reviews the past week’s markets. Each week, agricultural economists Darrell Mark, Dillon Feuz, and James Mintert offer practical marketing and management strategies for cattle feeders, backgrounders, and cow-calf producers. “In the Cattle Markets” is available, free-of-charge, on the Internet at http://www.lmic.info/memberspublic/InTheCattleMarket.html. New editions of the newsletters are posted by Tuesday morning each week. If you would like to receive an e-mail notification each week when the newsletter is posted, please contact Darrell Mark.

For more information, e-mail Darrell Mark, dmark2@unl.edu, or phone (402) 472-1796; or e-mail Dillon Feuz, dfeuz1@unl.edu, or phone (308) 632-1232.

Agricultural Economics at Huskers Harvest Days

More than half of the agricultural economics faculty and staff were involved in disseminating information and conducting outreach programs at Husker Harvest Days, held near Grand Island, Neb., on Sept. 10-12, 2002. During the three-day show, agricultural economists were available in the IANR building to discuss economic and business management issues one-on-one with Nebraska producers. Additionally, visitors to the Agricultural Economics booth had the opportunity to gather information and results from the department’s current research, teaching, and extension programs on topics such as the 2002 farm bill, country-of-origin labeling and other beef industry issues, the Nebraska farm real estate market, and the undergraduate and graduate programs in agricultural economics and agribusiness. Several of the agricultural...
Economics faculty also joined Market Journal in providing continuous live programming at Husker Harvest Days. Every half hour, agricultural economics faculty, along with other cooperative extension specialists, presented information to both a live audience and an Internet audience. Topics included grain and livestock market outlook, water quality issues, cooperative loss handling, and farm size issues. The Department of Agricultural Economics also teamed with the Farm Service Agency to conduct twelve informational sessions on the 2002 farm program to assist Nebraska producers in understanding the provisions of the new farm program and the sign-up process.

For more information, e-mail Darrell Mark, dmark2@unl.edu, or phone (402) 472-1796; Doug Jose, hjose@unl.edu, or phone (402) 472-1749; or Roy Frederick, rfrederick1@unl.edu, or phone (402) 472-6225.

Pork Central Program Help Producers Stay Competitive

Pork Producers face complex problems involving relationships, environment, and market factors that are not a tangible part of pork production. Producers who are competitive in the production phase need to develop and use skills that allow them to appreciate, employ, and extract value from intangible assets such as marketing systems and business relationships.

The ability to create and manage intangible assets must be developed. Producers will be challenged to create production systems that meet economical, environmental and social demands.

Pork Central continues to coordinate specialist efforts in Animal Science, Biological Systems Engineering, Veterinary and Biomedical Sciences, Agricultural Economics and Communications and Information Technology to bring timely, valuable information to Nebraska's pork producers.

Important programs include marketing and price risk reduction strategies. We are working to increase producer awareness and use of record keeping, benchmarking and financial troubleshooting to ensure competitiveness. Using tools such as Market Journal, Nebraska Pork Producer Association publications, and the Pork Central Web page, we continue to provide business and management information that will improve producers' ability to compete.

For more information, please e-mail Allen Prosch, aprosch1@unl.edu.
Yes, I want to receive each issue of Focus!
Please add me to your mailing list.

Name______________________________________________________________________________________

Company__________________________________________________________________________________

Address___________________________________________________________________________________

City_______________________________________State______________Zip Code_______________
e-mail____________________________________________________________________________________

Please mail this form to:

Focus subscriptions
Attn. Diane Wasser
P.O. Box 830922
University of Nebraska
Lincoln, NE 68583-0922