



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

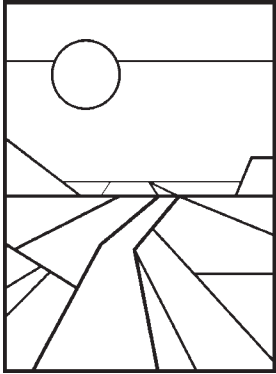
This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



PURDUE AGRICULTURAL ECONOMICS REPORT

AUGUST 2003

Indiana Farmland Values & Cash Rents Continue to Increase

Craig L. Dobbins and Kim Cook

The June 2003 Purdue Land Values Survey found that on a state-wide basis bare Indiana cropland ranged in value from \$1,966 to \$3,035. These values are based on 323 surveys received from professionals that are knowledgeable of Indiana's farmland market. Poor land had an estimated value of \$1,966 per acre, average land had an estimated value of \$2,509 per acre, and top land had an estimated value of \$3,035 per acre (Table 1). For the 12-month period ending in June 2003, this was an increase of 5.2%, 5.3% and 4.9%, respectively for poor, average, and top land.

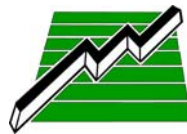
Part the difference in land values reflects productivity differences. As a measure of productivity, survey respondents were asked to estimate long-term corn yields. The average reported yield was 103, 134, and 163 bushels per acre, respectively for poor, average, and top quality land. The value per bushel for different land qualities was very similar. Poor land was the most expensive at \$19.07 per bushel. Top land had the

lowest value at \$18.59 per bushel and average land was \$18.79 per bushel.

The average value of transition land* increased this year, reversing the decline that occurred in last year's survey. The average value of transition land in June 2003 was \$6,936 per acre, an increase of 7.6% from June 2002. Due to the wide variation in estimates for transitional land, the median value** may give a more meaningful picture than the arithmetic average. The median value of transitional land in June 2003 was \$5,500 per acre.

Statewide Rents

Cash rents increased statewide from 2002 to 2003 by \$2 to \$4 per acre (Table 2). The estimated cash rent was \$147 per acre on top land, \$120 per acre on average land, and \$93 per acre on poor land. This was an increase in rental rates of 2.2% for poor land, 3.4% for average land, and 2.8% for top land. Rent per bushel of estimated corn yield was \$0.90 per bushel for all land classes. Cash rent as a percentage of value continued to decline. For top and average farmland, cash rent as a percentage of farmland value was 4.8%. For poor farmland, cash rent as a percentage of farmland was 4.7%. These values are the lowest achieved



in 27 year history of the Purdue Land Value Survey.

Area Land Values

Changes in the value of farmland in the six different geographic areas of Indiana (Figure 1) for December 2002 to June 2003 ranged from a 2.1% increase for poor land in the Central region to a 4.5% increase for average land in the Southwest region (Table 1). All regions of the state reported strong increases in farmland values for this six-month period. The strongest region was the Southwest with increases ranging from 3.4% to 4.5%.

For the year ending June 2003, the change in land values ranged from a decline of 8.4% for poor land in the

* *Transitional land is land that is moving out of agriculture.*

** *The median value is the value in the middle of data that have been arranged in ascending or descending numerical order.*

In This Issue

Indiana Farmland Values & Cash Rents Continue to Increase	1
Country of Origin Labeling	7
New Fence Law Provision	10
Investment in Downstream Publicly Traded Firms as a Vertical Integration Strategy to Increase Returns and Reduce Annual Volatility for Pork Producers	11
Needs Assessment:	
Quick and Easy	14
Indiana Weed Control Laws	15
Decision Time!	16

Table 1. Average estimated Indiana land value per acre (tillable, bare land) and per bushel of corn yield, percentage change by geographical area and land class, selected time periods, Purdue Land Values Survey, June 2003¹

Area	Land Class	Corn bu/A	Land Value					Land Value/Bu			Projected Land Value	
			Dollars Per Acre			% Change		% Change			% Change	
			June 2002	Dec 2002	June 2003	6/02-6/03	12/02-6/03	\$ Amount 2002	\$ Amount 2003	6/02-6/03	Dec.2003	6/03-12/03
			\$/A	\$/A	\$/A	%	%	\$	\$	%	\$	%
North	Top	162	2,784	2,921	3,037	9.1%	4.0%	17.44	18.79	7.7%	3,096	1.9%
	Average	130	2,243	2,337	2,419	7.8%	3.5%	17.51	18.59	6.2%	2,464	1.9%
	Poor	100	1,707	1,836	1,873	9.7%	2.0%	17.40	18.71	7.5%	1,888	0.8%
Northeast	Top	160	2,766	2,781	2,888	4.4%	3.8%	17.13	18.04	5.3%	2,908	0.7%
	Average	128	2,211	2,289	2,343	6.0%	2.4%	17.14	18.27	6.6%	2,361	0.8%
	Poor	97	1,769	1,770	1,830	3.4%	3.4%	17.85	18.81	5.4%	1,839	0.5%
W. Central	Top	166	2,964	2,967	3,053	3.0%	2.9%	18.46	18.44	-0.1%	3,112	1.9%
	Average	138	2,500	2,503	2,589	3.6%	3.4%	18.65	18.75	0.5%	2,619	1.2%
	Poor	108	1,929	1,978	2,025	5.0%	2.4%	18.16	18.80	3.5%	2,069	2.2%
Central	Top	167	3,174	3,240	3,336	5.1%	3.0%	19.10	20.01	4.8%	3,372	1.1%
	Average	138	2,683	2,763	2,828	5.4%	2.4%	19.35	20.42	5.5%	2,866	1.3%
	Poor	109	2,226	2,307	2,355	5.8%	2.1%	20.30	21.64	6.6%	2,386	1.3%
Southwest	Top	167	2,860	2,700	2,811	-1.7%	4.1%	16.98	16.87	-0.6%	2,833	0.8%
	Average	132	2,206	2,018	2,108	-4.4%	4.5%	16.74	15.97	-4.6%	2,137	1.4%
	Poor	96	1,425	1,263	1,306	-8.4%	3.4%	14.46	13.55	-6.3%	1,323	1.3%
Southeast	Top	153	2,518	2,652	2,710	7.6%	2.2%	16.48	17.75	7.7%	2,695	-0.6%
	Average	124	2,107	2,281	2,354	11.7%	3.2%	17.50	18.94	8.2%	2,351	-0.1%
	Poor	96	1,702	1,831	1,894	11.3%	3.4%	18.79	19.67	4.7%	1,892	-0.1%
Indiana	Top	163	2,892	2,938	3,035	4.9%	3.3%	17.85	18.59	4.1%	3,075	1.3%
	Average	134	2,382	2,434	2,509	5.3%	3.1%	18.06	18.79	4.0%	2,539	1.2%
	Poor	103	1,869	1,918	1,966	5.2%	2.5%	18.25	19.07	4.5%	1,990	1.2%
	Trans. ²		6,447	6,658	6,936	7.6%	4.2%				7,088	2.2%

¹ The land values contained in this summary represent averages over several different locations and soil types. If a precise value is needed for a specific property, this value can be determined by a professional appraiser.

² Transition land is land moving out of production agriculture.

Purdue Agricultural Economics Report is a quarterly report published by the Department of Agricultural Economics, Purdue University.

Editor

Gerald A. Harrison
E-mail: harrisog@purdue.edu
Phone: 765-494-4216 or
toll free 1-888-398-4636

Editorial Board

Stephen B. Lovejoy
Christopher A. Hurt
Philip L. Paarlberg

Layout and Design

Cathy Malady

Circulation Manager

Patt Sheahan

Agricultural Economics Department

www.agecon.purdue.edu

PAER World Wide Web

www.agecon.purdue.edu/extension/pubs/paer/

Cooperative Extension Service

www.anr.ces.purdue.edu

Purdue University
Cooperative Extension Service,
West Lafayette, IN

Southwest region to an increase of 11.7% for average land in the Southeast region. In the Southwest region, the increase in value during the six month period from December 2002 to June 2003 was not sufficient to off-set earlier reductions. All classes of land in this region declined for the year ending June 2003. The strongest increases for the year were in the Southeast region, ranging from 7.6% to 11.7%. This was followed by the North region with increases ranging from 7.8% to 9.7%.

The highest valued top-quality land was in the Central area, \$3,336 per acre. This region was followed by West Central (\$3,053), North (\$3,037), Northeast (\$2,888), Southwest (\$2,811), and Southeast (\$2,710).

*** The median value is the value in the middle of data that have been arranged in ascending or descending numerical order.

Land value per bushel of estimated average corn yield (land value divided by bushels) is the highest in the Central region, ranging from \$20.01 to \$21.64 per bushel. This was followed by the North, Northeast and West Central with values ranging from \$18.04 to \$18.81. The Southwest had the lowest land value per bushel, ranging from \$13.55 to \$16.87. This region also had the widest range of values.

Respondents were asked to estimate the value of rural home sites with no accessible gas line or city utilities and located on a black top or well-maintained gravel road. The median*** value for five-acre home sites ranged from \$5,000 to \$8,500 per acre (Table 3). Estimated per acre median values of the larger tracts (10 acres) ranged from \$4,750 to \$7,500 per acre.

Area Cash Rents

All areas of the state reported increases in cash rent (Table 2). Only the Central and Southwest region reported a decline in cash rent. In both regions, the cash rent for poor land declined. The strongest increase in cash rent occurred in the Southeast region.

Cash rents are the highest in the Central and West Central regions. The cash rent for top land in both regions was \$158 per acre. Cash rents per bushel for the West Central and Central regions ranged from \$0.93 to \$0.98 per bushel. These per bushel rents are the highest in the state. The next highest per-bushel rent was in the North, ranging from \$0.88 to \$0.91 per bushel. Per bushel rents in the Northeast and Southwest ranged from \$0.82 to \$0.88. The lowest per bushel cash rents were \$0.74 to \$0.75, reported for the Southeast.

Important Factors in the Land Market

Several factors influence farmland prices. The supply of land on the market, the number of buyers interested in making a farmland purchase, and expectations about grain prices, interest rates, and the rate of inflation are just a few examples. To assess the supply of land on the market, respondents were asked to provide their opinion about the amount of farmland on the market now compared to a year earlier. The respondents were asked to indicate if there was more, less, or the same amount of land on the market now compared to a year earlier. Eight-six percent of the respondents indicated that the amount of land on the market at the current time was the same or less. These results are nearly the same as past years (Figure 2). Only 15% of the respondents indicated there was more farmland on the market. These results indicate the supply of land for sale remains limited.

To assess the amount of market activity, respondents were asked to provide their opinion of the number of farmland transfers in the past six months compared to a year earlier. The respondents could indicate that the number of transfers was up,

Table 2. Average estimated Indiana cash rent per acre, (tillable, bare land) 2002 and 2003, Purdue Land Value Survey, June 2003

Area	Land Class	Corn bu/A	Rent/Acre		Change '02-'03 %	Rent/bu. of Corn		Rent as % of June Land Value	
			2002 \$/A	2003 \$/A		2002 \$/bu.	2003 \$/bu.	2002 %	2003 %
North	Top	162	141	143	1.4%	0.88	0.88	5.3	4.7
	Average	130	113	115	1.8%	0.88	0.88	5.2	4.8
	Poor	100	88	91	3.4%	0.90	0.91	5.3	4.9
Northeast	Top	160	132	138	4.5%	0.82	0.86	4.9	4.8
	Average	128	104	106	1.9%	0.81	0.83	4.9	4.5
	Poor	97	81	82	1.2%	0.82	0.84	4.9	4.5
W. Central	Top	166	154	158	2.6%	0.96	0.95	5.3	5.2
	Average	138	131	134	2.3%	0.98	0.97	5.5	5.2
	Poor	108	103	106	2.9%	0.97	0.98	5.6	5.2
Central	Top	167	156	158	1.3%	0.94	0.95	4.9	4.7
	Average	138	128	129	0.8%	0.92	0.93	4.8	4.6
	Poor	109	103	102	-1.0%	0.94	0.94	4.7	4.3
Southwest	Top	167	145	147	1.4%	0.86	0.88	5.0	5.2
	Average	132	112	115	2.7%	0.85	0.87	5.0	5.5
	Poor	96	82	79	-3.7%	0.83	0.82	5.2	6.0
Southeast	Top	153	111	114	2.7%	0.73	0.75	4.5	4.2
	Average	124	88	93	5.7%	0.73	0.75	4.3	4.0
	Poor	96	66	71	7.6%	0.73	0.74	4.2	3.7
Indiana	Top	163	143	147	2.8%	0.88	0.90	5.0	4.8
	Average	134	116	120	3.4%	0.88	0.90	5.0	4.8
	Poor	103	91	93	2.2%	0.89	0.90	5.0	4.7

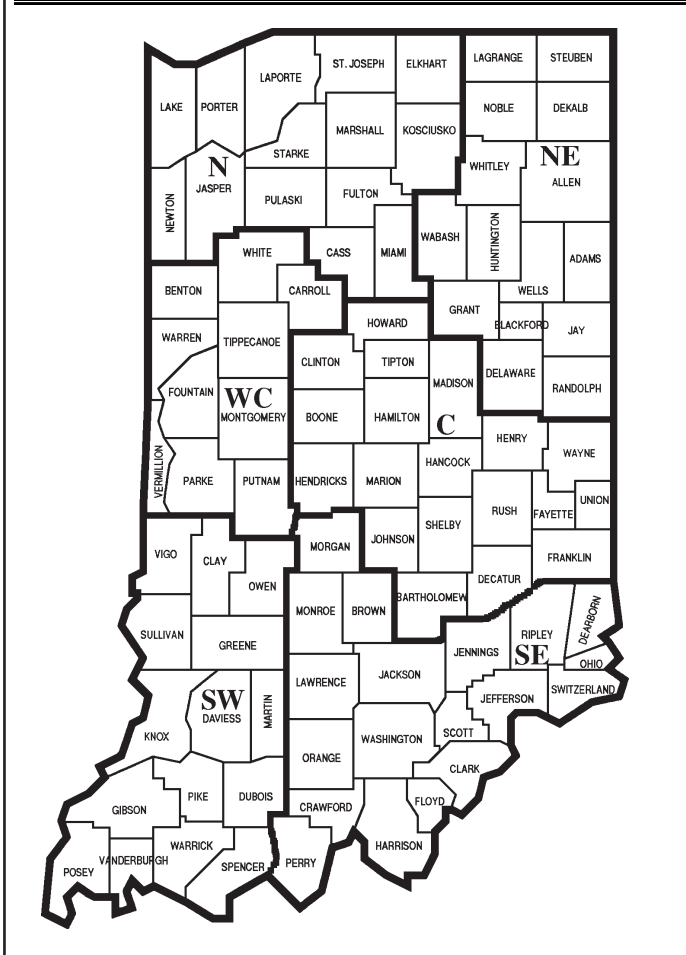
down, or the same as a year earlier. Again, the largest number of respondents indicated the number of farmland transfers was the same as a year ago (Figure 3). However in this case, there has been a steady rise in the number of respondents indicating an increase in the number of transfers and a steady decline in the number of respondents indicating a decline. These changes indicate that there has been some increase in the number of farmland transfers.

Respondents were asked to provide their perceptions of changes in the buyers of farmland by indicating if purchases by farmers, rural residents, nonfarm investors, or pension funds had increased, decreased, or remained the same when compared to a year earlier. Demand from farmers and nonfarm investors have shown the largest changes. This year, just over 43% of the respondents indicated that there was an increased demand from farmers (Figure 4). This

Table 3. Median value of five-acre home sites and home sites of ten acres or more

Area	Median value, \$ per acre							
	5 Acres or less for home site				10 Acres & over for subdivision			
	2000 \$/A	2001 \$/A	2002 \$/A	2003 \$/A	2000 \$/A	2001 \$/A	2002 \$/A	2003 \$/A
North	5,000	5,250	6,000	6,000	5,000	5,000	5,000	5,000
Northeast	5,000	5,000	5,000	6,000	4,500	4,500	4,500	5,000
West Central	5,000	5,000	5,800	6,000	5,000	5,000	5,000	5,000
Central	6,000	6,250	7,000	8,500	5,500	5,000	5,750	7,500
Southwest	5,000	6,000	5,000	5,000	5,000	6,000	5,000	5,000
Southeast	5,000	5,000	5,500	6,000	4,000	4,000	5,000	4,750

Figure 1. Geographic Areas Used in the Purdue Land Values Survey



With the decline in the rates of return for competing investments such as the stock market, one might expect there to be increased demand for farmland by nonfarm investors. The number of survey respondents reporting increased interest on the part of nonfarm investors was just over 58% (Figure 5). This is a sharp increase over last year's value. The number of respondents indicating the same or less interest on the part of nonfarm investors declined.

Respondents also indicated an increase in interest by pension funds and other types of combined farmland investors. While 63% of the respondents indicated that interest from these investors was the same as last year, this year 21% of the respondents indicated increased interest from these investors and 17% indicated decreased interest. Last year 14% of the respondents indicated increased interest and 24% of the respondents indicated decreased interest. While these investors are not expected to become big buyers of farmland, these data indicate more interest in farmland investments.

Expected Corn and Soybean Prices, Interest Rate, and Inflation

Expectations regarding crop prices over the next few years have a strong influence on farmland values because they affect expected revenues from the purchase or rental of farmland. In order to gain insight into price expectations, respondents were asked to estimate the annual average on-farm price of corn and soybeans for the period 2003 to 2007. Respondents have been asked to

continues an upward trend in the number of respondents indicating increased farmer interest in farmland purchases.

The demand for rural residences continues to be strong, 76% of the respondents indicated an increase

in demand for rural residences. Twenty-four percent indicated that demand for rural residences remained the same. One percent of the respondents indicated a decline in the demand for rural residences. These responses are similar to those of past years.

Figure 2. Amount of land on market compared to one year ago

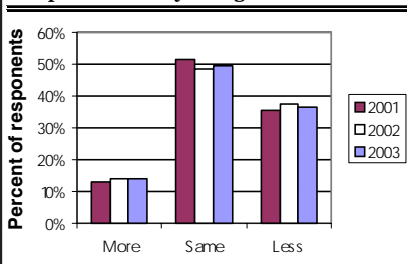


Figure 3. Percent of respondents indicating an increase, the same, or decrease in land transfers

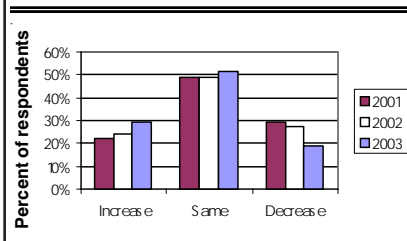
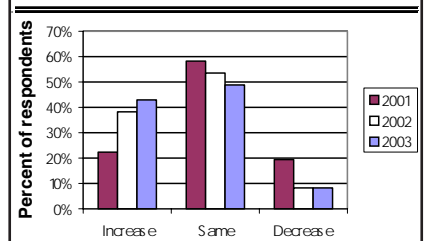


Figure 4. Percent of respondents indicating an increase, same, or decrease in farmer demand



make these five-year projections since 1984.

This year saw an increase in the expected five-year average price of corn and soybeans (Table 4). This ended the six-year decline in expectations for corn and the five-year decline in expectations for soybeans. These price expectations indicate a more positive revenue outlook.

Other important expectations associated with a land purchase include the expected farm mortgage interest rate and the rate of inflation. The estimated five-year average interest rate declined again this year; indicating that survey respondents expect interest rates to remain low. This is the lowest expected interest rate in the series. The expected five-year average rate of inflation also continues to drift lower.

Factors Influencing Current Farmland Values

To obtain a more comprehensive assessment of the relative strength that various influences are currently exerting on farmland values, survey respondents were asked to assess the influence of 11 different items on farmland values. These items included:

1. Current net farm income,
2. Expected growth in returns,
3. Crop prices & outlook,
4. Livestock prices & outlook,
5. Current & expected interest rates,
6. Returns on competing investments,
7. U.S. agricultural export sales,
8. U.S. inflation/deflation rate,
9. Current inventory of land for sale,
10. Current cash liquidity of buyers, and
11. Current U.S. agricultural policy.

Respondents were asked to use a scale from -5 to +5 to indicate the effect each item has on current farmland values. If the item had a major negative influence, it would be given a minus 5. If the item had a small negative influence, it would be given a minus 1. Positive influences were assessed in the same way, except positive weights were used. A weighted average for each item was calculated, and the results are presented in Figure 6. The numbers on the horizontal axis of the chart

Table 4. Projected five-year average corn and soybean prices, mortgage interest and inflation

Year	Prices, \$ per bu.		Rate, % per year	
	Corn	Beans	Interest	Inflation
1984	\$3.13	\$7.35	13.3%	6.5%
1985	2.70	6.13	12.3%	5.1%
1986	2.32	5.43	11.0%	4.2%
1987	2.16	5.62	10.7%	4.5%
1988	2.50	6.82	10.9%	4.6%
1989	2.48	6.55	11.0%	4.7%
1990	2.61	6.22	11.0%	4.6%
1991	2.47	6.07	10.4%	4.2%
1992	2.52	6.04	9.5%	3.8%
1993	2.35	5.96	8.7%	3.8%
1994	2.48	6.18	8.9%	3.8%
1995	2.50	6.02	9.2%	3.9%
1996	3.01	6.63	9.1%	3.7%
1997	2.72	6.81	9.0%	3.4%
1998	2.54	6.34	8.6%	3.1%
1999	2.31	5.57	8.4%	2.9%
2000	2.28	5.56	9.1%	3.2%
2001	2.12	5.07	8.1%	2.9%
2002	2.10	4.97	7.6%	2.7%
2003	2.27	5.42	6.5%	2.3%
Average	\$2.48	\$6.04	9.7%	3.9%

Figure 5. Respondents indicating an increase, same, or decrease in demand from nonfarm investors

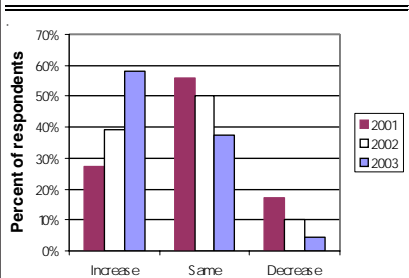
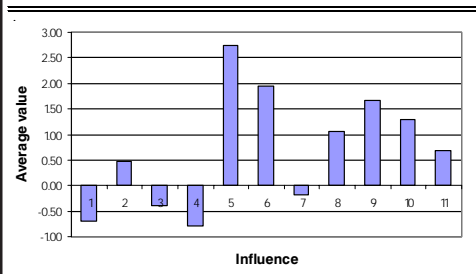


Figure 6. Factors Influencing Current Farmland Values



indicate the number of the influence in the above list.

Those items with the largest negative influences included current net farm income (1) and current livestock price level and outlook (4). The crop price level and outlook (3) and export sales (7) also have negative influences, but these are less important than in previous years. Those with the largest positive influences include current and expected interest rates (5), returns on competing investments (6), the current inventory of land for sale (9), the current cash liquidity of buyers (10), and the inflation/deflation rate (8).

basis, survey respondents expect farmland values to increase 1.2% to 1.3% between June 2003 and December 2003.

Respondents were also asked to project farmland values five years from now. Seventy-nine percent of the respondents expected farmland values to be higher, 14% of the respondents expected farmland values to be the same, and 7% expected farmland values to be lower. Overall, respondents expect land values to be 7.1% higher in five years.

Some people have wondered if the real estate market might be the next market bubble to burst. What could derail a continued increase in farmland values? One possibility is a

While the likelihood of these events or their impact may seem low, it is important to remember that a farmland investment is a long-term investment. Prudent planning requires investigating if there is a sufficient cushion to allow the business to withstand unexpected events that reduce net revenue. It is also important to remember that farmland is an illiquid investment. Selling a tract that should not have been purchased can often take longer than anticipated. If a farmland sale is planned, the data reported here provides general guidelines regarding farmland values. To obtain a more precise value for an individual tract, contact a professional rural appraiser.

“The limited supply of land for sale combined with strong demand for country residences and nonfarm development, the strong liquidity of buyers, renewed interest by farmers and nonfarm investors in farmland purchases, and low long-term interest rates continues to provide strength to Indiana’s farmland market.”

The land values survey was made possible by through the cooperation of numerous professionals that are knowledgeable about Indiana’s farmland market. These professionals include farm managers, appraisers, land brokers, bankers, Purdue Extension educators, farmers, and persons representing the Farm Credit System, the Farm Service Agency (FSA) county offices, and insurance companies. Their daily work requires that they stay well informed about land values and cash rents in Indiana. The authors express sincere thanks to these friends of Purdue and of Indiana agriculture. They provided 323 responses representing all but one Indiana County. We also express appreciation to Carolyn Hunst of the Department of Agricultural Economics for her help in conducting the survey.

What about the Future?

The limited supply of land for sale combined with strong demand for country residences and nonfarm development, the strong liquidity of buyers, renewed interest by farmers and nonfarm investors in farmland purchases, and low long-term interest rates continues to provide strength to Indiana’s farmland market. When the long awaited economic recovery of the U.S. economy begins, interest rates and the attractiveness of alternative investments are likely to improve. However, even with some increase in interest rates, the other factors supporting Indiana’s farmland market are likely to remain in place. When asked to project farmland values for December 2003, respondents expected farmland values in all areas except the Southeast to increase (Table 1). In the Southeast, respondents expected a small decline in farmland values. On a state-wide

sharp rise in inflation and interest rates because of the large federal budget deficit. A sharp rise in long-term interest rates would slow development demand, provide more attractive alternative investments, as well as increase the cost of borrowed money. Another possibility could be a sharp drop in commodity prices do to a surge in world production. While this would reduce market revenues, the current farm program would offset lower market prices with increased counter cyclical payments. Still another possibility is a sharp rise in production costs. The tight supply of natural gas resulted in higher nitrogen prices this past spring. Natural gas supplies continue to be tight and may increase propane prices this fall. If these and other input costs rise, margins from crop production are likely to narrow, reducing the income capitalized into farmland values.



Craig L. Dobbins (L) is a Professor and Kim Cook (R) is a Research Associate in the Department of Agricultural Economics at Purdue University.

Country of Origin Labeling

John M. Connor

The Country of Origin Labeling (COOL) provisions in the 2002 Farm Bill require retail sellers of several food commodities to inform consumers of the country of origin. There has been considerable debate and several competing claims regarding the benefits and costs of this program. Moreover, the final USDA labeling regulations will have significant effects on U.S. companies involved in meat production and distribution. The 2003 discovery of an animal infected by “Mad Cow Disease” in Canada has heightened the pressures to implement a sensible and effective system of traceability, particularly meats derived from foreign sources.

The law applies to beef, pork, lamb, fish (farm-raised or wild), peanuts, fruits and vegetables. These commodities must be exclusively produced and processed within the United States to be deemed of U.S. origin. The primary “information provision” of the law mandates that retailers provide information to consumers as to the country of origin of the covered commodities. The method by which consumers are to be notified is through a “label, stamp, mark, placard,” or other type of signage that is “clear and visible” at the point of sale.

The other information provision of the Labeling Legislation requires that “any person in the business of supplying a covered commodity to a retailer shall provide information to the retailer indicating the country of origin of the covered commodity.” This provision seems to impose a duty upon direct suppliers, rather than upon all upstream suppliers, because only direct suppliers to retailers can, in practice, provide the information to a specific retailer.

In addition, this legislation says that the Secretary of Agriculture “may” require that any entity “that prepares, stores, handles, or distributes a covered commodity for retail sale maintain a verifiable record keeping audit trail that will permit

the Secretary to verify compliance with” the law. The purpose of the verification provision is obviously to maintain reasonable integrity and credibility in the labeling scheme.

However, more specific identification systems are prohibited. This prohibition was included in the bill to avoid the concerns of livestock producers who feared potential liability arising from the ability of regulators and others to trace back meat products to the farm of origin. Thus, while the Secretary must propound regulations to allow consumers to identify the *country* of origin, the regulations cannot go further to identify the *farm* of origin.

Virtually every business in the stream of commerce of covered commodities is subject to regulation under the Legislation after the ownership of the product is transferred from the producer to the first buyer; that is, the Law applies to processors, wholesalers, and retailers of the covered commodities. In general, farmers, ranchers, growers and fisherman are likely not within the purview of the Labeling Legislation because they are not specifically identified as a regulated entity. On exception to the producer exemption is vertically integrated operations. Vertically integrated producers are regulated entities if they also perform the functions of preparing, storing, handling or distributing the products. Examples include vertically integrated pork production and processing companies such as Smithfield Foods in pork and many vegetable producers that also pack and ship their own, and perhaps others’ produce.

The labeling program will not be mandatory until September 30, 2004. Retailers and other covered entities will have to comply at that time. Until then, labeling will be voluntary. The United States Department of Agriculture (USDA) was required to propound guidelines (not regulations)

for voluntary labeling by September 30, 2002, and did so on October 11, 2002. By September 30, 2004, the USDA is to have in place regulations to implement this law.

The enforcement regime is quite relaxed. The law is enforceable against retailers only if they “willfully” violate the law. A fine cannot be levied unless the Secretary has first provided the retailer with notice of a violation as well as a 30-day opportunity to correct the problem. This requirement of “willfulness” is significant in that retail supermarkets have to engage in conduct that is affirmatively fraudulent before they may be fined, and then only up to \$10,000. Retailers will not be liable for negligent violations or innocent mistakes. Processors and wholesalers are subject to a slightly different enforcement standard. A 1999 law requires that the Secretary must consider several factors before issuing a fine, including “the gravity of the offense, the size of the business involved, and the effect of the penalty on the ability” to continue in business. It is likely that the Secretary will require a finding akin to willfulness.

COOL Implementation

The government is now designing the final rules for COOL. A desirable regulatory scheme should:

- (1) comply with the Labeling Legislation and international trade laws;
- (2) lessen the burdens on private entities to the extent possible;
- (3) lessen the burden on USDA to the extent possible; and
- (4) make the risk of misrepresentation to consumers low.

The debate during the implementation period has focused upon three basic regulatory alternatives:



- (1) a Third Party Verification Rule where all representations as to the origin of all covered commodities is verified by third parties;
- (2) a Self Verification Rule where all representations as to the origin of all covered commodities are merely represented by the market participants in the chain of commerce; and
- (3) a Presumption of U.S. Origin Rule where the regulations presume that all products are of U.S. origin unless a foreign mark of origin is on the product.

A. Third Party Verification Rule

The early stages of the COOL



implementation debate included serious discussions of the potential for requiring third party verification of all covered

commodities at the producer level. However, the Labeling Legislation itself does not require third party verification, and of late the debate seems to have moved away from this possibility.

A Third Party Verification Rule would be the most expensive system for the food sector to implement. It would foster a whole new industry of third party verifiers.

While third party verification may be the most likely to reduce the risk of misrepresentation, most commentators believe that such a system's costs would far outweigh the benefits of reduced risk. Moreover, it is at variance with other USDA reporting rules. The Livestock Mandatory Price Reporting Act of 1999, for example, requires meat packers to report prices without third parties verifying the truthfulness of the reporting. The income tax reporting system is another example of a self verifying "honor system" subject to potential audit.

B. Self Verification Rule

The regulatory option most often discussed in the current debate is one that would require producers and others to self verify the country of

origin of all transactions involving the covered commodities. This system would presumably require all sellers, including producers, to provide country of origin information to all buyers. Ultimately the retail food store receives that information and conveys it to the consumer in some form. The system would be policed by the practice of periodic audits by the USDA and the subsequent possibility of civil penalties. Because this rule does not need third parties to verify truthfulness in every transaction, it would be far less costly than a third party system.

In addition, with self verification there is no need to create a whole new record-keeping system. Regulated entities keep a number of records in the regular course of business. Those records are likely sufficient to allow them to identify the origin of the product. For producers of covered commodities, production records are more than sufficient. Processors and distributors will simply need to add a line on their purchase documents to indicate the country of origin of the product. Information as to the origin of a product can be placed on a bill of lading, an invoice, an affidavit, or on any standardized transaction-relevant form. The records listed are those that any properly run business keeps in the ordinary course of operations.

A potentially serious criticism of the Self Verification Rule has arisen because meat packers and retail food stores have publicly expressed their intention to require their suppliers to consent to open their books for random private audits by the buyers. USDA officials have stated that they cannot control private conduct. However, USDA could remove any *justification* for such intrusive business practices by merely allowing buyers to rely in good faith upon the representations of sellers as to the country of origin of the product. There would then be no business justification for allowing such private random audits.

A more serious problem with the Self Verification Rule is that it may not be lawful under the Labeling Legislation. Producers are not specifically named as entities that the

Secretary may regulate under the law. In other areas of the federal agricultural statutes, Congress specifically identified producer if it intended them to be subject to a regulatory scheme. Further, producers of livestock do not produce the covered commodities specified in the Law, but rather live animals.

C. The Presumption of U.S. Origin Rule

The Presumption of U.S. Origin Rule is a shorthand title for a regulatory reporting scheme in which all products are presumed to be of U.S. origin unless they carry a mark from another country. The corollary to this presumption is a duty to maintain the mark of origin that is currently required on most imported products as a condition of entry into this country. This scheme avoids the problem of lack of USDA COOL jurisdiction over U.S. producers, complies with international trade norms, and minimizes the regulatory burden caused by the program.

First, the regulatory burden is significantly reduced by the Presumption of U.S. Origin Rule by eliminating a large number of affected entities. U.S. producers are a whole category of entities left untouched, except for the few that import young animals to grow for later sale. Many small processors, packers and other handlers would be de facto exempt because they do not engage in the trade of imported foods.

Second, the problem of lack of jurisdiction over U.S. producers is eliminated because this regime does not rely upon the producer as the trigger point to input the first information as to country of origin that follows the product to the consumer. Rather, the trigger point relied upon is the passage of covered commodity over the border, through customs. The USDA acknowledged in the Voluntary Guidelines that several current federal laws require most imports, including food items, to bear labels or other information designating the country of origin.

Third, the Presumption of U.S. Origin Rule complies with international trade rules. The relevant rule arises from the membership of the

United States in the World Trade Organization (WTO). Though some have argued that a Presumption of U.S. Origin Rule would violate the general proposition that a WTO member must afford the same treatment to foreign goods that it does to domestic product, Article IX of the General Agreement on Tariffs and Trade (GATT) allows member nations to require marks of origin on goods imported from any other WTO Member.

Specifically, Article IX: 3 of GATT provides that “[w]henver it is administratively practicable to do so, contracting parties should permit required marks of origin to be affixed at the time of importation.” This is currently the practice in the U.S. Further, the laws and regulations relating to “the marking of imported products shall be such as to permit compliance without seriously damaging the products, or materially reducing their value, or unreasonably increasing their cost.” (GATT Article IX: 4). Thus, the U.S. can require any “reasonable” means to mark the imported products as to their origin. However, the U.S. cannot go beyond requiring a mark of country of origin to further specify the producer or sub-national region of origin.

The U.S. currently requires imported products of nearly all types (many beyond the scope of covered commodities under the Labeling Legislation) to bear a mark of origin upon entry to the United States. These rules are administered through the U.S. Customs Service under the ultimate authority of the Secretary of the Treasury. The Treasury Secretary has the discretionary authority to exempt certain merchandise from the marking requirement. (This list of exempted products is called the “J-list”.) U.S. trade laws provide that if the “ultimate purchaser” knows the country of origin of the imported article, then the article need not be marked.

Thus, cattle, swine and sheep imported for immediate slaughter need not bear such a mark for COOL purposes because the packer that is importing the animals knows the country of origin as a result of engaging in the import transaction.

Thus, the “ultimate purchaser” of livestock is the packer/slaughterer. Since the packer knows the country of origin of imported livestock, it can then convey that information downstream to subsequent purchasers of meat.

The ultimate purchaser, for import purchases, of covered commodities such as meat, fruits, vegetables, nuts, etc. also knows the origin of those commodities. Those ultimate purchasers are regulated entities under the Labeling Legislation that have a duty to pass that information to downstream purchasers.

“By September 30, 2004, the USDA is to have in place regulations to implement this law.”

While live animals are on the “J-list” and do not bear a mark of origin for customs purposes, they can be identified in other ways. Live animals imported for slaughter must be accompanied by papers that include information such as the country of origin. That information can be used by the packer who imports the animals and who can then transmit the information to downstream buyers, including retailers. The case of live animals imported for further feeding and other purposes, such as dairy cattle, breeding cattle, feeder cattle and feeder pigs, is more complicated.

As a general proposition, the USDA can work with the U.S. Treasury to remove livestock from the J-list in order to facilitate proper identification for labeling purposes. A tag, brand or tattoo could be used to convey the origin information to the packer. Many imported live animals are currently marked for health purposes under USDA rules. Those marks can be used to identify the origin of the animals by the packer that purchases them.

Additionally, USDA currently has the authority to regulate the importation of animals, including requirements that the animals bear documentation or markings denoting their origin. The USDA requirements take precedence over the Customs

Service’s J-list; USDA can require such markings despite the fact that live animals are on the J-list. USDA’s Animal and Plant Health Inspection Service (APHIS) carries out these functions. With this authority, USDA could choose to modify the appropriate health rules so that the animals imported can be identifiable for labeling purposes. Recall that the prohibition of mandatory identification systems in the Labeling Legislation serves to prevent trace-back to the farm of origin but does not affect attempts to designate the country of origin.

As a practical matter, there are relatively few animals that must be identified by means other than those means which exist now. As to cattle in 2002, 1.41 million head of cattle were imported for feeding or other purposes, not for direct slaughter. Of those feeder and other cattle, 816,000 were Mexican cattle. All Mexican cattle coming into the U.S. for further feeding must be marked with a permanent “M” brand for steers and an “Mx” brand for heifers. These marks are highly visible. Packers can readily identify these cattle when they are sorted at the packing plant for slaughter. Therefore, only 593,130 head of cattle entered the United States in 2002, almost all them from Canada, without either existing marks of origin or without the need for marks of origin because the cattle’s origins were known to the persons importing the cattle for direct slaughter.

The Foreign Ag Service FAS agricultural trade data similarly show that the number of swine and sheep that must be tracked under this system are minimal. For example, virtually all swine imported for immediate slaughter came from Canada in the amount of 1.81 million head. Because packers engaged in the import transaction know the origin of the swine, no mark of origin is needed. Additionally, approximately

3.93 million head of feeder pigs and 139,000 head of sheep were imported into the United States. The National Center for Import and Export, a subdivision of USDA-APHIS Veterinary Services, says that all swine

identify swine under the Presumption of U.S. Origin Rule because all feeder swine already bear a permanent mark for health purposes upon entry to the U.S.

agricultural producers were not specifically cited in the language of the law as is customary. Third, the USDA may adopt a rule that *presumes* that regulated commodities are of U.S. origin. Under this scheme, more than 99% of the current U.S. stock of meat animals would require no additional effort to identify as being of foreign origin. Based on 2002 data, only about 732,000 cattle and sheep would require marks of foreign origin and additional documentation for processors and distributors. Imported feeder pigs would require no additional labeling effort.

“The details of COOL enforcement are currently under development by the USDA.”

imported from Canada must have a health certificate which contains information that can identify the specific animals. That identification system includes any permanent mark such as an ear tag or tattoo with a unique number. Thus, feeder swine are already identified with a permanent mark that packers can use to identify their origin upon later slaughter. Imported sheep, however, may need to have an additional mark for a packer to identify them after being further grown for slaughter.

Thus, the number of animals that are not currently subject to identification for labeling purposes is very small. Only 0.6 percent of the U.S. inventory of cattle and calves need be identified for COOL purposes in 2002. Only 1.7 percent of sheep and lambs are not of known origin and need be identified. USDA needs only to create a system of foreign markings on 139,000 head of imported sheep in order to effectively implement the Labeling Legislation. Lastly, it appears that no additional means need be implemented to

In sum, under the Presumption of U.S. Origin Rule, all that is necessary is the recommended minor modifications of current regulations to identify, with marks of origin, the few imported livestock for which the origin is not presently determinable by marks or otherwise. These livestock constitute merely five-tenths of one percent of the total livestock inventory of the United States.

Summary

The details of COOL enforcement are currently under development by the USDA. Three possible mandatory reporting rules are under consideration. First, a new system of third-party verification is possible, but this alternative is the most costly and is at variance with analogous USDA rules. Second, self verification, which operates like the procedures used for paying income taxes, is a much less costly alternative. However, self verification may violate the intent of Congress when it passed the COOL legislation, because

 Note: This article summarizes part of “Country of Origin Labeling: A Legal and Economic Analysis” by professors John Van Sickle (University of Florida), Roger McEowen (Kansas State University), C. Robert Taylor (Auburn University), Neil E. Harl (Iowa State University), and John M. Connor (Purdue University). It can be read in its entirety on the Worldwide Web at: http://www.iatpc.fred.ifas.ufl.edu/docs/policy_brief/PBTC_03-5.pdf.

A second PAER article on the benefits and costs of COOL is planned for the fall of 2003.



John M. Connor is a Professor in the Department of Agricultural Economics at Purdue University.

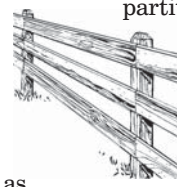
New Fence Law Provision

Governor O’Bannon recently signed into law a provision now at IC 32-26-9 in the Indiana Code which essentially provides that the duty to build, repair, rebuild, and maintain partition fences does not apply to a fence separating two adjoining parcels of property unless at least one of the adjoining parcels is agricultural land. This new law was effective July 1, 2003. This law means that there is no duty for a property owner whose land abuts non-agricultural land, e.g.,

a residence that abuts a golf course. The new law relieves the township trustee from getting involved in fence-building disputes when agricultural land is not involved. For the purposes of this new law “agricultural land” means land that is:

- (1) zoned or otherwise designated as agricultural land;
- (2) used for growing crops or raising livestock; or

- (3) reserved for conservation.



While the basic law of line or partition fences, outside city

limits, remains the same as in the past, when agricultural land is involved, its location in the Indiana Code did change on July 1, 2002 to IC 32-26-9-2.

If you have questions contact Gerry Harrison at <harrisog@Purdue.edu> or call 1-888-ext-info and ask for Gerry Harrison.

Investment in Downstream Publicly Traded Firms as a Vertical Integration Strategy to Increase Returns and Reduce Annual Volatility for Pork Producers

Josh Detre, Christine Wilson, and Allan Gray

In recent years, there has been a growing interest among pork producers to substantially reduce the annual volatility of the returns associated with their pork enterprises and capture some of the profit associated with value-added activities. The pork market has undergone tremendous change. Consumers are no longer content with a homogenous bulk product; instead, they want a product that has substantial value added beyond the farm gate. These changes have challenged pork producers to find ways to capitalize on the demand for value-added products. Many of the traditional methods for producers to capture additional downstream value, however, have either been financially infeasible and/or simply have not accomplished the producers' goals. This article reports on research conducted at Purdue University to evaluate whether or not investment in a portfolio of publicly held companies that are first handlers of pork products would provide pork producers with a means of enhancing returns and reducing annual volatility in returns.

The primary objective of the research was to investigate the potential of a value-added portfolio consisting of investments in pork production and publicly traded value-adding processing companies that will reduce the annual volatility of returns and improve annual returns relative to investing strictly in pork production alone. Thus, the hypothesis was that by investing in publicly held value-added processing companies in addition to the pork operation, pork producers will benefit through an increase in reward (returns) for the amount of risk they bear in their overall portfolios. The goal was to provide producers with information on using investments in publicly traded companies as an

alternative to direct investment in physical assets for capturing the benefits of value-added activities on an annual basis. The methods used in this article are one way of achieving this goal. Although long-term and multi-period investment horizons are important in overall financial planning, these horizons were beyond the scope of the research project reported here.

The Portfolio Model

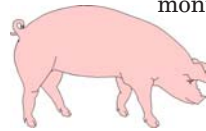
Data for this research consist of monthly returns from January 1974 to December 2001 for farrowing and finishing hogs as well as for finishing feeder pigs. Each set of monthly returns contains the relevant cost information, initial investment, the selling price, and the profit (loss) per head for the pork production enterprises. The model in the study requires monthly return on investment for each of the livestock enterprises as well as monthly stock prices and dividends for the value-added agribusiness firms and the monthly return data for the S&P 500. Annual returns for the securities and the S&P 500 are determined through compounding of the monthly investment returns.

The agribusiness firms used in this study are first handlers of livestock products beyond the farm gate; they are the next step in the value-added chain. Note that many of these companies have operations beyond the first handler processing level of the livestock products.

This research developed an optimal portfolio of pork and value-added investments using a spreadsheet simulation model. The simulation model was used to generate estimates of returns and risks based on the historical return data. Results depend on a replication

of historical distributions of important parameters and/or variables about which there is substantial uncertainty. The set of correlated simulated returns were used to develop a weighted portfolio that sought to maximize the Sharpe Ratio, a portfolio performance measure, i.e. they have the best return per unit of risk for a given risk free interest rate. The resulting portfolio represents the optimal portfolio on the efficient frontier curve of portfolio choices when the economic decisions are separated from the financing decision. The optimal portfolio consisting of pork production and value-added stock investment was thus determined by maximizing the Sharpe ratio portfolio performance measure. The combination of investments (pork production and specific stocks) that provided the greatest annual return per unit of risk (i.e., the largest Sharpe ratio) comprised the optimal portfolio.

One assumption that had to be addressed in the simulation model for this study was the amount the pork producer would be willing to invest in the securities and the amount that would be invested in the pork enterprise on a percentage basis. It would be unrealistic to assume that a pork producer would make a 100% investment in publicly traded value-adding firms and no investment in the pork enterprise. Therefore, the model incorporates scenarios to examine varying levels of investment in the securities and in the pork enterprise. Multiple scenarios were used to examine the impacts on the optimal value-added portfolio of varying the levels of minimum investment in the pork enterprise. Two of these scenarios are discussed in this article. The base scenario assumed that all investment was held solely in the pork operation. The alternate scenario assumed that a



maximum of 30 % could be invested outside of the pork operation in the value-added stocks. Each scenario provided a different investment strategy for the pork producer based on the given level of investment in the pork enterprise and the agribusiness stocks available for selection. Thus, the total investment in each scenario was 100%, but the maximum allowable amount that could be invested in the value-added stocks changed from 0% in the base scenario to 30% in the alternative scenario. Only the public value-adding companies that had a minimum of 60 months of historical data, given the study period, were used in the development of a portfolio.

The model used five different study periods, 1981, 1986, 1991, 1996, and 2001. The use of various study periods provided for the examination of how a producer's optimal value-added investment strategy has changed over time, both in the number of stocks available for investment in and in the amount of investment made. Some of these companies were either not established or were not publicly traded during all or a portion of one or more of the data study periods. Therefore, during each of these study periods, the producer's portfolio was chosen only from all of the value-added companies trading during the time period that had at least the prior 60

months of historical data available for defining the probability distributions. For example, the portfolio as of January 1, 2001, for a hog finishing operation had 24 value-added companies with 75 months of historical data from which to develop a portfolio. The data for developing this specific portfolio consisted of returns from October 1994 through December 2000. As a second example, the portfolio derived using only companies that had data existing in all years between 1974 and 2001 had only 14 value-added companies available for the producer to choose from (versus the 24 companies that existed as of January 2002). However, this longer time series allows more data per company to define the distributions of the individual investments. These distributions are important in the model simulations.

Results

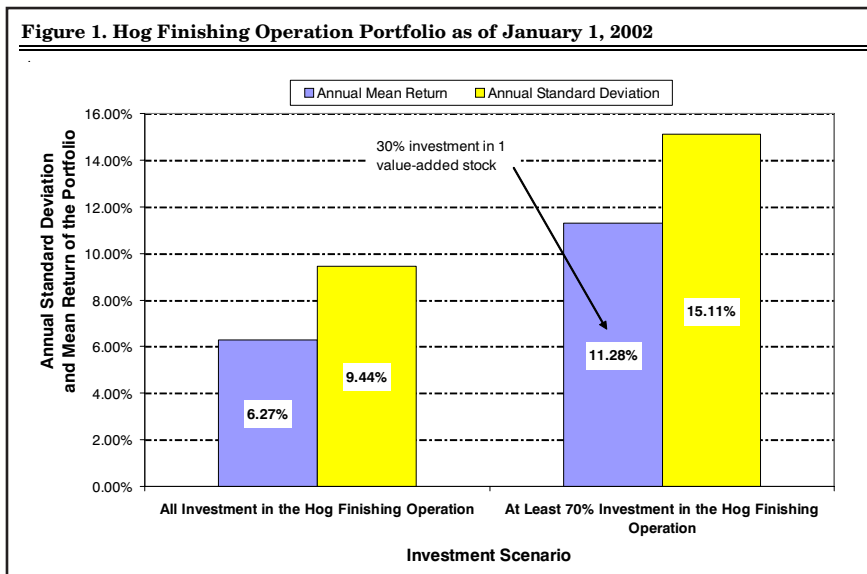
Results indicate that over the entire data period of January 1974 to December 2001 for both types of hog producers (farrow-to-finish producers and feeder pig finishers), annual investment in publicly held value-added agribusinesses and agrifood companies provided benefits over maintaining a portfolio that was solely invested in the hog enterprise. Benefits are extracted from these investments in the form of a greater reward per unit of risk taken,

through diversified investments, and by capturing further profits in the food channel as well.

Figure 1 provides a graphical example of the benefits that a hog finishing operation would have obtained from a portfolio that invested in value-added agribusiness stocks. The annual return to the finishing hog operation using historical data from 1974-2001 was 6.27 %, and the standard deviation was 9.44 %. When a constraint was set that at least 70 % of the portfolio must be invested in the hog enterprise, the producer's optimal portfolio, based on maximizing the reward per unit of risk (the Sharpe ratio), contained a 30 % investment in a single value-added stock. This increased the expected return of the portfolio to 11.28 % and the standard deviation of the portfolio to 15.11 %. These portfolio results are superior to those of investing solely in the hog operation because the producer is receiving more reward per unit for the risk taken. The investment portfolio of a hog producer when it is not limited to sole investment in the hog operation always included the value-added companies because these portfolios provided a higher Sharpe Ratio, i.e., the best return per unit of risk for a given risk free interest rate. The results for the portfolio generated for the farrow-to-finish enterprise are similar to the results for the hog finishing operation: the portfolio contained a 30 % investment in one value-added agribusiness stock, and the producer received more reward per unit of risk taken.

Further analysis of the agribusiness companies revealed that the preferred portfolio consisted of companies that had significant activities beyond the initial processing sector and into the wholesale and retail sectors. This result supports results found by Duval and Featherstone indicating that pork producers may want to invest in companies that have operations that extend into the retailing sector. The model provides evidence that diversification into value-added stocks increases the amount of reward (return) for the level of risk faced by a hog producer relative to that of

Figure 1. Hog Finishing Operation Portfolio as of January 1, 2002



another producer who only invests in the hog enterprise. Thus, the portfolios that included the value-added agribusiness stocks provided the highest risk-adjusted return for each dollar invested, i.e., these portfolios provided the largest reward to risk tradeoff given the risk-free interest rate available for borrowing and lending.

Analysis of the optimal portfolio using data from various historical data study periods indicates that the advantages of value-added investments have increased over time, i.e., earlier historical periods (1981, 1986) did not obtain the same reward-to-risk benefit from investment in the value-added stocks as the most current study period (2001). In the earlier study periods, producers, given the semi-constrained portfolio, still maintained a majority of investment in the hog operation, but in the most current period, producers moved the maximum allowable investment amount out of the hog operation and invested this amount in the value-added stocks. Investments in agribusiness firms that span the vertical channel from processing to retailing tend to be the preferred stocks in the portfolio. These results may be attributable to the changing structure of the agrifood industry, specifically the continuing trend of more value-added activities occurring beyond the production level. These results suggest that markets are increasingly rewarding value-added activities over commodity production (for example, hog production) activities.

Additional results indicate that the portfolio as of January 1, 2001 that had sole investment in the hog finishing enterprise had a mean return of -12.40 % and a standard deviation of this annual return of 5.96 % (Figure 2). The constrained portfolio optimization model for this study period contained a 30 % investment in one value-added security. Nevertheless, the addition of this one value-added security still did not generate a positive return for this study period. However, this stock investment increased the expected mean of the portfolio by 4 %, and the portfolio could produce a positive

expected return inside of one standard deviation from the mean, something that could not be done within two standard deviations of the mean by investing only in the hog finishing operation.

Conclusion

The research reported here is a first attempt at developing a portfolio of value-added investments for pork producers. The results of this study indicate real potential for producers to gain from investing in publicly traded value-added companies; however, there are some limitations to the study. These limitations include: limited future analyses of the constructed portfolio performances (Did these portfolios continue to provide a greater return for the amount of risk for the hog producer?), the exclusion of brokerage costs in trading (both economic and financial components), lending constraints for producers, and the limited number of companies with adequate historical returns data.

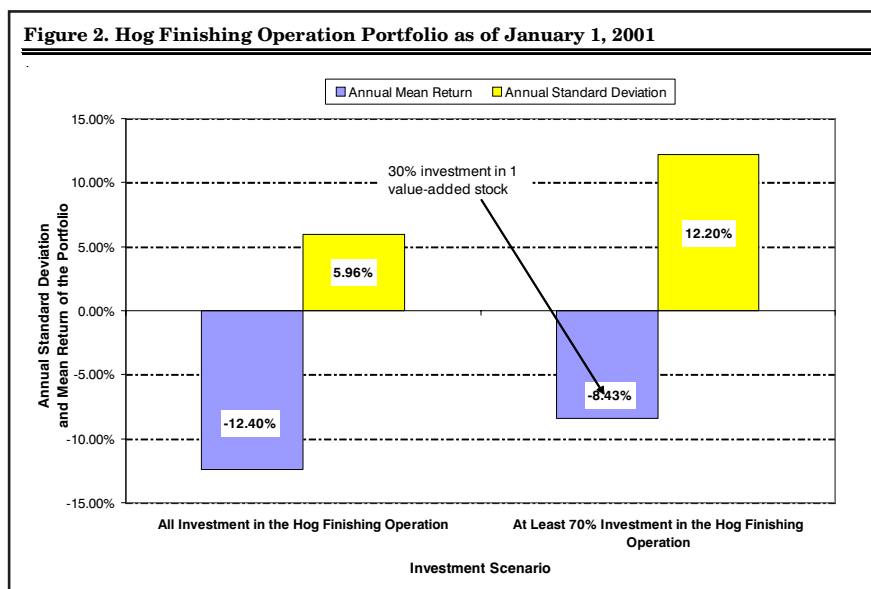
It should be recognized that past returns are not always indicative of future returns; two specific examples of this are the hog prices observed in 1998 and the drastic growth period of the overall market in the late 1990s followed by its rapid decline in the later part of 2001 and 2002. Such events may not reoccur in the near

future. However, it should be noted that even with such events, the constrained portfolio contained investment in value-added stocks.

The results of the two analyses in the study indicate that a hog producer in either a farrow-to-finish or a strictly hog finishing operation can benefit from investment in value-added stocks. The benefits are an increase in the amount of return per unit of risk for the producer when he/she does not restrict investment solely to the hog enterprise and benefit through diversification and profit capturing in the food channel. Analysis of the optimal portfolio at various historical periods indicates that the advantages of value-added investments have increased over time. This result is consistent with a continuing trend of more of the value-added activities in the agri-food industry occurring at the post-production level. The results also show, consistently, that agribusiness firms that span the vertical channel from processing to retailing tend to be the preferred stocks in the portfolio.

References

- Center for Research in Security Prices Database (CRSP), University of Chicago, Chicago, Illinois. Source of 1974-2001 stock returns.
- Detre, Joshua, D., "Investment in Downstream Publicly Traded Firms as a Vertical Integration Strategy to Increase Returns and



- Reduce Annual Volatility for Pork Producers,* Unpublished M.S. Thesis, Purdue University, Department of Agriculture Economics, (Dec., 2002).
- Disclosure Global Access Database, "Current Profile," *Disclosure Global Access Online*, Thomson Financial, 16 Aug. 2001.
- Duval, Yan and Featherstone, Allen, M., 2002 "Interactivity and Soft Computing Portfolio Management: Should Farmers Own Food and Agribusiness Stocks?," *American Journal of Agriculture Economics*, Vol. 84, No. 1, pp. 120-133.
- Jones, Brian, R., Fulton, Joan, R., and Dooley, Frank, J. "Hog Producer Investment in Value-Added Agribusiness: Risk and Return Implications," *Selected Paper at the 1999 Annual Meeting of American Agricultural Economics Association*.
- Lawrence, John D., 2001, Estimated Livestock Returns, *Iowa State University* [Online], Available: <http://www.econ.iastate.edu/faculty/lawrence/>, [August 1, 2001].
- Markowitz, Harry, M., 1952, "Portfolio Selection," *The Journal of Finance*, Vol. 7, No. 1, pp. 77-91.
- Markowitz, Harry, M., 1991, "Foundations of Portfolio Theory," *The Journal of Finance*, Vol. 46, No. 2, pp. 469-477.
- Sharpe, William F. 1963, "A Simplified Model for Portfolio Analysis," *Management Science*, Vol. 9, No. 2, pp. 277-293.
- Sharpe, William F. 1964, "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk," *The Journal of Finance*, Vol. 19, No. 3, pp. 425-442.
- Sharpe, William F. 1966, "Mutual Fund Performance," *Journal of Business, Supplement on Security Prices*, Vol. 39, No. 1, Part 2, pp. 119-138.
- U.S. Census Bureau, 2001, "1997 Economic Census," U.S. Census Bureau [Online], Available: <http://www.census.gov/epcd/www/econ97.html>, [August 1, 2001].



Josh Detre (Top Left) is a Graduate Research Assistant; Christine Wilson (Top Right) is an Assistant Professor; and Allan Gray (Bottom Left) is an Associate Professor in the Department of Agricultural Economics at Purdue University.

Needs Assessment: Quick and Easy

Stephen B. Lovejoy

Nearly a year ago, the Extension Water Quality Common Interest Group (WQ-CIG) decided that we needed to determine what the greatest educational needs are in Indiana communities in terms of water quality programming. This led to a concerted effort to perform a needs assessment process in a relatively quick and easy fashion. The first step was an open-ended survey of all members of the WQ-CIG, county educators and specialists, which asked respondents to list the major water quality issues in their community that will require educational programming in the decade ahead.

From that initial brainstorming list of dozens of educational topics in water quality, the WQ-CIG grouped all the issues into 7 broad major categories (Waste Water Treatment, Supply of Clean Drinking Water, Community Planning, Surface Water Quality, Health of Aquatic Ecosystem, Ag Production Issues, and Recreational Opportunities) with each of those broken down into multiple sub-issues. The next step in the needs assessment was to prioritize these issues and sub-issues based upon their importance to the local

community. While a simple ranking of the 7 issues would be a beginning for the prioritization process, this ignores the intensity of responses. Therefore, the WQ-CIG constructed a 2 part survey that asked respondents to rank-order the 7 major issues. Then, respondents were asked to evaluate the importance of each sub-issue on a 0 to 10 scale from no importance to highest importance.

In order to combine the rank-order information with the scalar sub-issue responses, we took each respondent 0-10 sub-issue responses and multiplied it by the inverse of their rank order of the corresponding major issue response. This provides a measure of overall importance of each sub-issue with the lower the number, the higher the importance of that issue. Surveys were constructed as protected Excel workbook with each survey portion on a separate worksheet. A macro was embedded to allow for automatic submission of the completed survey. The data can then be compiled by hand or automatically entered into a database. The survey was sent to all Extension educators and specialists in January, 2003.

Since we did not obtain IRB approval of the survey instrument, we cannot publicly announce the results. However, the results of that survey have been shared with administrators and have been useful in justifying some of the cluster hires that have been recently approved.

The next step in this needs assessment process is to discover what members of the general public feel are the most important water quality issues. Therefore, we are in the process of obtaining responses from attendees at the Indiana State Fair and the Farm Progress Show using touch screen technology for participants to respond. Results from those surveys will be made available later this year. This is a much easier system for soliciting needs assessment information than the more traditional printed forms that have mailing costs, data entry costs, etc.



Stephen B. Lovejoy is a Professor in the Department of Agricultural Economics at Purdue University.

Indiana Weed Control Laws*

Gerald A. Harrison

Several Indiana statutes provide enforcement tools for weed control. Although formal enforcement of the weed laws may be unpopular in most communities, the township trustees are under a duty to take action to control certain weeds.

Township Trustees' Duty

Destruction of detrimental plants is required by IC 15-3-4. Detrimental plants are Canada thistle, Johnson grass, sorghum alnum, bur cucumber, and in residential areas only, noxious weeds and rank vegetation. Various methods of control may be used as long as the plants are not allowed to mature.

The township trustee under procedures in this statute may investigate and provide notice to the owner or person in possession of the real estate of the requirement to destroy the weeds. The owner of the real estate has five days after proper notice to destroy the detrimental plants.

If necessary, the trustee may take action to control the weeds, bill the owner, and, if the bill is not paid, arrange for the amount due to be collected like real estate taxes.

The township trustee who fails to perform his or her duties under this law commits a Class C infraction. A Class C infraction has a maximum penalty of \$500—each day is a separate offense.

The Purdue University Cooperative Extension Service (CES) provides technical assistance to

township trustees for the control of detrimental plants.

A separate statute, IC 15-3-5, provides for the **control** (do anything possible to restrict the growth and seed production) of Johnson grass between July 1 and September 15. The law applies to the Indiana Department of transportation, railroads, drainage districts, township boards, public utilities, and managers of public and quasi-public corporations.

Weed Control Boards

A **weed control board** (for each county) is provided under IC 15-3-4.6. This law permits the county commissioners to provide for a WCB by ordinance, on their own initiative, or after receiving a petition for a WCB signed by at least five percent of the registered voters of the county.

A WCB must consist of (1) one township trustee, (2) one SWCD supervisor, (3) a representative of the agricultural community of the county, (4) a representative from the county highway department, and (5) a CES Extension Educator to serve in a non-voting advisory capacity.

Noxious weeds under the WCB are: Canada thistle, Johnson grass, bur cucumber and shatter cane.

A WCB has broad powers of enforcement for the control of specified noxious weeds. WCB may give notice to the landowner or to a person in possession of the real estate if there is a failure to control the appropriate weeds. A WCB has the authority to: employ staff to assist with WCB enforcement activities, enter upon land after a 48-hour notice to inspect, hire custom operators to control weeds, and to bill the appropriate party for control costs. A five-day notice to remove noxious weeds (delivered by certified mail or the sheriff) consistent with township trustee weed control activity, is required.

Further, the WCB must notify the appropriate township trustee of the fact that a notice was sent to a person

to remove weeds growing on real estate in the trustee's township. When the WCB has incurred the weed control cost and the billed party does not pay the bill, the bill can be collected in a manner similar to property tax.

Failure to begin a program recommended by a WCB within the prescribed time, is a Class C infraction.

In a county with a weed control board (WCB), a township trustee may defer to the WCB to take action where the trustee has identified real estate containing detrimental plants. Where funding and specialized staff is in place, this consolidation of effort may be efficient. However, the WCB is not obliged to perform a task that is already a duty of a township trustee and may decline jurisdiction and refer a weed control problem back to a township trustee.

Other Weed Control Statutes

1. The propagation of multiflora rose and purple loosestrife is greatly restricted at IC 14-24-12.
2. County highway departments are required by IC 36-2-18 to control detrimental plants defined in IC 15-3-4-1 and noxious weeds.
3. Likewise, the same weeds identified in IC 15-4-1 are to be controlled on railroad rights-of-way according to IC 8-3-7. However, the penalty for noncompliance is \$25!
4. In the case of cemeteries, IC 23-14-74, and both IC 23-14-68&69 (township trustee) require destroying detrimental plants (as defined in IC 15-3-4-1), noxious weeds, and rank vegetation. Failure to do so may result in a Class C infraction.
5. A flexible statute, IC 36-7-10.1, empowers legislative bodies of municipalities or counties to adopt ordinances to require

* This "Overview" is by Gerald A. Harrison, Extension Economist, Ag. Econ. Dept., Purdue University, phone: 765-494-4216; toll free: 1-888-398-4636; E-mail: <harrisog@purdue.edu>. Disclaimer: Material in this reference is believed to be accurate. Individuals, government entities, and businesses with problems should confer with their legal counsel and other experts and references as the situation merits. You may access the Indiana law on the Internet at: <www.ai.org/legislative/ic/code/>.

owners of real estate to remove weeds and other rank vegetation growing on the property. This law provides that the ordinances adopted must specify:

- (1) The department of the municipality or county responsible for the administration of the ordinance.
- (2) The definition of weeds and rank vegetation.
- (3) The height at which weeds or rank vegetation becomes a violation.
- (4) The procedure for issuing notice to the owner of real property of a violation of the ordinance.
- (5) The procedure under which the municipality or county, or its contractors, may enter real property to abate a violation

of the ordinance if the owner fails to abate the violation.

- (6) The procedure for issuing a bill to a landowner for the costs incurred by the municipality or county in abating the violation, including administrative costs and removal costs.
- (7) The procedure for appealing a notice of violation or a bill issued under the ordinance.

If there is a failure to pay a bill for weed control, the bill may be collected along with the property taxes.

In the various weed control laws, there are references to "noxious weeds." Noxious weeds are identified in the Indiana Seed Law [IC 15-4-1]. Seed law deals with the allowable amounts of noxious weed seed that are permitted in other seeds sold for agricultural, horticultural, and other uses. Seed labeling standards

are administered in Indiana by the Seed Administrator in the Office of Indiana State Chemist and Seed Commissioner.

The Indiana Administrative Code [360 IAC 1-1-5] identifies noxious weed seeds in two groups: **prohibited** and **restricted** noxious weed seed. Those in the prohibited category are characterized as perennial weeds, which reproduce by seed and by underground roots, stems, or other reproductive parts. When well established, they are highly destructive and difficult to control by good cultural practices. Those in the **restricted** category are very objectionable in fields, lawns, and gardens, but can be controlled

by good cultural practices.



Gerald A. Harrison is an Extension Economist in the Department of Agricultural Economics at Purdue University.

Decision Time!

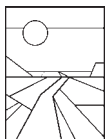
This issue includes an insert mailer for a choice. Starting in 2004 we will support free subscriptions to the *Purdue Ag Econ Report* via the World Wide Web. We assume many of you will want to continue the paper copy by the U.S.

Mail, but that option will be \$12 per year (payable to Purdue University) to help with the cost of printing and mailing. **Please use the questionnaire with the return mailer and enclose it in the**



envelope. Those who elect only the electronic version may subscribe at <http://www.agecon.purdue.edu/contact/contact.asp> — Gerald A. Harrison, Extension Economist, Editor, PAER.

Purdue University is an Equal Opportunity/Affirmative Action employer.



Gerald A. Harrison
Department of Agricultural Economics
Krannert Building
403 W State Street
West Lafayette, IN 47907-2056

Non-profit Organization
**U.S. Postage
PAID**
Purdue University