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Crop and livestock land use analyzer

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to give Iowans confidence with stressful issues, legal questions and financial concerns.”

Any farmer who wants to understand a complete picture of their farm financial situation, which many lenders are requiring before they will extend further credit, should consider the Farm Financial Planning program. The goal of the program is to help determine farm business needs, and whether or not future changes are desirable.

As part of the program analysis, farm business operators will see at least three in-depth FIN-PACK business plans and how to implement alternatives like the addition, expansion or phasing out of a livestock operation, or buying, selling or renting land. Farm Financial Planning can also help evaluate ways to correct negative cash flow and profitability problems.

A trained ISU Extension and Outreach associate meets with the family one to two times to get farm records and to discuss results of the FIN-PACK analysis in confidence and possible effects if changes are made. The Extension associate may introduce other farm and family financial materials or information about outside sources of help.

The service is available at no charge and is funded by the Agricultural Credit School, a program of ISU Extension and Outreach, and the Iowa Bankers Association.

Farm Financial associates are part-time ISU Extension and Outreach employees trained in farm budgeting and financial analysis. They have farm backgrounds so they understand farming and the challenges it may bring.

To set up an appointment, contact the Farm Financial Associates in your area:

David Entriken, Webster City, 515-835-1565, dfe1943@yahoo.com

Jim Dane, Iowa City, 319-354-3963, jim@dane.org

Roger Stewart, Red Oak, 712-623-6316, rogstewredoak@gmail.com

Mark Olsen, Newell, 712-660-1597, olsenmanagement@windstream.net

Tom Olsen, Newell, 712-272-3232, tomolsen@windstream.net

For more information, contact the ISU Extension and Outreach farm management specialist in your county office at www.extension.iastate.edu/ag/farm-management-0. Or contact the Beginning Farmer Center at 877-232-1999.

Due to rolling terrain and highly variable soil characteristics, land in some regions of Iowa has a variety of possible uses related to agriculture as well as conservation and recreation. Landowners and operators must take a long-range view when making decisions about the highest and best use of their land. Their primary agricultural alternatives are:

• Harvested crops, including corn, soybeans, small grains and forages
• Pasture to support livestock enterprises, such as cow/calf, stocker cattle and sheep flocks
• Long-term retirement such as the Conservation Reserve Program (CRP)

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By William Edwards, retired economist

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Figure 1 shows the mix of pasture and CRP uses in Iowa, and how they changed from the 2007 Census of Agriculture to the 2012 Census. Total pastureland declined by 21 percent in five years. Most of the decline came in “tillable” pastureland, that is, land that could be converted from pasture to harvested crops without improvements. CRP acres also decreased, by 36 percent.

Landowners have several considerations that will influence their choices of land use:

- Potential for long-term profits from crop production
- Profit potential from production of forages to support livestock production
- Potential soil loss and nutrient runoff and the cost of controlling it
- Long-term soil productivity
- Wildlife habitat and other conservation concerns

Extension specialists from Iowa State University (ISU) with collaboration from representatives from the Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA) have developed a Decision Tool to help landowners compare the potential long-term effects for each of the alternatives listed above for their individual land holdings. This tool is available to the public on the Ag Decision Maker website (www.extension.iastate.edu/agdm) as well as the Iowa Beef Center website (www.iowabeefcenter.org/).

Harvested crops

The land use analysis tool compares up to three different crop rotations that can include corn, soybeans, oats, alfalfa or alfalfa-grass hay, and a fall-seeded cover crop. Up to three types of pasture can also be compared, as well as enrollment in the CRP. Livestock enterprises include beef cow-calf and summer grazing of stocker cattle. Besides estimating annual costs and returns, a summary of hay and pasture production and requirements is provided, annual labor requirements are estimated, and potential soil loss resulting from each combination of crops and livestock is calculated.

Naturally, a considerable amount of data must be inputted to come up with these results. First, annual budgets for each crop and livestock enterprise are provided, but the user can change any of the costs, prices or production values. Second, a database of all Iowa soil series is stored. When the user specifies the county and number of each soil series on the farm, and the number of acres it contains, the tool retrieves data about potential yields, CSR2 values, slope and erosion class.

Conservation structures

The user can also specify any of several permanent conservation structures, and the cost of installing each of them. Possible structures include diversion barriers, field borders, grassed waterways, contour buffer strips, riparian buffer strips, grass backed terraces, narrow base terraces and water/sediment basins. The initial costs of installing these structures are estimated and amortized over their expected lives. Annual maintenance costs are also considered, as well as possible reductions in harvested crop area.
Land conversion
Finally, there may be costs for converting land from its current use to a different use. If pasture or CRP land is being converted to crops, this could entail breaking up sod, spraying herbicides, clearing land and laying out terraces. If land is being converted to livestock use, investments in fences, ponds and water systems may be necessary. Pastures may need to be reseeded or renovated. The estimated initial costs of these conversions are amortized over their expected useful lives. All of this information is arranged in a series of worksheets that contain example data, but allow the user to input his or her own values, as well.

Price assumptions
Converting land from one use to another is a long-term decision. Thus, selling prices for crops and livestock should be based on long-term forecasts, not predictions for the coming season. It is especially important that the prices assumed for the various crops and livestock are in reasonable proportion to each other, so as not to bias the results. Links to long-term price forecasts made by the Food and Agriculture Policy Research Institute (FAPRI), based at the University of Missouri, for the period 2014 through 2022 are embedded in the decision tool. In addition, table 1 shows estimated price ratios based on annual market prices observed from 2005 through 2014.

Conservation Reserve Program
The Conservation Reserve Program (CRP) has been an option for Iowa landowners for many years. Potential payments have been adjusted over the years to make CRP contracts competitive with crop production. In recent years some landowners with expiring CRP contracts have opted to return the land to crop production or pasture, to take advantage of favorable commodity prices, rather than re-enroll it. Currently land must have been planted to crops four out of six years during the period 2002-2007, and have an erosion index of eight or higher to qualify for CRP enrollment. Landowners must submit a contract offer. Each parcel receives an Environmental Benefits Index score, which is used to rank the bids. The highest ranked parcels are accepted until funding is exhausted. The decision tool contains a data base with the average CRP payments currently being paid in each county. In addition, partial grazing and haying of CRP acres can be included in the analysis.

USDA programs and Multiple Peril Crop Insurance
Converting pasture or CRP land to row crops has some implications for eligibility for USDA programs. “Sodbuster” rules require landowners who break out land that was not in tilled crops during 1980-1985 to be in compliance with an approved conservation plan in order to remain eligible for USDA farm commodity programs, including premium subsidies for multiple peril crop insurance. “Newly broken” land cannot be added to a farm’s base acres for USDA programs. CRP acres cannot be added unless they were previously included in the farm’s base acres. For purposed of MPCI crop insurance coverage, “newly broken” acres receive an actual production history (APH) yield equal to 65

<table>
<thead>
<tr>
<th>Table 1. Ratio of Commodity Prices to the Price of Corn</th>
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<td><strong>Crops</strong></td>
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<td>Corn, $ per bushel</td>
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<tr>
<td>Soybeans, $ per bushel</td>
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<tr>
<td>Oats, $ per bushel</td>
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<td>Alfalfa hay, $ per ton</td>
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<td>Alfalfa-grass hay, $ per ton</td>
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percent of the county T-yield, until an actual yield history is established. Former CRP acres start with an APH yield equal to 100 percent of the county T-yield.

**Summary**
Balancing profits and conservation in a long-term land use decision that requires careful budgeting and reliable data. The new land use decision aid can help producers organize the relevant information and compare alternatives. Landowners and producers are encouraged to input their own values into the decision tool to develop a comprehensive evaluation of options on their own land.

Visit the Ag Decision Maker website to access the Decision Tool, Crop and Livestock Land Use Analyzer.

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**Internet Updates**
The following Decision Tools have been updated on [www.extension.iastate.edu/agdm](http://www.extension.iastate.edu/agdm).

- **Crop and Livestock Land Use Analyzer** - C1-15 (3 pages)
- **Crop and Livestock Land Use Analyzer** - C1-15 (Decision Tool)

**Current Profitability**
The following tools have been updated on [www.extension.iastate.edu/agdm/info/outlook.html](http://www.extension.iastate.edu/agdm/info/outlook.html).

- **Corn Profitability** – A1-85
- **Soybean Profitability** – A1-86
- **Iowa Cash Corn and Soybean Prices** – A2-11
- **Season Average Price Calculator** – A2-15
- **Ethanol Profitability** – D1-10
- **Biodiesel Profitability** – D1-15

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