Making the Transition from Conventional to Organic

Ag Decision Maker

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Farming organically allows producers to incur many economic and social advantages compared to farming conventionally (Chase et al., 2008). Understanding and planning the economic returns of the transition process can aid the producer in planning and in becoming organically certified.

In Iowa, higher organic prices and lower production costs more than compensate for lower yields. The size of the economic advantage will differ by the crops within the rotation, the time period of the study, and geographic location of the farm. However, there has been enough consistency among the research comparing conventional and organic production systems to permit some degree of confidence. For example, Delate et al. (2002) concluded a well-managed organic system held an economic advantage over the conventional system until the cost of purchased compost increased toward $50 per ton. Hanson et al. (1997) found the organic system to have lower production costs and similar yields in the mid-Atlantic States. Had the researchers used organic prices in the study, revenues would have been substantially higher. Other research has found similar results; see Diebel et al. (1995) and Olson and Mahoney (1999).

More recently, Chase et al. (2008) concluded that a 4-crop organic rotation increased returns to management substantially from $158 per acre for the conventional corn-soybean rotation to $332 per acre for the organic rotation. The dramatic increase in returns per acre would allow a farmer to reach an overall economic goal with half the acres. For example, if the economic goal of the producer was to receive returns to management of $45,000 for the farm, they would have to farm 285 acres conventionally but only 136 acres organically. Keep in mind the conventional commodity prices for corn and soybean were $4.50 and $10.50, respectively, in this study. Iowa cash bids at the end of December 2008 were about $3.45 for corn and $8.15 for soybean. Given these prices, the conventional grower would net about $1.25 per bushel less for corn and $2.50 per bushel less for soybean once transportation was taken into account. The current commodity prices would lower economic returns approximately $150 per acre, resulting in a $10 per acre return. At $10 per acre, the conventional corn-soybean producer would need to farm 4,500 acres to attain the income goal of $45,000. Although conventional corn prices for new crop 2009 are higher, significantly higher production costs could keep returns to management at approximately $20 per acre.

Organic prices according to USDA Agricultural Marketing Service reports (USDA, 2008 - http://www.ams.usda.gov/mnreports/nw_gr113.txt) have increased since the Chase et al. (2008) publication to approximately $10.50 per bushel for corn and mid-$20s for soybean. Organic oat prices have increased to $4.50 per bushel and conventional hay prices, which were used for the study, are up to $130 - $150 per ton for good alfalfa. If these prices were received, returns to management would increase approximately $189 per acre, resulting in a $521 per acre return for the organic producer. Given these assumptions, a $45,000 economic goal could be achieved with less than 100 acres of organic production.

The exact numbers for return to management and acres needed vary by assumptions, but the comparison has remained fairly constant over the last 10 years. The economic advantage to the organic system in Iowa, given the 4-crop rotation of the study, has been between $200 and $300 per acre compared to the conventional corn-soybean system. This economic advantage would allow the organic producer to achieve a designated economic goal with fewer acres.

The need for fewer acres would allow the producer to enter into farming with lower capital requirements. Fewer acres also translate into a smaller

machinery investment. Machinery for organic producers tends to be smaller, less expensive equipment compared to conventional producers. The much lower machinery and land investment for the organic producer would allow farmers with limited resources to attain economic goals with minimum debt. Therefore organic rotations offer beginning farmers an opportunity to gain access to farming without a debt load and risks that can be overwhelming. Programs and funding that are available for beginning farmers can be stretched farther in organic production than conventional.

Organic Certification and the Transition Process

Changing from conventional to organic production is a regulated process. Organic "certification" requires that crops do not receive any synthetic chemicals including fertilizers or pesticides for three years prior to the harvest of the crops (see Delate 2003 for a full explanation of the certification process). As an example, to sell this year's corn harvested on November 1, 2008, as organic would require that the land received no synthetic chemicals since October 31, 2005. While the transition to certification time period is three years, the number of crops that need to be sold as transition crops could be two. For this example, crops grown in 2006 and 2007 must be grown using organic methods but cannot be sold as organic.

Split farming operations that simultaneously grow crops organically and conventionally are allowed in Iowa but require special conditions (Delate, 2003). The ability to split farm operations allows producers to change from conventional to organic production on a field-by-field basis rather than on a whole-farm basis. Current organic producers indicate a field-by-field transition is easier to manage due to extensive differences in nutrient and pest management between the two production systems.

Organic producers must use a longer crop rotation than conventional counterparts. Also, the same row crop cannot be produced in consecutive years on the same field. The usual organic rotation includes a legume (alfalfa, clover, or vetch) and small grain (oat, wheat, or barley) in addition to corn and soybean. Legumes supply nitrogen while the small grains supply nutrients, particularly carbon, and aid in weed management. Organic corn and soybean are normally grown in the rotation in Iowa due to higher organic price premiums and profitability. The common organic rotation in Iowa is from four to six years.

Land coming out of CRP needs to meet the 3-year requirement of no prohibitive substances, but it is possible to harvest an organic crop the first year coming out of CRP if synthetic chemicals have not been applied during that period. Which crop to start with would depend upon the potential problems from weed and pest pressure and the ability to provide the necessary nutrients to the crop the first year. Because of the potential for nutrient deficiency for corn (particularly nitrogen), soybean is often the crop of choice.

Transition Production Plan

As stated previously, organic transitions in Iowa can occur on a field-by-field or whole farm basis. Prior to determining which transition plan makes sense for an individual farming operation, a review of the plan should take place. The transition plan should start with the development of a production plan followed by the development of budgets and determination of projected profitability.

For example, let's assume the proposed farm is 240 acres and currently produces conventional corn and soybean. To simplify our example, we will assume the farm is easily divisible into four, 60-acre fields or combination of fields. The transition plan is to change 60 acres per year. The selected organic rotation is corn-soybean-oat/alfalfa-alfalfa. The oat and alfalfa are seeded together with the oat harvested in the seeding year along with one cutting of alfalfa. Each field will begin the transition with oat. Oat is selected to control weeds and begin the process of developing soil tilth. Oat is followed by alfalfa to provide corn with a nitrogen source. The

other recommended nutrient source for corn is animal manure. Corn follows alfalfa and is the first crop that can be sold organically. The benefit of corn as the first organic crop is that it provides the largest economic returns and provides some financial stability to the rotation. Soybean is the fourth crop and provides some nutrients for the following oat crop. The production plan for the transition process is illustrated in table 1.

While it is possible to start with a row crop such as corn or soybean in the transition process, these crops often do not do as well as small grains or legumes because of inadequate soil fertility, or weed and insect pest pressures. It takes time for the land to readjust to an organic system as well as for the farmer to adjust to organic practices. Most organic production specialists would suggest the transition start with crops that are easier to manage and provide the pest and nutrient basis for the crops that follow.

Enterprise Budgets and the Transition Decision

A Decision Tool (http://www.extension.iastate.edu/agdm/crops/xls/a1-26organictransition.xls) is available to help analyze the transition process. The spreadsheet allows the user to choose which crops to change first as well as to develop a whole-farm summary to see how returns are affected each year of the transition process. The spreadsheet uses a five-year transition process. Conventional budgets are available for corn, soybean, and oat. Organic budgets are provided for corn, soybean, oat, and alfalfa. A blank budget is available to enable the user to input a crop that is not listed (e.g., barley, wheat, clover, etc.).

To use the Decision Tool, complete the enterprise budget for each crop within the rotation. Keep in mind the budgets listed are to be used as a starting point or guideline only. To get accurate results, actual farm records should be used. On the summary page, enter the acres for each crop grown for

Table 1. Transition production plan.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Field 1	Conv Corn	Conv Sb	Conv Corn	Trans Oat	Trans Alfalfa	All fields organically certified
Field 2	Conv Sb	Conv Corn	Trans Oat	Trans Alfalfa	Organic Corn	
Field 3	Conv Corn	Trans Oat	Trans Alfalfa	Organic Corn	Organic Sb	
Field 4	Trans Oat	Trans Alfalfa	Organic Corn	Organic Sb	Organic Oat	

Conv=conventional; Trans=transitional; Sb=soybean.

Table 2. Transitional organic economic returns.

Transition Rotational Returns	Year 1	Year 2	Year 3	Year 4	Year 5	5-yr Avg
Receipts	$554.38	$535.63	$820.00	$867.25	$912.25	$737.90
Total Costs	$492.66	$439.38	$457.35	$409.24	$409.24	$441.57
Returns over total cost	$61.72	$96.24	$362.65	$476.01	$521.01	$303.53
Returns to LLM	$298.42	$334.74	$604.75	$724.71	$769.71	$546.47
Returns to LM	$286.72	$321.24	$587.65	$701.01	$746.01	$528.53
Returns to Management	$61.72	$96.24	$362.65	$476.01	$521.01	$303.53

all years of the rotation. The annual returns for each crop are calculated along with the summary returns for each year of the rotation.

The returns for the proposed farm described in table 1 are shown in table 2. Over the five years, the return to management averaged $303.53. Using the same costs, had this farm done an even rotation of the 240 acres with only conventional crops, the five-year average return to management would have been $56.27.

Accurate records are a key component of becoming certified organic. The style of recordkeeping varies somewhat among certification agencies, but all require detailed logs of non-GMO seed selection and organic-compliant inputs. Therefore, it is important to identify an organic certification agency prior to beginning the transition process to make sure the production practices being followed and the records being kept will lead to a successful transition.

References

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Links to organic certification information
http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004346&acct=nopgeninfo
http://www.ams.usda.gov/nop
http://extension.agron.iastate.edu/organicag/

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