Organic Certification

Any or all of the practices in this publication can be part of an organic farm operation. The important aspects of crop rotations, soil fertility management, and water quality management are all mandatory for an organic farmer.

What makes a farm USDA Certified Organic, and thus qualifies the farmer to receive price premiums for farm products in the marketplace, is the use and documentation of production practices specified by the requirements of the USDA's National Organic Program (NOP) (1). Following NOP-specified practices, developing a record-keeping system to document all practices on the farm, paying certification fees, and undergoing an annual inspection by a certified inspector is how farmers achieve organic certification (2).

One of the most daunting barriers to organic cropping conversion is the three-year transition period usually required before the land can be certified. The transition period can be a difficult time for a producer to be profitable. She or he has to spend time creating an organic farm plan and interacting with the certifying agency. Converting farmland to an organic management system can cause unexpected challenges in the form of disease, insect, and weed pressure if chemical methods of controlling those are suddenly withdrawn. Eventually the system re-balances and those problems diminish, but that's why there is a three-year transition period: it takes some time to work out the system.

An organic farmer can't access the organic price premiums during the transition period, so for that period there may be lower yields but not yet the organic premium prices for the farm's products; although there are some niche markets such as non-GMO (non-genetically modified organisms) that farmers can sell to during the transition. Some farmers do a gradual transition; for instance, a field at a time to organic production (2). This strategy can reduce the risk of no or low whole-farm profits during the transition phase, but it comes with its own costs of maintaining buffer areas between the organic and conventional fields, and extra procedures during and after harvest to make sure that none of the conventional crop gets mixed in with the organic.

Size and potential sales volume of a future organic farm are also factors to consider. Financial record collection and analysis for organic farms in Minnesota shows that from 2006 to 2010, organic farms that could generate at least $100,000 per year in sales were generally more profitable than smaller organic farms, although there was much variation from year to year (3). Organic farms average about 33% fewer acres than conventional farms, and require more management time per acre and more kinds of equipment *(see Organic Costs text box)*. It's important in a farm transition plan to make sure that the future organic farm has the right size and production capacity to give the farmer a reasonable chance to make it work, both financially and in terms of time management (*see Organic Profits text box*).

If part of the legacy that you want for your land is to have it farmed organically, then it is important that your farm transition plan recognizes the particular challenges of organic agriculture. It is very difficult for an organic farmer to deal with an annual cash rent situation or a short-term lease, because of the large investment of money, labor, and management time they need to make the transition to certified organic production. Organic farmers typically need a lease term of at least five years, and even longer would be better. If the land is not already certified organic and must undergo the three-year transition period to organic, then the new farmer would greatly benefit from a stepped rent arrangement with lower payments during the transition period. In a sale arrangement, lower payments in the first few years would be beneficial for giving the farmer the "breathing room" needed to complete the three-year organic transition period and become profitable.

Organic Certification			
	- Column	**+ Column**	
Qualitative Benefits of the Practice	**Cost of Implementation and Potential Income Loss**	**Potential Income Gain and Reduced/Avoided Costs**	**Your Judgment: Value Per Acre of This Practice on Your Land**
Reduced pesticide (insecticide, herbicide, or fungicide) use Reduced synthetic nitrogen fertilizer use Manure use benefits of building soil organic matter Crop rotation benefits of reduced soil erosion and reduced water runoff Guarantees pasture access for dairy cattle Buffer strip requirements generate wildlife habitat **The numbers in this table are broad estimates, and you should adjust them for your farm's conditions.**	Organic certification net costs: $1.60/acre *(See Certification Costs text box)* Higher management time, complexity cost, and machinery ownership cost over conventional agriculture: $117/acre *(See Organic Costs text box)*	Average net return from established organic cropping system with four-year rotation: $470/acre/year (*See Organic Profits text box*) $8.60/acre/year gain in fertilizer value of soil by saving 4.1 tons/acre/year from soil erosion; cumulative over years (*See Value of Saving Soil text box in Crop Rotation section*) Benefit to society: approximately $20/acre/year gain in water quality value of soil by saving 4.1 tons/acre/year of soil from erosion (*See Value of Saving Soil text box in Crop Rotation section*) $15.70/acre/year of nitrogen, phosphorus, potassium, and sulfur for each 1% of soil organic matter; it takes about a decade of regular manure application to raise the SOM by 1%. *(See Value of Soil Organic Matter textbox in Soil Fertility Management section)*	Potential income gain and costs avoided: + Potential income loss and costs to pay: - Your judgment on value to your farm of qualitative benefits: + Value to society or environment: + Add up the total net value per acre per year: Multiply by a time frame (5 years? 10 years?) Total value over time:

References:

(1) **National Organic Program (NOP). USDA Agricultural Marketing Service.** www.ams.usda.gov/

(2) **Minnesota Guide to Organic Certification.** 2007. Jim Riddle and Lisa Gulbranson. http://conservancy.umn.edu/bitstream/51829/1/MN_Guide_to_Organic_Certification.pdf (accessed 8/27/13).

(3) **2010 Organic Farm Performance in Minnesota.** 2011. Dale Nordquist and Meg Moynihan. Minnesota Department of Agriculture. www.mda.state.mn.us/~/media/Files/food/organicgrowing/organicperformance2010.ashx (accessed 8/23/13).

Further Resources:

Midwest Organic and Sustainable Education Service (MOSES).
www.mosesorganic.org/
Collection of fact sheets on organic transition and certification process, sample forms and budgets, resource directory, online organic classified ads, online bookstore with many titles relevant to organic and sustainable farming.

Organic Agriculture. Minnesota Department of Agriculture.
www.mda.state.mn.us/food/organic.aspx
Information and tools for Minnesota organic farmers, some of which would be useful to farmers in other states; including cost-share application forms, lists of accredited certifying agencies, Minnesota organic farm directory, scholarships, financial reporting, Driftwatch registry, and specific items like "No Spray" signs.

Organic Agriculture Program. Iowa State University Extension.
http://extension.agron.iastate.edu/organicag/
Iowa field day and conference information; general information on certification and production; research reports; National Organic Program standards; information on suppliers of organic farm inputs and buyers of organic products.

Organic Farming. Appropriate Technology Transfer for Rural Areas, National Center for Appropriate Technology. https://attra.ncat.org/organic.html
Collection of informational fact sheets on organic field crop, livestock, and horticultural crop production; certification and marketing; the transition to organic; and explanation of National Organic Program guidelines.

Organic Risk Management. 2010. Editors: Kristine M. Moncada and Craig C. Sheaffer. www.organicriskmanagement.umn.edu/ (accessed 8/27/13)
Extensive research-based guide to organic crop production and management, including chapters on crop rotation; soil health and fertility; weed biology and management; transitioning to an organic system; organic corn, soybean, small grain, and forage production; cover crops; and alternative crops. Useful for non-organic farmers, too; there is a lot of good basic agronomic information in this resource.

Certification Costs

Certification costs involve several different types of fees: application fee, annual renewal fee, assessment on annual production or sales, and inspection fee (1). Since some of the cost depends on gross annual production or sales, costs per acre can vary greatly depending on the value of the crop grown.

This example uses certification cost figures from the Minnesota Crop Improvement Association (2); but note that certifying agencies vary in their charges. The example assumes a U.S. Midwest (MN, WI, or IA) organic farm size average of 190 acres and gross annual sales average of $129,000 (3).

Base certification fee:	$325	
Annual membership:	$50	
Inspection fee:	$150	(assuming 2 hours at $75/hour)
% of gross sales:	$645	(0.5% of $129,000 in sales)
TOTAL:	$1,170	total certification cost for the farm.

The USDA offers 75% reimbursement of organic certification costs once a farm is certified (1).

- $1,170 x 0.25 = $292.50 certification cost after 75% reimbursement
- $292.50 total certification cost / 190 acres = $1.53/acre (round up to $1.60/acre)

References:

(1) **FAQ: Becoming a Certified Operation.** 2012. USDA, National Organic Program. www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&navID=NOPFAQsHowCertified&topNav=&leftNav=NationalOrganicProgram&page=NOPFAQsHowCertified&description=FAQ:%20%20Becoming%20a%20Certified%20Operation&acct=nopgeninfo

(2) **Organic Fee Schedule and Scale of Sanctions**. 2011. Minnesota Crop Improvement Association. www.mncia.org/assets/documents/pub/organic/Organic_Fee_Schedule_and_Scale_of_Sanctions.pdf (accessed 8/23/13).

(3) **Farms, Land Use, and Sales of Organically Produced Commodities on Certified and Exempt Organic Farms: 2008**. In *2008 Organic Producers Survey*. USDA National Agricultural Statistics Service. www.agcensus.usda.gov/Publications/2007/Online_Highlights/Organics/organics_1_01.pdf (accessed 8/23/13).

Organic Costs

Certified organic agricultural production systems are more complex than conventional corn and soybean production. Organic farmers need to have an organic farm plan that documents the fertilizers, manure, or any other substances applied to every field, every year. They need to document seed lots planted, keep logs of every operation done to every field, and document harvested crops with enough detail that every crop can be traced back to the field it came from (1). Organic farmers need to manage long rotations; and planning good rotations is a very complex task that requires time and thought (2). Because they are growing more types of crops, organic farmers need more types of planting and harvesting equipment. Because they are using machinery instead of herbicides for weed control, they need more types of tillage, cultivation, and other weed-control equipment. Reliance on machinery for weed control requires careful timing of field operations, and sometimes that's not possible due to weather. As a result, another potential cost is yield reduction due to weeds getting ahead of the crop (3). Organic farms also tend to involve livestock to a greater degree than conventional cash grain farms, which adds to the complexity of managing the whole system.

These background costs of machinery ownership and maintenance, as well as management of complex systems, are difficult to capture in an enterprise budget. Enterprise budgets for crop production generally document only the costs of field operations (4). Analysis of long-term organic and conventional crop production systems in Minnesota shows that the requirement for more types of machinery in organic systems can limit the size of organic farms (3).

The following example is a rough estimate of the amount of cost per acre that applies to organic farms as a result of the factors that tend to restrict the size of organic farms. The total cost of complexity, machinery ownership, and background management on organic farms is not well documented, so as a stand-in for those costs, this example uses Agricultural Census data on the average size of organic farms and of all farms (5,6). A key assumption is that the *total* time spent on managing the average farm is the same, whether a farm is organic or conventional. With that assumption, the difference in average farm size can be used to estimate the extra costs of being organic.

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Organic Costs, continued (pg. 2)

- Average size of all farms in MN, WI, and IA; 2008 data: 287 acres
- Average annual return to management from conventional corn & soybean production: $230/acre (7)
- Valued at a management cost of $40/hour *(*see note, below):* $230/acre / $40/hour = 5.75 hours/acre of management time for conventional corn and soybean production.
- 5.75 hours/acre x 287 acres average farm size = 1,650.25 hours per farm (round to 1,650 hours)

**Note: The $40/hour figure for management is an arbitrary figure chosen for this calculation, and the hours spent per acre and per farm are estimates that include not only actual management time, but also costs relating to yield loss due to untimely field operations, equipment ownership costs, and other unspecified costs associated with complexity of the organic farming system.*

Now, working the calculation in reverse:

- Average size of organic farms in MN, WI, and IA; 2008 data: 190 acres
- 1,650 hours/farm / 190 acres average organic farm size = 8.68 hours/acre of management time for an organic farm
- 8.68 hours/acre x $40/hour = $347.20/acre management charge for organic farms.
- $347.20/acre organic - $230/acre conventional corn and soybean = $117/acre higher background management + complexity + machinery ownership cost for organic farms.

This calculation returns very similar results if nationwide figures are used. Nationwide average size of all farms is 418 acres, and nationwide average size of organic farms is 280 acres. Difference in management cost per acre using national figures = $114/acre higher for organic farms.

Delbridge et al., using financial data from Minnesota organic farms, calculated that machinery ownership costs averaged about $3.30/acre higher for organic farms than for conventional corn and soybean farms (3).

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Organic Costs, continued (pg. 3)

Thus, the cost of background management + complexity on organic farms:
$117/acre - $3.30/acre machinery ownership cost = $113.70/acre

References:

(1) **Minnesota Guide to Organic Certification.** 2007. Jim Riddle and Lisa Gulbranson. http://conservancy.umn.edu/bitstream/51829/1/MN_Guide_to_Organic_Certification.pdf (accessed 8/27/13).

(2) **Crop Rotation on Organic Farms: A Planning Manual**. 2009. Editors: Charles L. Mohler and Sue Ellen Johnson. Natural Resource, Agriculture and Engineering Service; published by Sustainable Agriculture Research and Education (SARE). www.sare.org/Learning-Center/Books/Crop-Rotation-on-Organic-Farms (accessed 8/25/13).

(3) **A whole-farm profitability analysis of organic and conventional cropping**. 2013. Timothy A. Delbridge, Carmen Fernholz, Robert P. King, William Lazarus. *Agricultural Systems*. http://dx.doi.org/10.1016/j.agsy.2013.07.007

(4) **Organic Crop Production Enterprise Budgets.** July 2011. Craig Chase, Kathleen Delate, Ann Johanns. Iowa State University. www.extension.iastate.edu/agdm/crops/html/a1-18.html (accessed 8/23/13).

(5) **Farms, Land Use, and Sales of Organically Produced Commodities on Certified and Exempt Organic Farms: 2008**. In 2008 Organic Producers Survey, USDA National Agricultural Statistics Service. www.agcensus.usda.gov/Publications/2007/Online_Highlights/Organics/organics_1_01.pdf (accessed 8/23/13).

(6) **Farms, Land in Farms, and Livestock Operations 2008 Summary**. February 2009. USDA National Agricultural Statistics Service. http://usda01.library.cornell.edu/usda/nass/FarmLandIn//2000s/2009/FarmLandIn-02-12-2009.pdf (accessed 8/23/13).

(7) **What does it take to earn a living on the farm?** April, 2013. Gary Hachfeld, University of Minnesota Extension. http://swroc.cfans.umn.edu/prod/groups/cfans/@pub/@cfans/@swroc/documents/asset/cfans_asset_440374.pdf (accessed 8/06/13)

Organic Profits

This example uses organic crop enterprise budgets from Iowa State University Extension, and assumes a four-year crop rotation: corn – soybean – oats + alfalfa – alfalfa. These budgets assume a 17% yield reduction for organic corn and a 20% yield reduction for organic soybean, compared to conventional crop yields (1).

The amount of yield reduction due to organic production is hotly debated. Research at the University of Minnesota from 1993 to 1999 with land that had completed the three-year transition period showed yield reductions of 7% for corn and 21% for soybean compared to a high-input conventional system (2). Depending on the length of time the organic system has been in place, the management skill of the farmer, weather conditions during the growing season, and other factors; organic crop yields may sometimes equal or even outpace conventional yields.

University of Minnesota researchers looked at 22 studies from across the United States and found that organic corn yields ranged from 59% to 108% of conventional corn yields, with a median of 86%. Organic soybean yields ranged from 50% to 113% of conventional soybean yields, with a median of 92% (3). The Iowa budgets used here, therefore, are based on fairly middle-of-the-road estimates for an organic farm that has finished the three-year transition period.

Net returns to management (costs for labor, equipment operations, seed, fertilizer, etc. to plant, tend, harvest, and dry the crop have been deducted; as well as the cost of land rent per acre):

Organic Corn:	$988/acre
Organic Soybean:	$478/acre
Organic Oat + Alfalfa:	$228/acre
Alfalfa:	$191/acre

four-year rotation average: $471.25/acre (round to $470/acre)

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Organic Profits, continued (pg. 2)

Note: It may look very tempting to just raise organic corn and soybeans for those high per-acre returns, and not do the 4-year rotation. However, a two-year corn and soybean rotation is not a certifiable organic system. Longer rotations are required as part of an organic farm plan (4).

References:

(1) **Organic Crop Production Enterprise Budgets.** July 2011. Craig Chase, Kathleen Delate, Ann Johanns. Iowa State University. www.extension.iastate.edu/agdm/crops/html/a1-18.html (accessed 8/23/13).

(2) **Long-Term Effects of Crop Management: Yield.** April 2004. Results from the VICMS study at the Southwest Research and Outreach Center, Lamberton, Minnesota. Paul Porter, Dave Huggins, Catherine Perillo, Steve Quiring, and Kent Crookston. University of Minnesota. http://swroc.cfans.umn.edu/prod/groups/cfans/@pub/@cfans/@swroc/documents/asset/cfans_asset_236359.pdf

(3) **Productivity, economics, and soil quality in the Minnesota variable-input cropping systems trial.** 2013. Coulter, J. A., Delbridge, T. A., King, R. P., Allan, D. L., and Sheaffer, C. C. Online. Crop Management doi:10.1094/CM-2013-0429-03-RS. www.plantmanagementnetwork.org/pub/cm/symposium/organic/farm/variable/variable.pdf (accessed 8/27/13).

(4) **Minnesota Guide to Organic Certification.** 2007. Jim Riddle and Lisa Gulbranson. http://conservancy.umn.edu/bitstream/51829/1/MN_Guide_to_Organic_Certification.pdf (accessed 8/27/13).