



# PLANNING FOR PROFIT

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Ministry of Agriculture,  
Food, & Fisheries

## Transition To Certified Organic Oat Production - North Okanagan 300 Acres Winter 2002

This information is provided as a tool for projecting costs and returns for B.C. farm enterprises interested in certified organic oat production. The sample budget should be used as a general guide only and should not be used for business analyses without adjustments to reflect individual situations, such as growing region, grower skills, farm size, and so forth. Each farm should develop their own budget to reflect their production goals, costs and market prices.

Information regarding financial planning and other enterprise budgets may be downloaded from the internet at B.C. Ministry of Agriculture, Food and Fisheries (<http://www.agf.gov.bc.ca/busmgmt/>).

### Key Success Factors

- Weed control and a sound fertility management program aided by an effective crop rotation plan.
- Good site selection and preparation.
- Appropriate timing of planting to optimize weed control measures and effectively use soil moisture reserves.
- Identify your market prior to planting and ensure access to organic storage if needed.
- Reduce direct and indirect expenses as much as possible.

### Market

#### Conventional

The market for conventional oats is for livestock feed and human consumption. Livestock oats includes premium grade performance or "pony" oats, destined for the high end horse market and #3 CW and #4 CW grade feed oats.

Oats for human consumption or milling oats in general consists of #1CW and #2CW grades.

About 40% of the oat market is exported, primarily as performance and milling oats. Oats remaining in Canada are primarily destined for the feed market.

Oats can be sold privately, through local cooperatives or to private milling companies.

Overall, the oats market is fairly stable and demand remains strong. Shortages caused by adverse weather can cause short-term price increments.

## **Certified Organic**

- The market for organic oats is fairly small and undeveloped, with the bulk for milling and the rest for performance horse market and livestock feed. Individual producers must establish their own contracts with grain mills or livestock feeders. Much of current production (ie. Peace River oats mainly) is destined for U.S. mills, but producers can also access mills across the Prairies, into Ontario and on the Lower Mainland. Overall, markets are more difficult to access with no local elevators accepting deliveries.

- Oats produced during the 3 year transition period are predominantly marketed through the same channels as conventional oats. There is no distinct market for transition oats.

- Producers of organic oats are required to be certified. A list of certifying bodies is available from the Certified Organic Association of B.C. (see References).

## **Risk Factors and Strategies**

Financial Risks - Capital investment in equipment can be offset by moving slowly and cautiously. Certain equipment investments can be put off or substituted with less expensive equipment. Renting equipment or hiring custom equipment operators are other measures used to offset investment costs. Additional investment capital may be required by certified organic growers for the rotation crops and buffer zones (ie. land and equipment). On smaller operations where compost application is feasible, a manure spreader would be an additional investment.

Production Risks - Weed, disease and insect control along with effective fertility management are essential elements in ensuring high quality and high yields. Weeds are probably be the most challenging to organic growers. Weed infestations, in turn, may cause higher disease and insect pressure and if the grain becomes contaminated with weeds or weed seeds, grain quality and quantity of marketable yield can be reduced (eg. get "hot spots" in stored grain; higher dockage rates). Poor soil fertility will cause reduced oat quality (ie. grain size smaller) and yield, but this is generally well managed by rotating with legume crops, and on smaller operations, applying composts.

Adverse weather can impact both conventional and organic production. Too much or too little precipitation can interfere with seeding or harvesting operations. Oats is a fairly long-season cereal crop and in some years the growing season is not long enough. Organic oat production is more conducive to withstanding drought as the soil organic matter and subsequent water holding capacity is generally higher.

In areas where there are significant bear populations, damage from bear feeding can be substantial. Bears tend to favour oats over other cereal grains.

Methods to deal with production risks include an effective crop rotation plan and use of composted and green manures. Rotations with legume crops and crops with different planting windows will help break weed cycle and provide soil nutrients. Crop residues from previously planted green manure crops (eg. fall rye, buckwheat, annual legumes) and perennial legumes will release nutrients to the current oat crop. Generally legumes remain in the ground at least 2 years, the first year being seeded with a nurse crop of oats or other cereal crop. At the end of the final year, the final legume growth is not harvested but rather disced down to supply nutrients and organic matter. Seeding at different times of the year will help suppress a greater variety of weeds, since different weeds germinate under different growing conditions. Planting competitive crops in the rotation program is also important, since competitive crops, such as barley, rye, and perennial legumes will provide better weed suppression than the less competitive crops, such as flax and field peas and beans.

Use of clean seed and clean equipment are also important strategies to deal with disease, insect and weed vectors.

Programs available to offset production risks include NISA, crop insurance and whole farm insurance.

**Handling Risks** - In general handling risks are about the same between conventional and organic production. Weed seed contamination can be reduced by using combines equipped with weed screens (on older, less efficient combines) or post harvest grain cleaning equipment are effective means of reducing weed contamination. Grain should be stored at about 14% moisture. This is sometimes more difficult to achieve with organic oats due to the presence of more green growth (ie. weeds, underseeded legumes) in the stand. Post harvest drying is an option, but the organic grower must have his own drying equipment.

**Market Risks** - This will depend upon the destined market, whether selling for cash or on a contract basis, and the location of the market. Producers must establish their own contacts as oats is not marketed through the Canadian Wheat Board. This can be more of a challenge for organic growers as the current market remains a niche market. In the Peace River, the distances to markets and absence of local organic grain handling facilities result in organic oats being marketed through the more accessible conventional channels. Growers sometimes find it difficult to get together enough volume to make shipping to organic mills feasible.

**Price Risks** - overall, prices for organic and conventional oats are fairly stable. Occasionally prices may notably rise if there has been a poor crop year (such as in 2001) and the market supply is down, but in general demand and supply are fairly stable. In general organic oat prices are 1.5 to 2 times higher than conventional prices.

## Sample Enterprise Budget And Worksheet Transition To Certified Organic Oat Production - North Okanagan

This sample enterprise budget is based on the assumptions outlined previously. It should be viewed as a first approximation only. Use the column "Your Farm" to add, delete, and adjust items to reflect your specific situation. The budget items are per 1 acre of oats for a 300 acre farm.

### Projected Income (per acre)

	Conventional	Transition			Certified Organic			Your Farm
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Marketable Yield(tonnes)	1.20	0.60	0.80	1.00	1.20	1.20	1.20	
Price(\$/bu)	\$1.80	\$1.80	\$1.80	\$1.80	\$3.00	\$3.00	\$3.00	
No. of bu/tonne	55	55	55	55	55	55	55	
Price(\$/tonne)	\$99	\$99	\$99	\$99	\$165	\$165	\$165	
<b>Total Income</b>	<b>\$119</b>	<b>\$59</b>	<b>\$79</b>	<b>\$99</b>	<b>\$198</b>	<b>\$198</b>	<b>\$198</b>	

### Projected Direct Expenses (per acre)

	Conventional	Transition			Certified Organic			Your Farm
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
<b>Seeds</b>								
.conventional (kg)	\$15							
.organic(kg)		18	18	18	18	18	18	
.underseeded clover(kg)		5	5	5	5	5	5	
<b>Fertilizer</b>								
.46-0-0 (kg)	22							
.11.52-0(kg)	12							
.0-0-60(kg)	5							
<b>Pesticides</b>								
.MCPA amine 500(l)	4							
<b>Tractor fuel</b>	17	15	15	15	15	15	15	
<b>Tractor oil&amp;lube</b>	3	2	2	2	2	2	2	
<b>Certification Fees</b>		2	2	2	2	2	2	
<b>Repair &amp; Maint.</b>	13	14	1	0	0	0	0	
<b>Total</b>	<b>90</b>	<b>57</b>	<b>44</b>	<b>43</b>	<b>43</b>	<b>43</b>	<b>43</b>	
<b>Income - Direct Exp.</b>	<b>\$29</b>	<b>\$3</b>	<b>\$36</b>	<b>\$56</b>	<b>\$155</b>	<b>\$155</b>	<b>\$155</b>	

**Projected Indirect Expenses**

Depreciation .....	_____
Interest .....	_____
Insurance .....	_____
Administration .....	_____
Legal/accounting .....	_____
Other .....	_____
<b>Total</b> .....	_____

Your Farm

Indirect expenses do not vary with the level of output and are typically associated with inputs used in more than one enterprise. These expenses must be allocated appropriately (prorated) between uses.

**Projected Net Income**

Projected Income .....	_____
<i>minus</i> Projected Direct & Indirect Expenses .....	_____
<b>Projected Net Income</b>	_____

**Sensitivity Analyses**

The profitability of both conventional and organic oat operations are influenced by market prices and yield. The table below illustrates the changes to the income margin (ie. income - direct expenses) as prices and yield vary.

**Conventional**

**Price vs. Income less Direct Expenses**

	80% of Target Price	90% of Target Price	Target Price	110% of Target Price	120% of Target Price
Price (\$/tonne)*	\$79.20	\$89.10	\$99.00	\$108.90	\$118.80
Income less Direct Expenses	\$4.86	\$16.74	\$28.62	\$40.50	\$52.38

\*assumes 55 bu/tonne and 1.20 tonne/acre yield

**Yield vs. Income less Direct Expenses**

	75% of Target Yield	85% of Target Yield	Target Yield	115% of Target Yield	125% of Target Yield
Marketable Yield (tonnes)*	0.9	1.02	1.20	1.38	1.5
Income less Direct Expenses	-\$1.08	\$10.80	\$28.62	\$46.44	\$58.32

\*assumes price of \$1.80/bu with 55 bu/tonne

**Certified Organic**

**Price vs. Income less Direct Expenses**

	80% of Target Price	90% of Target Price	Target Price	110% of Target Price	120% of Target Price
Price (\$/tonne)*	\$132.00	\$148.50	\$165.00	\$181.50	\$198.00
Income less Direct Expenses	\$115.88	\$135.68	\$155.48	\$175.28	\$195.08

\*assumes 55 bu/tonne and 1.20 tonne/acre yield

**Yield vs. Income less Direct Expenses**

	75% of Target Yield	85% of Target Yield	Target Price	115% of Target Yield	125% of Target Yield
Marketable Yield (tonnes)*	0.9	1.02	1.20	1.38	1.5
Income less Direct Expenses	\$105.98	\$125.78	\$155.48	\$185.18	\$204.98

\*assumes price of \$3.00/bu with 55 bu/tonne

## Cash Flow Timing

The following table indicates the monthly flow of income and direct expenses. It is assumed that the oat crop is sold immediately following harvest with little to no storage. A complete projected cash flow should include indirect expenses, capital sales and purchases, loans and personal expenses.

Conventional	J	F	M	A	M	J	J	A	S	O	N	D
% Income										100		
% Expenses				7		73				20		

## Certified Organic

	J	F	M	A	M	J	J	A	S	O	N	D
% Income										100		
% Expenses				12		55				33		

## Investment Capital Replacement Costs - Conventional vs. Organic Production

Item	Conventional	Cert. Organic	Net Change*
Buildings	25,000	25,000	0
Tractor(s)	40,000	40,000	0
Implements	26,000	37,500	11,500
Combine	10,000	10,000	0
Small tools and equip.	5,000	5,000	0
Vehicle (s)	25,000	25,000	0
<i>Total</i>	\$131,000	\$142,500	\$11,500

\*change in investment capital between conventional and certified organic production.

## Hours of Labour Required - Conventional vs. Organic Production

Task Completed	Conventional	Transition			Certified		
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
.Field Preparation:							
spring	0.40	0.40	0.40	0.40	0.40	0.40	0.40
fall	0.50	0.50	0.50	0.50	0.50	0.50	0.50
.Fertilizer applications	0.25						
.Planting	0.25	0.50	0.50	0.50	0.50	0.50	0.50
.Spraying -herbicide	0.25						
.Harvesting	0.50	0.50	0.50	0.50	0.50	0.50	0.50
<b>Total Labour Hours</b>	<b>2.15</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>

## Conventional vs. Certified Organic Oat Production Factors Affecting Production Costs

**1. Size and number of Farms:** Most of the per farm acreage in organic oat production is smaller than conventional operations and the total number of organic oat operations is far fewer than conventional operations.

**2. Equipment:** Certified organic oat producers will have more equipment for the incorporation of green manures and perhaps composts. Additional equipment assumed in this budget included \$4000 for a swather and \$15,000 for a shredder (chops legume rotation crop). Fertilizer spreaders and sprayers are generally not required on organic oat farms.

**3. Pest control:** Weeds are the most common pest affecting organic oat growers. Effective crop rotations and ensuring all equipment and seed are clean are vital to dealing with weed pests on organic operations. To provide a smoother transition to organic production, consider making the change gradually. This allows time to gain experience and skills in organic farming practices and time for biological systems to adjust. Also, consider producing a mix of commodities instead of mono-cropping. The direct expenses associated with pest control are notably lower in organic production than conventional production, but operator labour may be higher.

**4. Fertilizers:** Certified organic oat producers can utilize composts and green manure (legumes) crops for a source of plant nutrients. The cost of using compost is generally not economically feasible on large operations and was not included as an expense in this sample budget. Green manure crops, such a clover, do provide a feasible alternative to synthetic fertilizers.

**5. Certification fees:** To maintain certified organic status, a farm must be registered with a certified organic or recognized association and have semi-annual inspections completed of all farming practices. The fee rates vary widely between farms and depend on the certifying body, the level of production, and the time require to complete inspections. In general the range for oat producers is \$250 to \$800 per farm.

**6. Marketable Yield:** Average values are generally lower for operations during the transition period than on conventional operations or fully certified organic operations. Most of this is due to the fact that biological systems need a certain amount of time to adjust to changes in soil fertility and pest control programs. Achieving a sufficiently dry grain crop due higher green matter in the stand (from weeds or underseeded legumes) may also be more difficult in organic production systems, thereby lowering marketable yields. The actual amount of yield reductions noted during the transition period can vary considerably from farm to farm, depending upon the fertilizer program, pest control program and crop rotation scheme in place during conventional production. The yields assumed in this sample budget during the transition period are rough estimates only. To determine yield potentials during transition may require field tests.

**7. Market Factors:** Much of the organic oats produced will be marketed as conventional due to shipping volume constraints. It may be too expensive to ship a small volume of oats due to distances to processing mills. Unless a more local buyer can be found, producers may opt to ship to the more accessible conventional market. Producers need to carefully research their options for organic oat markets prior to making any changes in production practices.

**8. Land needs:** The total land required to produce an acre of oats on organic operations is higher than on conventional operations due to the need for rotation crops and buffer zones. Rotation crops are needed for pest and soil fertility management. Buffer zones are required if there is a concern that contamination from adjacent land, roadways, and so forth can occur.

## References:

BCMAFF. Field Crop Production Guide.

COABC.2001. B.C. Certified Organic Production Operation Policies and Farm Management Standards

(<http://www.certifiedorganic.bc.ca/Standards>)

BCMAFF. Feb.2000. Oat Variety Descriptions & Recommendations for Central B.C

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Alberta Agriculture. Feb.1999 Agricultural Marketing Manual: Oat Marketing Alternatives.

Alberta Agriculture. March 1995. Soils, Cropping Practices, and Fertilizer Use. Adapted from Agdex 541-1.

(<http://www.agric.gov.ab.ca/agdex/500/41100001>)

Alberta Grain Commission Average Country Elevator Buying Prices (for delivered grain)

(<http://www.agric.gov.ab.ca/economic/stats/grdaily/html#Street>)

Environment Canada and Manitoba Agriculture. October 1992. Getting Started in Organic Farming

(<http://www.gks.com/library>)

Certified Organic Associations of B.C. 8A -100 Kalamalka Lake Rd., Vernon, B.C. V1T 9G1.

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BC certified organic industry information available at [www.certifiedorganic.bc.ca](http://www.certifiedorganic.bc.ca)

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- certified organic oat producers

## Assumptions:

The following assumptions were made in calculating the sample budget:

### 1. Crop Information:

- Projected income and expenses are based on 1 acre of oats for all production systems. Total farm size is 300 acres.
- Oats in the transition and certified organic systems, is underseeded with clover to provide a rotation crop - Since the type of rotation plan is highly variable from farm to farm, production income and expenses from the rotation crop other than seed costs are not accounted for in this sample budget. When completing individual farm budgets, the additional income/expenses that result from the rotation crops (and buffer zones) should be considered.
- Oats for conventional systems is planted at 45kg/acre for a cost of \$0 - 33/kg. Oats for organic systems is planted at 55kg/acre for a cost of \$0.33/kg.
- Clover underseeded in organic production is planted at a rate of 1kg/acre at a cost of \$2 - 61/kg.
- Fertilizer applications 46kg of 46-0-0, 23kg 11-52-0 and 14kg 0-0-60 to supply 24kg/acre N, 12kg/acre P2O5, and  
*conventional:* 8kg/acre K2O; costs are \$0.47/kg, \$0.53/kg, and \$0.35/kg for 46-0-0, 11-52-0 and 0-0-60.  
*transition to c.o.:* nutrients supplied by clover rotation crop.
- Pesticide applications are assumed as follows:
  1. Conventional : apply MCPA amine 500 once at 0.44L/acre; price/unit is \$8.50/L; total expense is \$3.74
  2. Transition and certified organic: no pesticides applied.
- Marketable target yields for organic production are assumed at 0 - 6, 0 - 8 and 1 tonne/acre for the first, second and third year of transition, and 1.2 tonne/acre for the subsequent years of organic production. Marketable target yields for conventional production are 1.2 tonne/acre. All systems assume dryland farming.

## 2. Marketing Information:

### - Costs

Costs associated with marketing are highly variable and depend upon distance to market and marketing strategy. Generally, shipping costs for organic oats are higher than conventional, as much of the conventional oats can be delivered to local elevators. Organic oats are generally shipped further afield. Some estimates for shipping into Washington are \$2500 for a 40tonne B-train load (ie.\$62.50/tonne).

No separate marketing cost is detailed in this sample budget. Instead it is assumed that the costs of marketing are included in the return price.

### - Returns

Returns for conventional and transition oats are \$1.80/bushel or \$99.00/tonne and returns for certified organic oats are \$3.00/bushel or \$165.00/tonne, assuming 55bushels/tonne (ie.40lb/bu or 18.2kg/bu). Organic price returns can be higher, but the price assumed in this budget is adjusted for shipping costs.

## 3. Certification Fees

Certification fees include membership fees for certifying body, Certified Organic Assoc. of B.C. (COABC) fees, certification fees, and farm inspection (audits) fees. These fees vary greatly according to the certifying body, the level of farm production and the time it takes to complete inspections. This budget assumes a total farm certification fee of \$500/year or \$1.67/acre for 300 acres of organic production.

## 4. Labour Requirements:

<b>There are no</b> differences	0.4 hrs/acre	(disc;cultivate)	
- Field Prep - Spring	0.5 hrs/acre	(chop/mow straw;disc)	
- Field Prep - Fall	0.5 hrs/acre;		
- Harvesting			
<b>There are</b> differences with	0.25 hrs/acre	conventional	
- Seeding	0.50 hrs/acre	transition & certified organic	(oats first then clover)
	0.25 hrs/acre	conventional only	
- Fertilizer applications	0.25 hrs/acre	conventional only	
- Spraying -herbicide			

## 5. Buildings/Equipment Costs:

### a.Investment Capital

When switching from conventional to organic production, additional investment capital is required for compost application. All capital investment costs assumed in this budget are outlined below:

- Buildings	\$20,000	all production systems	
implements/shop	\$5,000	all production systems	
grain storage			
- Implements	\$7,500	all production systems	(includes disc, cultivator, harrow)
tillers	\$4,000	all production systems	
seed drill	\$7,000	all production systems	
loader & attachments	\$4,000	transition and certified organic	
swather	\$15,000	transition and certified organic	
shredder	\$2,500	conventional	
fertilizer spreader	\$5,000	conventional	
sprayer	\$40,000	all production systems	
- Tractor(s)	\$10,000	all production systems	
- Combine	\$5,000	all production systems	
- Small Tools & Equip -	\$25,000	all production systems	
- Vehicle (s)			



**b. Equipment Operation Costs**

- Tractor fuel costs for 70hp tractor are calculated as the no - of tractor hours x 20L/hr fuel consumption x \$0 - 40/L -  
 (@2000rpm running speed)

Task	Conventional	Transition	Certified Organic
field prep spring&fall:	0.9 hrs/acre	0.9 hrs/acre	0.9 hrs/acre
fertilizer application:	0.25 hrs/acre	0 hrs/acre	0 hrs/acre
seeding:	0.25 hrs/acre	0.5 hrs/acre	0.5 hrs/acre
herbicide spray:	0.25 hrs/acre	0 hrs/acre	0 hrs/acre
harvest (combine/bin):	0.5 hrs/acre	0.5 hrs/acre	0.5 hrs/acre
<i>Total</i>	2.15 hrs/acre	1.9 hrs/acre	1.9 hrs/acre

- Oil and lube costs are assumed at 15% of fuel costs.
- Repair and maintenance costs are calculated at 3% of investment capital replacement costs.