

Brown Soil Zone



Dark Brown Soil Zone



Black Soil Zone



Specialty Crops



CROP PLANNING GUIDE 2019

CROP PLANNING GUIDE 2019

Each year, Saskatchewan Agriculture makes available the Crop Planning Guide to help producers estimate the costs of producing various crops.

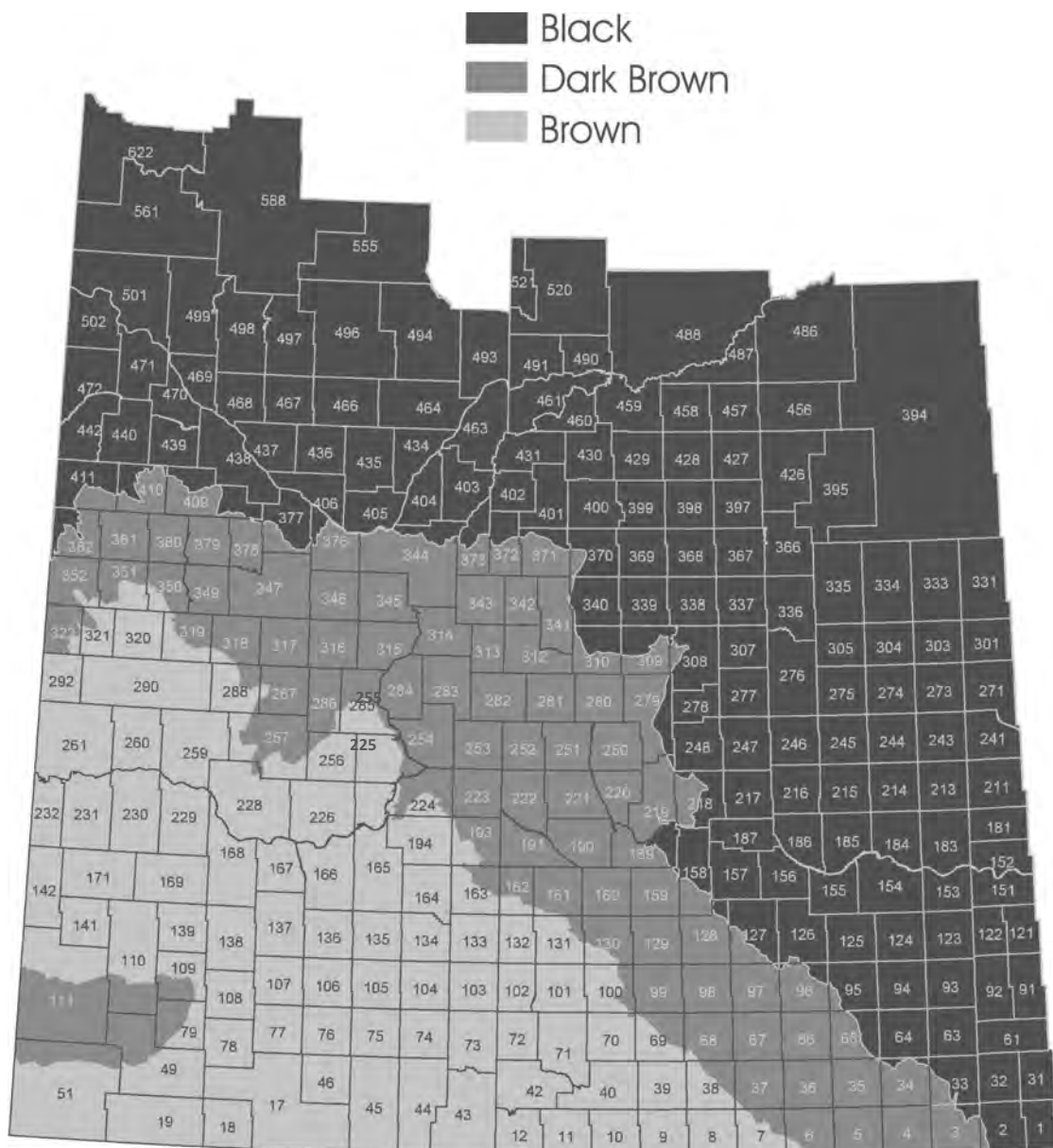
The Guide does not represent actual provincial average cost of production figures. Actual costs and yields on each farm will differ due to the age, amount and type of equipment, the selection of crop protection products and other inputs used, agronomic practices, soil class and weather conditions. Furthermore, producers will use their own risk assessment and cost-benefit calculations in production decisions, which will determine the actual costs of production that will result.

Farm managers can use the blank worksheet at the end of this guide to input their own costs of production in their calculations and decision making. Crop pricing information changes continuously.

Producers should adjust those figures accordingly to reflect their own expectations. A downloadable spreadsheet is also available on saskatchewan.ca/agriculture by searching for "Crop Planner."

The sustained success of any crop relies on good agronomic management including a good crop rotation. If good agronomic practices are not allowed, the expected profitability of a crop will diminish and diseases such as clubroot may be prevalent over time.

Farm managers may also wish to consult with the Ministry's Crops Extension Specialists about the appropriate agronomic practices and cost assumptions that apply to their specific farm situation.



GENERAL ASSUMPTIONS FOR ALL SOIL ZONES

1. **Crop prices** are based in part on the prices used in the November Farm Income Forecast. Crop pricing information can become outdated very quickly, so producers should continually adjust these figures as seeding approaches.
2. **Estimated crop yields** are based on the five year average production of the top 20 per cent of Saskatchewan Crop Insurance Corporation (SCIC) customers.
3. **Seeding rates** in the following guide are expressed in pounds per acre, with the exception of corn, soybeans, sunflowers and hybrid fall rye. These crops seeding costs are based on recommended plant population and units required to achieve those. Seeding rate conversions to bushels per acre may be made by dividing the stated seeding rate by the appropriate weight per bushel for each crop.
4. **Seeding costs** are for certified seed. Certified seed is assumed to be used for all crops sown.
5. **Fertilizer:** The Saskatchewan Ministry of Agriculture encourages producers to soil test on a consistent basis to measure soil fertility and precisely gauge crop nutrient needs to production expectations. This is consistent with 4R Nutrient Stewardship management practices. The price of key nutrients will fluctuate throughout the year and producers are reminded to continually adjust these figures as seeding approaches.
6. **Chemicals:** Herbicide costs used in this guide reflect the practice of herbicide layering for prevention or management of herbicide-resistant populations. This practice may involve the use of two or more modes of action for control of some weeds in that crop. This guide assumes that commonly encountered insects and crop diseases are controlled through the use of the appropriate pesticides for the crop and pest combinations as a standard practice. The assumptions in this guide are only to demonstrate how the guide can be used to cost a crop protection plan. Producers must use their own costs based on the individual weed, insect and disease pressures. Chemical costs are set using Suggested Retail Price (SRP) costs as well as full rate application. Prices can vary significantly from SRP rates.
7. **Machinery operating costs:** Fuel costs are based on estimated fuel consumptions for the various farming operations with diesel fuel priced at \$0.955/litre. Machinery repair rates are based on the Custom Rate and Rental Guide and are set at 2.6 per cent of the yearly machinery investment cost.
8. **Custom work and hired labour** is made up of costs for custom farm operations, such as custom trucking and custom spraying. Skilled labour is assumed to be \$22 per hour for 2019.
9. **Crop insurance premiums** are the average of the premiums paid for the soil zone in 2018. The coverage level is assumed to be 70 per cent. The premiums described do not reflect actual producer costs given surcharges and discounts.
10. **Utilities** are electricity, natural gas, water and telephone expenses.
11. **Interest on variable expenses:** Operating interest is calculated on all variable expenses at 3.93 per cent for eight months and for 18 months for hybrid fall rye and winter wheat.
12. **Building repair rates** are assumed to be 2.2 per cent of building investment per acre.
13. **Business overhead** is made up of legal, accounting, insurance, licences and miscellaneous.
14. **Machinery depreciation** is calculated on a straight-line basis at 10.7 per cent of yearly machinery investment.
15. **Building depreciation** is calculated at five per cent per year on a straight-line basis of building investment.
16. **Machinery investment** is calculated at a 7.5 per cent return on investment. It is assumed that a Brown Soil Zone farm has \$330.27 per cultivated acre invested in machinery; a Dark Brown Soil Zone farm has \$372.43 per cultivated acre invested in machinery; and a Black Soil Zone farm has \$421.51 per cultivated acre invested in machinery. These calculations are based on data provided by Statistics Canada.
17. **Building investment cost** is calculated at a three per cent return on investment. It is assumed that a Brown Soil Zone farm has \$21 per cultivated acre invested in buildings; a Dark Brown Soil Zone farm has \$28 per cultivated acre invested in buildings; and a Black Soil Zone farm has \$38 per cultivated acre invested in buildings. These calculations are based on data provided by Statistics Canada.
18. **Land investment cost** is calculated at a 3.53 per cent return on investment of \$1,567 per cultivated acre in the Brown Soil Zone; \$1,766 per cultivated acre in the Dark Brown Soil Zone; and \$1,686 per cultivated acre in the Black Soil Zone.
19. **Labour and management:** These budgets do not include an estimate for owner/operator labour and management. Typical management rates for business of this type are seven per cent of Gross Revenue.

SPECIALTY CROPS 2019

1. Seeding Rate and Certified Seed Price:

	Soil zone	Rate/ ac.	Price (lb./ plant)
Camelina	Brown	6 lb.	\$4.00
Canaryseed	Dk Brown	37 lb.	\$0.50
Caraway	Black	12 lb.	\$0.87
Desi Chickpea	Brown	93 lb.	\$0.37
Kabuli Chickpea (9 mm)	Brown	145 lb.	\$0.43
Kabuli Chickpea (7 mm)	Brown	109 lb.	\$0.37
Coriander	Dk Brown	25 lb.	\$0.57
Fenugreek	Brown	30 lb.	\$0.50
Yellow Mustard	Brown	10 lb.	\$3.28
Oriental Mustard	Brown	6 lb.	\$4.30
Brown Mustard	Brown	6 lb.	\$4.30
Pinto Bean	Dk Brown	99 lb.	\$1.15
Sunflower (Oilseed)	Dk Brown	26,000 plants	\$0.002
Quinoa	Black	10 lb.	\$6.00

2. Fertilizer:

	lb./ac.			
	N	P	K	S
Camelina	66	20	0	15
Canaryseed	62	53	32	17
Caraway	41	32	19	0
Desi Chickpea	8	41	0	0
Kabuli Chickpea (9 mm)	9	41	0	0
Kabuli Chickpea (7 mm)	8	38	0	0
Coriander	71	40	0	0
Fenugreek	2.3	11	0	0
Yellow Mustard	45	24	0	15
Oriental Mustard	58	30	0	15
Brown Mustard	53	29	0	15
Pinto Bean	23	8	0	0
Sunflower (Oilseed)	75	30	50	26
Quinoa	42	18	11	6

*These budgets do not include an estimate for owner operator labour and management. Farm managers need to determine their own actual labour and management costs and add it to total expenses.

**Expenses shown are from two years (year 1 and 2) and revenue is from two years (year 2 and 3) of Caraway seed production. To obtain the average return per acre per year, the figures per acre year should be divided by 2. The expenses associated with the cover crop in year 1 are covered by the revenue from the cover crop.

*** Only registered chemicals are included.

CROP	Camelina	Canaryseed	Caraway**	Coriander
Type of Rotation	Re-crop	Re-crop	Re-crop	Re-crop
Rotation Years Required to Grow This Crop	1	1	3	1
Soil Zone	Brown	DkBrown	Black	DkBrown
REVENUE PER ACRE				
Estimated Yield (bu./ac.,lb./ac.)(A)	1430.00	1882.00	785.00	1353.00
Estimated On Farm Market Price/bu.,lb. (B)	0.25	0.21	0.45	0.40
Estimated Gross Revenue/ac. (AxB)=(C)	357.50	395.22	353.25	541.20
EXPENSES PER ACRE				
Variable Expenses/acre				
Seed	24.00	18.50	8.14	15.73
- Seed Treatments/Inoculants	0.00	0.00	0.63	1.31
Fertilizer - Nitrogen	38.21	35.90	23.74	41.11
- Phosphorus	11.02	29.21	17.64	22.04
- Sulphur and Other	6.42	18.46	6.64	0.00
Chemical*** - Herbicides	8.43	45.54	66.71	70.92
- Insecticides	0.00	4.83	0.00	0.00
- Fungicides	0.00	10.05	0.00	34.99
Machinery Operating - Fuel	21.27	21.27	20.51	19.98
- Repair	8.54	9.63	21.80	9.63
Custom Work and Hired Labour	17.00	18.75	16.50	16.50
Crop Insurance Premium	4.08	8.44	55.58	17.05
Utilities and Miscellaneous	3.24	4.25	4.90	4.25
Interest on Variable Expenses	3.72	5.88	6.35	6.63
Total Variable Expenses (D)	145.94	230.60	249.13	260.15
Other Expenses/acre				
Building Repair	0.47	0.63	1.71	0.63
Property Taxes	3.76	4.92	14.92	4.92
Business Overhead	1.95	2.98	6.99	2.98
Machinery Depreciation	35.34	39.85	90.20	39.85
Building Depreciation	1.05	1.40	3.80	1.40
Machinery Investment	24.77	27.93	63.23	27.93
Building Investment	0.74	0.99	2.68	0.99
Land Investment	55.33	62.36	119.10	62.36
Total Other Expenses (E)	123.42	141.06	302.63	141.06
Labour and Management (F)*				
Total Expenses (D+E+F)=(G)	269.36	371.66	551.76	401.21
RETURNS PER ACRE				
Return Over Variable Expenses (C-D)	211.56	164.62	104.12	281.05
Return Over Total Expenses (C-G)	88.14	23.56	-198.51	139.99
BREAK-EVEN YIELD PER ACRE				
To Cover Variable Expenses	583.78	1098.11	553.63	650.38
To Cover Total Expenses	1077.45	1769.83	1226.14	1003.04
BREAK-EVEN PRICE PER BU./LB.				
To Cover Variable Expenses	0.10	0.12	0.32	0.19
To Cover Total Expenses	0.19	0.20	0.70	0.30

SPECIALTY CROPS 2019 (CON'T)

CROP	#1 Desi Chickpea	#1-9mm Kabuli Chickpea	#1-7mm Kabuli Chickpea	Fenugreek	Yellow Mustard	Oriental Mustard
Type of Rotation	Re-crop	Re-crop	Re-crop	Re-crop	Re-crop	Re-crop
Rotation Years Required to Grow This Crop	1	1	1	1	1	1
Soil Zone	Brown	Brown	Brown	Brown	Brown	Brown
REVENUE PER ACRE						
Estimated Yield (bu./ac.,lb./ac.) (A)	2428.00	2581.00	2537.00	1175.00	1167.00	1519.00
Estimated On Farm Market Price/bu.,lb. (B)	0.16	0.23	0.16	0.26	0.35	0.28
Estimated Gross Revenue/ac. (AxB)=(C)	388.48	593.63	405.92	305.50	408.45	425.32
EXPENSES PER ACRE						
Variable Expenses/acre						
Seed	34.41	62.35	40.33	15.00	32.75	25.80
- Seed Treatments/Inoculants	16.34	16.66	16.66	16.37	0.00	0.00
Fertilizer - Nitrogen	4.63	5.21	4.63	1.35	26.05	33.58
- Phosphorus	22.60	22.60	20.94	6.06	13.23	16.53
- Sulphur and Other	0.00	0.00	0.00	0.00	6.42	6.42
Chemical*** - Herbicides	86.72	86.72	86.72	23.46	56.86	72.02
- Insecticides	8.54	13.32	10.01	0.00	0.00	4.83
- Fungicides	37.52	37.52	37.52	0.00	0.00	0.00
Machinery Operating - Fuel	21.47	23.38	22.51	13.32	16.40	17.69
- Repair	8.54	8.54	8.54	8.54	8.54	8.54
Custom Work and Hired Labour	16.50	16.50	16.50	16.50	17.00	17.00
Crop Insurance Premium	27.79	48.32	42.02	0.00	11.88	10.37
Utilities and Miscellaneous	3.24	3.24	3.24	3.24	3.24	3.24
Interest on Variable Expenses	7.54	9.01	8.10	2.72	5.03	5.65
Total Variable Expenses (D)	295.84	353.37	317.73	106.56	197.41	221.68
Other Expenses/acre						
Building Repair	0.47	0.47	0.47	0.47	0.47	0.47
Property Taxes	3.76	3.76	3.76	3.76	3.76	3.76
Business Overhead	1.95	1.95	1.95	1.95	1.95	1.95
Machinery Depreciation	35.34	35.34	35.34	35.34	35.34	35.34
Building Depreciation	1.05	1.05	1.05	1.05	1.05	1.05
Machinery Investment	24.77	24.77	24.77	24.77	24.77	24.77
Building Investment	0.74	0.74	0.74	0.74	0.74	0.74
Land Investment	55.33	55.33	55.33	55.33	55.33	55.33
Total Other Expenses (E)	123.42	123.42	123.42	123.42	123.42	123.42
Total Expenses (D+E+F)=(G)	419.26	476.79	441.15	229.98	320.83	345.10
RETURNS PER ACRE						
Return Over Variable Expenses (C-D)	92.64	240.26	88.19	198.94	211.04	203.64
Return Over Total Expenses (C-G)	-30.78	116.84	-35.23	75.52	87.62	80.22
BREAK-EVEN YIELD PER ACRE						
To Cover Variable Expenses	1849.01	1536.38	1985.81	409.86	564.03	791.72
To Cover Total Expenses	2620.37	2072.98	2757.16	884.54	916.65	1232.49
BREAK-EVEN PRICE PER BU./LB.						
To Cover Variable Expenses	0.12	0.14	0.13	0.09	0.17	0.15
To Cover Total Expenses	0.17	0.18	0.17	0.20	0.27	0.23

*** Only registered chemicals are included.

SPECIALTY CROPS 2019 (CON'T)

CROP	Brown Mustard	Pinto Bean****	Sunflower Oilseed (EM)	Quinoa
Type of Rotation	Re-crop	Re-crop	Re-crop	Re-crop
Rotation Years Required to Grow This Crop	1	1	1	1
Soil Zone	Brown	DkBrown	DkBrown	Black
REVENUE PER ACRE				
Estimated Yield (bu./ac.,lb./ac.) (A)	1371.00	1396.00	2000.00	1000.00
Estimated On Farm Market Price/bu.,lb. (B)	0.28	0.32	0.23	0.65
Estimated Gross Revenue/ac. (AxB)=(C)	383.88	446.72	460.00	650.00
EXPENSES PER ACRE				
Variable Expenses/acre				
Seed	25.80	113.85	40.28	60.00
- Seed Treatments/Inoculants	0.00	16.37	0.00	0.50
Fertilizer - Nitrogen	30.69	13.32	43.42	24.32
- Phosphorus	15.98	4.41	16.53	9.92
- Sulphur and Other	6.42	0.00	28.60	6.41
Chemical*** - Herbicides	72.02	67.97	66.38	8.43
- Insecticides	4.83	0.00	0.00	0.00
- Fungicides	0.00	11.60	0.00	0.00
Machinery Operating - Fuel	17.24	18.25	24.89	16.71
- Repair	8.54	9.63	9.63	10.90
Custom Work and Hired Labour	17.00	16.50	17.50	16.50
Crop Insurance Premium	9.78	12.84	16.33	20.93
Utilities and Miscellaneous	3.24	4.25	4.25	4.90
Interest on Variable Expenses	5.54	7.56	7.01	4.70
Total Variable Expenses (D)	217.09	296.55	274.82	184.23
Other Expenses/acre				
Building Repair	0.47	0.63	0.63	0.85
Property Taxes	3.76	4.92	4.92	7.46
Business Overhead	1.95	2.98	2.98	3.50
Machinery Depreciation	35.34	39.85	39.85	45.10
Building Depreciation	1.05	1.40	1.40	1.90
Machinery Investment	24.77	27.93	27.93	31.61
Building Investment	0.74	0.99	0.99	1.34
Land Investment	55.33	62.36	62.36	59.55
Total Other Expenses (E)	123.42	141.06	141.06	151.32
Labour and Management (F)*				
Total Expenses (D+E+F)=(G)	340.50	437.61	415.89	335.54
RETURNS PER ACRE				
Return Over Variable Expenses (C-D)	166.79	150.17	185.18	465.77
Return Over Total Expenses (C-G)	43.38	9.11	44.11	314.46
BREAK-EVEN YIELD PER ACRE				
To Cover Variable Expenses	775.30	926.70	1194.88	283.42
To Cover Total Expenses	1216.08	1367.52	1808.20	516.22
BREAK-EVEN PRICE PER BU./LB.				
To Cover Variable Expenses	0.16	0.21	0.14	0.18
To Cover Total Expenses	0.25	0.31	0.21	0.34

*These budgets do not include an estimate for owner operator labour and management. Farm managers need to determine their own actual labour and management costs and add it to total expenses.

*** Only registered chemicals are included.

****Yield and costs are for Dryland Pinto Beans only.

SPECIALTY CROP AGRONOMIC INFORMATION 2019

Crop	Type	lb./bu.	Adaptation	Seed Rate (lb./ac.)	Est. Seeds per lb.	Weed Pest & Disease Fertilizer Advice
Camelina	Annual oilseed	50	Well adapted to Saskatchewan conditions. It is highly tolerant of heat and drought, cold tolerant, matures early, very suitable for warm and dry regions.	6	300,000	Assure II herbicide (quizalofop-P ethyl) is registered under the User Requested Minor-Use Label Expansion Program. The most effective weed control is to seed early and seed into a clean field.
Canaryseed	Annual birdseed	50	Moderate moisture requirements, shallow rooted.	37	65,000	Several herbicides are registered. Potash fertilizer may be required.
Caraway	Biennial spice	35	Widely adapted, yields best under moderate moisture.	12	90,000	Several herbicides are registered.
Desi Chickpea	Annual pulse	60	Indeterminate crop, Brown and Dark Brown soils.	93	1,350 - 2,300	Several herbicides are registered. Seed treatment and fungicide use recommended.
Kabuli Chickpea 9mm	Annual pulse	60	Indeterminate crop, Brown soils. Seed after soil reaches 10C at seeding depth.	145	1,100 - 2,000	Several herbicides are registered. Seed treatment and fungicide use recommended.
Kabuli Chickpea 7mm	Annual pulse	60	Indeterminate crop, Brown soils. Seed after soil reaches 10C at seeding depth.	109	1,200 - 2,200	Several herbicides are registered. Seed treatment and fungicide use recommended.
Coriander	Annual spice	22	Heat loving, late maturing.	25	50,000	Several herbicides are registered.
Fenugreek	Annual legume	60	Indeterminate crop, Brown and Dark Brown soil zones. Late maturing.	30	23,000 - 27,000	Odyssey, Select and Centurion herbicides are registered. Use clean fields.
Yellow Mustard	Annual oilseed	50	Better seed quality in drier areas.	10	100,000	Several registered herbicides.
Brown Mustard	Annual oilseed	50	More heat and drought tolerant than canola.	6	200,000	Several registered herbicides.
Oriental Mustard	Annual oilseed	50	More heat and drought tolerant than canola.	6	200,000	Several registered herbicides.
Pinto Bean narrow row and dry land	Annual pulse	60	Heat and moisture loving. Seed in late May. No frost tolerance.	99	1,100 - 1,600	Several registered herbicides. Seed treatment recommended.
Sunflower Oilseed	Annual oilseed	30	Moderate heat requirements. Brown, Dark Brown and thin Black soils.	26,000 plants	11,000 - 13,500	Trifluralin, Edge and Select are registered herbicides.
Quinoa	Annual pseudo-cereal	50	Well adapted to areas near or north of the Yellowhead Highway. Sensitive to early frost, heat and drought during seed set.	10	100,000	No herbicides, fungicides or pesticides are registered. Potash and Sulphur may be required.

SPECIALTY CROP

AGRONOMIC INFORMATION

2019 (CON'T)

Crop	Crop Height (inches)	Days to Maturity	Harvest Method	Safe Storage Moisture	Crop Quality Factors	Markets
Camelina	35	85 - 100	Direct combine or swath and combine. Direct combining is recommended due to potential damage from wind and because shattering losses are minimal. If swathing is necessary, it should be done when 75 per cent of the crop has turned yellow.	< 8%	Orange/brown seeds borne in pear shaped capsules.	Industrial oil
Canaryseed	40 - 60	95 - 105	Swath and combine or direct combine. Shatter resistant.	< 13%	Avoid dehulling the seed.	Birdseed
Caraway	12 - 28	Biennial, matures in early August	Swath when approximately 75 per cent of seeds have turned brown.	< 10%	Brown with dark stripes. Avoid green seed.	Flavouring
Desi Chickpea	12 - 20	110 - 120	Direct combine or swath and combine.	< 14%	Sound whole seed, avoid seed damage.	Human food
Kabuli Chickpea 9mm	14 - 20	110 - 125	Direct combine or swath and combine.	< 14%	Sound whole seed, avoid seed damage. Light coloured seed coat, green seed.	Human food
Kabuli Chickpea 7mm	14 - 20	110 - 120	Direct combine or swath and combine.	< 14%	Sound whole seed, avoid seed damage. Light coloured seed coat, green seed.	Human food
Coriander	24 - 40	95 - 110	Direct combine or swath then immediately combine.	< 10%	Fully mature brown seeds, splits below five per cent.	Flavourings and perfumes
Fenugreek	12 - 24	115 - 130	Resists shattering, direct combine or swath and combine.	< 12%	Golden coloured seed.	Health food, pharmaceutical, spice ingredient
Yellow Mustard	30 - 40	90 - 93	Direct combine or swath and combine.	< 9.5%	Bright yellow seed.	Condiment
Brown Mustard	40 - 48	91 - 94	Swath and combine.	< 9.5%	Dark reddish brown seed.	Condiment
Oriental Mustard	40 - 48	91 - 93	Swath and combine.	< 9.5%	Bright golden seed.	Condiment
Pinto Bean narrow row and dry land	12 - 20	95 - 112	Pick-up reel and floating cutter bar required. Swathing preferred. Swath when tough.	14 - 16%	Sound whole seed, avoid seed damage.	Human food
Sunflower Oilseed	24 - 35	99 - 103	Swath and combine or direct combine with standard equipment.	< 10%	Premiums for high oil content.	Edible oil
Quinoa	33-40	90-125	Direct combine or swath and combine. Sprouts easily in the swath.	< 10%	Cannot be planted following wheat or canola	Human Food. All production is contracted.

CROP PRODUCTION COSTS (/ACRE) MY FARM	USE THIS WORKSHEET TO ADJUST THE CROP BUDGET TO YOUR FARM COSTS			
REVENUE PER ACRE				
A Estimated yield (bu./ac.or lb./ac.)				
B Estimated on-farm market price per bushel or per pound				
C Estimated Gross Revenue per acre (AxB)				
EXPENSES PER ACRE				
Variable Expenses/acre				
Seed				
- Seed Treatments/Inoculants				
Fertilizer - Nitrogen				
- Phosphorus				
- Sulphur and Other				
Chemical - Herbicides				
- Insecticides				
- Fungicides				
Machinery Operating - Fuel				
- Repair				
Custom Work and Hired Labour				
Crop Insurance Premium				
Utilities and Miscellaneous				
Interest on Variable Expenses				
D Total Variable Expenses				
Other Expenses/acre				
Building Repair				
Property Taxes				
Business Overhead				
Machinery Depreciation				
Building Depreciation				
Machinery Investment				
Building Investment				
Land Investment				
E Total Other Expenses				
F Labour and Management				
G Total Expenses (D+E+F)				
RETURNS PER ACRE				
Return Over Variable Expenses (C-D)				
Return Over Total Expenses (C-G)				
BREAK-EVEN YIELD PER ACRE (lb./ac. or bu./ac.)				
To Cover Variable Expenses				
To Cover Total Expenses				
BREAK-EVEN PRICE PER BU./LB.				
To Cover Variable Expenses				
To Cover Total Expenses				

For more information contact:

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