

IRRIGATION ECONOMICS AND AGRONOMICS SASKATCHEWAN 2007

These budgets are to be used as guidelines only.

The actual farm-to-farm variation can be significant.

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For more information:

Irrigation in Saskatchewan website:

www.irrigationsaskatchewan.com

SAF Irrigation Development Branch- - Outlook Office

(306) 867-5500

<http://www.agr.gov.sk.ca>

Canada-Saskatchewan Irrigation Diversification Centre

(306) 867-5400

www.agr.gc.ca/pfra/csfdc/

Irrigation Crop Budget Assumptions

- Saskatchewan Crop Insurance levels are for 70% coverage level.
- Seed costs are taken from the SAF Crop Planning Guides where applicable and also from industry. Refer to Appendix A for more details.
- Seed treatment/inoculation information from dealers and SAF 2007 Guide to Crop Protection
- Fertilizer price from SAF Crop Planning Guide 2007;
 - o Nitrogen based on 46-0-0 at \$500/tonne (\$0.49/lb)
 - o Phosphorus based on 12-51-0 at \$450/tonne (\$0.39/lb)
 - o Potassium based on 0-0-62 at \$290/tonne (\$0.21/lb)
- Herbicide, Insecticide, and Fungicide costs are based on dealer information and costs from SAF 2007. Refer to Appendix A for more details on herbicides.
- Equipment fuel and repair based on SAF Crop Planning Guide numbers for conventionally-tilled grain crops where applicable. Equipment fuel and repair for other crops estimated based on producer experience.
- Custom work and hired labour based on industry information (\$12/hour). Refer to Appendix A for more details on custom work.
- Irrigation pumping costs/power based on 40 hp pump on a 7 tower low pressure pivot with an annual cost of about \$1200 for 130 acres.
- Irrigation repair based on 1.5% of \$90,000 (pivot cost) over 130 acres.
- Irrigation service charge based on 2006 rate for SSRID (base \$17.75, with a water usage adjustment; \$3.50 for 12 inches).
- Crop Insurance based on 2006 rates at 70% for soil class F in Risk Area 12. See 2007 Generic Insurance Cost Calculator at www.saskcropinsurance.com.
- Hail insurance is based on \$150.00/ac coverage at 3.6% premium for crops insured at the basic rate.
- Other is a catch-call category for expenses not covered above. Refer to Appendix A for more details.
- Farm overhead includes property tax, auto expenses, building repairs and insurance, small tools.
- Operating interest is 5.7% for 6 months (changed to match SAF Crop Planning Guide).
- Farm equipment and buildings is an expense based on the payment equivalent of each piece's current value at 5.7% for the given life of the item.
- Irrigation system cost is equal to a payment at current interest rates based on a system value of \$50,000 (50% of new cost \$90,000) over 25 years and 130 acres.
- Special Crop Equipment
 - o General row crop equipment (planter, cultivator, etc.) had 600 acres use annually for 10 years. Specialized bean equipment (undercutter, conveyor) used on 300 acres annually for 10 years.
 - o Pulse Equipment (flex header, roller) used on 600 acres annually for 10 years.
 - o Hay equipment and storage (balers, mowers, shed etc.) used on 500 acres annually for 10 years.
 - o Cross Fencing – 10years use; Permanent Fencing – 15 years use; Water Supply – 15 years use for Grazing Corn and Perennial Pasture.
 - o Potato field equipment (10 year life), storage / handling equipment (10 year life), and storage facility (15 year life) are used on 500 acres.
- Land investment cost based on a return of 4.5% of a quarter of land valued at \$70,000 over 160 acres.
- High, medium and low yields are based on producer experience – they represent good management with fluctuation in environmental conditions and soil productivity.
- Prices based on SAF Crop Planning Guide 2007 where applicable and industry input..

ECONOMICS

CROP: HARD WHEAT

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$10.13	
Seed treatment/inoc			\$5.94	
Fertilizer: N	110	lb	\$44.70	
P	40	lb	\$10.96	
K	10	lb	\$2.12	
Herbicide			\$24.00	
Insecticide *			\$0.00	
Fungicide **			\$0.00	
Equipment fuel			\$13.00	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	43	bu/ac	\$3.07	
Hail insurance			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.97	
TOTAL CASH COSTS			\$179.48	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$249.18	
RETURNS	LO	AV	HI	
YIELD bu/ac	50	65	80	
PRICE \$/bu		\$4.50		
GROSS	\$225	\$293	\$360	
RETURN TO LABOUR & MGT	(\$24)	\$43	\$111	
SPECIALIZED EQUIPMENT			\$/ac/yr	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION:

Prodigy, Superb, and 5602HR; new varieties Infinity and Somerset. Select an irrigated variety on the basis of high yield and good lodging & disease resistance (particularly FHB susceptibility). See 'Crop Varieties for Irrigation' publication.

SEEDING: Seed before May 15th.

Plant population	220 to 270	plants/sq m.
TKW	35.0	grams
Seeding Rate	90.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	20 15 15	30 25 20	40 30 25
Soil - L-CL	30 25 20	40 35 30	50 40 35
Soil - C	35 30 30	50 40 35	60 50 40

For dry seedbed conditions reduce these rates by 50%. 50lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Critical stages for moisture are at tillering (3-5 leaf stage) & at flowering. Prevent lodging by variety selection, reduced seeding rate & by allowing the canopy to dry between irrigations. Maintain soil at >50% available moisture. Aim for 1.5" per week from flag leaf to soft dough. Use a soil probe to check moisture status.

HARVEST:

Swath at a kernel moisture content of 30-40%. The kernel will be firm but will dent easily with the thumbnail. In some years the straw may still be green. Decide on the basis of grain firmness & colour.

HANDLING, STORAGE & GRADING:

Tough 14.6%; damp 17.0%

ROTATIONS AND CROP PROTECTION:

Fungicide seed treatment recommended. Wheat on wheat stubble will yield at least 15% less than wheat on broadleaf stubble due to disease build-up. Break from cereals for one year.

* Wheat midge may require control.

** Leaf Diseases and/or fusarium head blight may require control.

ECONOMICS

CROP: DURUM

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$10.53	
Seed treatment/inoc			\$5.94	
Fertilizer: N	110	lb	\$44.70	
P	40	lb	\$10.96	
K	10	lb	\$2.12	
Herbicide			\$23.50	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.00	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	52	bu/ac	\$4.31	
Hail insurance			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.01	
TOTAL CASH COSTS			\$180.65	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$250.36	
RETURNS	LO	AV	HI	
YIELD	bu/ac	50	70	85
PRICE	\$/bu		\$4.40	
GROSS	\$220	\$308	\$374	
RETURN TO				
LABOUR & MGT	(\$30)	\$58	\$124	
SPECIALIZED EQUIPMENT			\$/ac/yr	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

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AGRONOMICS

VARIETY SELECTION:

Strongfield, Commander, Napoleon, AC Avonlea, Navigator. Select an irrigated variety on the basis of high yield and good lodging & disease resistance. See 'Crop Varieties for Irrigation' publication.

SEEDING: Seed before May 15th.

Plant population	220 to 270	plants/sq m.
TKW	45.0	grams
Seeding Rate	90.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	20 15 15	30 25 20	40 30 25
Soil - L-CL	30 25 20	40 35 30	50 40 35
Soil - C	35 30 30	50 40 35	60 50 40

For dry seedbed conditions reduce these rates by 50%. 50lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Critical stages for moisture are at tillering (3-5 leaf stage) & at flowering. Prevent lodging by variety selection, by reduced seeding rate & by allowing the canopy to dry between irrigations. Maintain soil at >50% available moisture. Aim for 1.5" per week from flag leaf to soft dough. Use a soil probe to check moisture status.

HARVEST:

Swath at a kernel moisture content of 30-40%. The kernel will be firm but will dent easily with the thumbnail. In some years the straw may still be green. Decide on the basis of grain firmness & colour. Durum is more susceptible to weathering & sprouting than hard wheat.

HANDLING, STORAGE & GRADING:

Tough 14.6%;

ROTATIONS AND CROP PROTECTION:

Fungicide seed treatment recommended. Durum is highly susceptible to Fusarium Head Blight, which has become established in many irrigation areas. This disease is limiting irrigated production. Wheat on wheat stubble will yield at least 15% less than wheat on broadleaf stubble due to disease build-up. Break from cereals for one year. Durum can be downgraded due to piebald kernels. Sufficient N reduces the problem.

* Wheat midge may require control.

** Leaf Diseases and/or fusarium head blight may require control.

ECONOMICS

CROP: CPS WHEAT

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$10.80	
Seed treatment/inoc			\$5.94	
Fertilizer: N	110	lb	\$44.70	
P	40	lb	\$10.96	
K	10	lb	\$2.12	
Herbicide			\$24.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.00	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	52	bu/ac	\$3.92	
Hail insurance			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.02	
TOTAL CASH COSTS			\$181.05	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$250.75	
RETURNS	LO	AV	HI	
YIELD bu/ac	65	80	95	
PRICE \$/bu		\$4.00		
GROSS	\$260	\$320	\$380	
RETURN TO				
LABOUR & MGT	\$9	\$69	\$129	
SPECIALIZED EQUIPMENT			\$/ac/yr	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

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AGRONOMICS

VARIETY SELECTION:

Red: AC Crystal, 5701PR. White: AC Vista. Select an irrigated variety on the basis of high yield and good lodging & disease resistance. See 'Crop Varieties for Irrigation' publication.

SEEDING: Seed before May 15th.

Plant population	220 to 270	plants/sq m.
TKW	45.0	grams
Seeding Rate	90.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	20 15 15	30 25 20	40 30 25
Soil - L-CL	30 25 20	40 35 30	50 40 35
Soil - C	35 30 30	50 40 35	60 50 40

For dry seedbed conditions reduce these rates by 50%. 50lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Critical stages for moisture are at tillering (3-5 leaf stage) & at flowering. Prevent lodging by variety selection, by reduced seeding rate & by allowing the canopy to dry between irrigations. Maintain soil at >50% available moisture. Aim for 1.5" per week from flag leaf to soft dough. Use a soil probe to check moisture status.

HARVEST:

Swath at a kernel moisture content of 30-40%. The kernel will be firm but will dent easily with the thumbnail. CPS is more susceptible to weathering & sprouting than hard wheat.

HANDLING, STORAGE & GRADING:

Tough 14.6%; damp 17.0%

ROTATIONS AND CROP PROTECTION:

Fungicide seed treatment recommended. Wheat on wheat stubble will yield at least 15% less than wheat on broadleaf stubble due to disease build-up. Break from cereals for one year. CPS is less susceptible to FHB than durum.

* Wheat midge may require control.

** Leaf Diseases and/or fusarium head blight may require control.

ECONOMICS

CROP: SOFT WHEAT

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$10.80	
Seed treatment/inoc			\$5.94	
Fertilizer: N	110	lb	\$44.70	
P	40	lb	\$10.96	
K	10	lb	\$2.12	
Herbicide			\$24.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.00	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insure	47	bu/ac	\$2.42	
Hail insure			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.97	
TOTAL CASH COSTS			\$179.50	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$249.21	
RETURNS	LO	AV	HI	
YIELD bu/ac	70	85	100	
PRICE \$/bu		\$4.00		
GROSS	\$280	\$340	\$400	
RETURN TO				
LABOUR & MGT	\$31	\$91	\$151	
SPECIALIZED EQUIPMENT			\$/ac/yr	
			\$0.00	
			\$0.00	
			\$0.00	
			\$0.00	
			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

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AGRONOMICS

VARIETY SELECTION:

AC Andrew is a common ethanol feedstock. AC Phil generally has less black point than AC Reed. Select an irrigated variety on the basis of high yield and good lodging & disease resistance. See 'Crop Varieties for Irrigation' publication.

SEEDING: Seed before May 15th.

Plant population	220 to 270	plants/sq m.
TKW	35.0	grams
Seeding Rate	90.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	20 15 15	30 25 20	40 30 25
Soil - L-CL	30 25 20	40 35 30	50 40 35
Soil - C	35 30 30	50 40 35	60 50 40

For dry seedbed conditions reduce these rates by 50%.
50lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Critical stages for moisture are at tillering (3-5 leaf stage) & at flowering. Prevent lodging by variety selection, by reduced seeding rate & by allowing the canopy to dry between irrigations. Maintain soil at >50% available moisture. Aim for 1.5" per week from flag leaf to soft dough. Use a soil probe to check moisture status.

HARVEST:

Swath at a kernel moisture content of 30-40%. The kernel will be firm but will dent easily with the thumbnail. Soft wheat is more susceptible to weathering & sprouting than hard wheat.

HANDLING, STORAGE & GRADING:

Tough 14.6%; damp 17.0%

ROTATIONS AND CROP PROTECTION:

Fungicide seed treatment recommended. Wheat on wheat stubble will yield at least 15% less than wheat on broadleaf stubble due to disease build-up. Break from cereals for one year. Low protein soft wheat production requires a balance between water and nitrogen.

* Wheat midge may require control.

** Leaf Diseases and/or fusarium head blight may require control.

ECONOMICS

CROP: BARLEY

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$8.02	
Seed treatment/inoc			\$5.21	
Fertilizer: N	110	lb	\$44.70	
P	40	lb	\$10.96	
K	10	lb	\$2.12	
Herbicide			\$22.27	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.00	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	59	bu/ac	\$3.94	
Hail insurance			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$5.50	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.02	
TOTAL CASH COSTS			\$181.33	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$251.04	
RETURNS	LO	AV	HI	
YIELD bu/ac	70	90	110	
PRICE \$/bu		\$2.80		
GROSS	\$196	\$252	\$308	
RETURN TO LABOUR & MGT	(\$55)	\$1	\$57	
SPECIALIZED EQUIPMENT			\$/ac/yr	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

Call an Irrigation Agrolgist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION:

AC Rosser, CDC Bold, Xena, CDC Earl. Select an irrigated variety on the basis of high yield and good lodging & disease resistance. See 'Crop Varieties for Irrigation' publication.

SEEDING: Seed before May 15th.

Plant population	220 to 270	plants/sq m.
TKW	35.0	grams
Seeding Rate	80.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	20 15 15	30 25 20	40 30 25
Soil - L-CL	30 25 20	40 35 30	50 40 35
Soil - C	35 30 30	50 40 35	60 50 40

For dry seedbed conditions reduce these rates by 50%. 50lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Critical stages for moisture are at tillering (3-5 leaf stage) & at anthesis. Prevent lodging by variety selection, by reduced seeding rate & by allowing the canopy to dry between irrigations. Maintain soil at >50% available moisture. Aim for 1.5" per week from flag leaf to soft dough. Use a soil probe to check moisture status.

HARVEST:

Swath feed barley at a kernel moisture content of 30-40%. Kernel will be firm but will dent easily with thumbnail. Barley is more susceptible to weathering & sprouting than hard wheat. Swath malting barley at maturity to avoid green kernels in the sample.

HANDLING, STORAGE & GRADING:

Tough 14.9% (oat & rye 14.1%); damp 17.0% Irrigated barley will lodge, select strong strawed varieties.

ROTATIONS AND CROP PROTECTION:

Fungicide seed treatment recommended. Cereal on cereal stubble will yield at least 15% less than wheat on broadleaf stubble due to disease build-up. Break from cereals for one year. Irrigated barley has not been readily accepted for malting due to water staining of the sample. Minimize sprinkler irrigation after anthesis to reduce staining.

ECONOMICS

CROP: CANARY SEED

ITEM	#	UNIT	My Farm	
			\$/ac	\$/ac
Seed			\$8.05	
Seed treatment/inoc			\$0.00	
Fertilizer: N	100	lb	\$40.64	
P	40	lb	\$10.96	
K	0	lb	\$0.00	
Herbicide			\$15.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.00	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	970	lb	\$3.75	
Hail insurance			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.33	
TOTAL CASH COSTS			\$156.31	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$226.02	
RETURNS	LO	AV	HI	
YIELD lb/ac	1300	1600	1900	
PRICE \$/lb		\$0.17		
GROSS	\$221	\$272	\$323	
RETURN TO				
LABOUR & MGT	(\$5)	\$46	\$97	
SPECIALIZED EQUIPMENT			\$/ac/yr	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

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AGRONOMICS

VARIETY SELECTION:

CDC Maria and CDC Togo are hairless varieties with higher yields than Keet. They have not been tested on irrigation.

SEEDING:

Plant population	550.0	plants/sq m.
TKW	7.0	grams
Seeding Rate	35.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	10 5 0	20 15 10	30 20 15
Soil - L-CL	15 10 5	30 20 15	40 30 20
Soil - C	20 15 10	40 30 20	50 40 30

For dry seedbed conditions reduce these rates by 50%. Up to 20lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Maintain soil at >50% available moisture. Aim for 1.5" per week during heading & filling. Use a soil probe to check moisture status.

HARVEST:

Delay cutting until full maturity. Canary seed will not thresh cleanly until the heads are dry. It is resistant to weathering and shattering. Dehulled seed is severely discounted.

HANDLING, STORAGE & GRADING:

Tough 12.0%

ROTATIONS AND CROP PROTECTION:

Volunteer flax is difficult to clean out of canary seed. Canary seed is very sensitive to trifluralin & ethalfluralin residues; leave 2 years after treatment. Do not seed canary seed into ground treated the previous year with Lontrel. Up to 4 years may be required after Tordon or some of the sulphonyl ureas.

ECONOMICS

CROP: CANOLA

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$25.00	
Seed treatment/inoc			\$9.00	
Fertilizer: N	120	lb	\$48.77	
P	40	lb	\$10.96	
K	15	lb	\$3.18	
Herbicide			\$18.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.65	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	12	inches	\$11.08	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.25	
Crop insurance	34	bu	\$5.38	
Hail insurance	6.3%		\$9.45	
Hired labour	0	hr/ac	\$0.00	
Other			\$5.50	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.89	
TOTAL CASH COSTS			\$212.39	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.17	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.87	
TOTAL COSTS			\$282.26	
RETURNS	LO	AV	HI	
YIELD bu/ac	40	50	60	
PRICE \$/bu		\$8.00		
GROSS	\$320	\$400	\$480	
RETURN TO				
LABOUR & MGT	\$38	\$118	\$198	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Sideknife			\$0.17	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.17	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Use the 'Canola Growers Manual' from the Canola Council.

AGRONOMICS

VARIETY SELECTION:

Most hybrids have significantly out-produced open-pollinated canola varieties. Consider which herbicide tolerance technology best fits your farm. Check local dealers for advice and refer to 'Crop Varieties for Irrigation' publication.

SEEDING: Seed before May 15th.

Plant population	120.0	plants/sq m.
TKW	3.0	grams
Seeding Rate	5.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	10 5 0	20 15 10	30 20 15
Soil - L-CL	15 10 5	30 20 15	40 30 20
Soil - C	20 15 10	40 30 20	50 40 30

For dry seedbed conditions reduce these rates by 50%. Up to 20lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Maintain soil at >50% available moisture throughout the season. Reduce lodging & disease by reducing seeding rates, by allowing the canopy to dry between irrigations & by variety selection. Aim for 1.5" per week through late June & all July. Use a soil probe to check moisture status.

HARVEST:

Swath when 30 - 40% of seeds in pods on the main stem have changed colour. Earlier swathing will not increase green seed but will reduce seed size & yield. Green seed is caused by extreme heat or cold while the crop is in the swath. Irrigated canola can be a challenge to swath, start early.

HANDLING, STORAGE & GRADING:

Tough 10.1%; Damp 12.5%

ROTATIONS AND CROP PROTECTION:

See Chapter 10 of the Canola Growers Manual. 4 years between canola & canola, mustard, pulses or sunflower. A fungicide application for Sclerotinia control may be required. Application of an insecticide may be required to control Bertha Armyworm and Diamondback Moth. Do not seed canola the year after Pursuit, Ally, Amber or Tordon.

ECONOMICS

CROP: BROWN/ORIENTAL MUSTARD

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$11.00	
Seed treatment/inoc			\$0.00	
Fertilizer: N	120	lb	\$48.77	
P	40	lb	\$10.96	
K	15	lb	\$3.18	
Herbicide			\$10.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.65	
Equipment repair			\$4.32	
Custom work			\$0.00	
Irrigation power	12	inches	\$11.08	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.25	
Crop insurance	24	bu	\$6.39	
Hail insurance	7.2%		\$10.80	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.87	
TOTAL CASH COSTS			\$175.86	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.17	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.87	
TOTAL COSTS			\$245.73	
RETURNS				
YIELD bu/ac	35	40	45	
PRICE \$/bu		\$8.50		
GROSS	\$298	\$340	\$383	
RETURN TO LABOUR & MGT	\$52	\$94	\$137	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Sideknife			\$0.17	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.17	

MORE INFORMATION:

Call an Irrigation Agriologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION:

Brown: Duchess, commercial. Oriental: Cutlass, Forge, AC Vulcan.

SEEDING:

Plant population	120.0	plants/sq m.
TKW	3.0	grams
Seeding Rate	10.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	10 5 0	20 15 10	30 20 15
Soil - L-CL	15 10 5	30 20 15	40 30 20
Soil - C	20 15 10	40 30 20	50 40 30

For dry seedbed conditions reduce these rates by 50%. Up to 20lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Maintain soil at >50% available moisture throughout the season. Reduce lodging & disease by reducing seeding rates, by allowing the canopy to dry between irrigations & by variety selection. Aim for 1.5" per week through late June & all July. Use a soil probe to check moisture status. Mustard is sensitive to over irrigation.

HARVEST:

Swath when seed moisture content is 25% & the seeds are firm. Brown; 60% of seeds are reddish brown. Oriental; 75% of seeds are yellow. Immature, green seeds will not turn colour in the swath.

HANDLING, STORAGE & GRADING:

Tough 9.6%; damp 12.5%

ROTATIONS AND CROP PROTECTION:

4 years between mustard & mustard, canola, pulses or sunflower. Do not seed mustard the year after Pursuit, Ally, Amber or Tordon.

ECONOMICS

CROP: YELLOW MUSTARD

ITEM	#	UNIT	\$/ac	My Farm \$/ac		
Seed			\$7.00			
Seed treatment/inoc			\$0.00			
Fertilizer: N	100	lb	\$40.64			
P	40	lb	\$10.96			
K	15	lb	\$3.18			
Herbicide			\$10.00			
Insecticide			\$0.00			
Fungicide			\$0.00			
Equipment fuel			\$13.65			
Equipment repair			\$4.32			
Custom work			\$0.00			
Irrigation power	10	inches	\$9.23			
Irrigation repair			\$10.38			
Irrigation service/water charge			\$20.67			
Crop insurance	20	bu	\$5.63			
Hail insurance	7.2%		\$10.80			
Hired labour	0	hr/ac	\$0.00			
Other			\$0.00			
Farm overhead			\$9.20			
Operating int	5.7	%	\$4.44			
TOTAL CASH COSTS			\$160.10			
Farm Equipment & Buildings			\$23.71			
Irrigation System			\$26.31			
Specialized Equipment			\$0.17			
Land			\$19.68			
TOTAL NON CASH COSTS			\$69.87			
TOTAL COSTS			\$229.97			
RETURNS						
YIELD bu/ac	25	LO	30	AV	35	HI
PRICE \$/bu			\$11.20			
GROSS	\$280		\$336		\$392	
RETURN TO						
LABOUR & MGT	\$50		\$106		\$162	
SPECIALIZED EQUIPMENT			\$/ac/yr			
Sideknife			\$0.17			
0			\$0.00			
0			\$0.00			
0			\$0.00			
0			\$0.00			
0			\$0.00			
0			\$0.00			
TOTAL			\$0.17			

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION:

Andante, Ace, AC Pennant, AC Base.

SEEDING:

Plant population	120.0	plants/sq m.
TKW	3.5	grams
Seeding Rate	10.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	10 5 0	20 15 10	30 20 15
Soil - L-CL	15 10 5	30 20 15	40 30 20
Soil - C	20 15 10	40 30 20	50 40 30

For dry seedbed conditions reduce these rates by 50%. Up to 20lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Maintain soil at >50% available moisture throughout the season. Reduce lodging & disease by reducing seeding rates, by allowing the canopy to dry between irrigations & by variety selection. Aim for 1.5" per week through late June & all July. Use a soil probe to check moisture status. Mustard is sensitive to over irrigation.

HARVEST:

Straight cut when 100% of seeds are yellow. Moisture content should be below 13%. Watch for seed cracking.

HANDLING, STORAGE & GRADING:

Tough 9.6%; damp 12.5%

ROTATIONS AND CROP PROTECTION:

4 years between mustard & mustard, canola, pulses or sunflower. Do not seed mustard the year after Pursuit, Ally, Amber or Tordon.

ECONOMICS

CROP: FLAX

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$6.80	
Seed treatment/inoc			\$2.00	
Fertilizer: N	100	lb	\$40.64	
P	40	lb	\$10.96	
K	0	lb	\$0.00	
Herbicide			\$26.03	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$14.30	
Equipment repair			\$7.60	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	24	bu	\$6.59	
Hail insurance			\$5.40	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.84	
TOTAL CASH COSTS			\$174.64	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.17	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.87	
TOTAL COSTS			\$244.51	
RETURNS	LO	AV	HI	
YIELD bu/ac	30	40	45	
PRICE \$/bu		\$6.25		
GROSS	\$188	\$250	\$281	
RETURN TO				
LABOUR & MGT	(\$57)	\$5	\$37	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Sideknife			\$0.17	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.17	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION:

Flax: Prairie Thunder, CDC Bethune, Prairie Blue. Solin: 2047, 2090.

SEEDING:

Plant population	500.0	plants/sq m.
TKW	5.0	grams
Seeding Rate	40.0	lb/ac

Late seeded flax will grow taller & tend to lodge. Early May seeding produces a 20% yield advantage over late May.

FERTILIZATION: Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife			Hoe			Sweep		
	6"	9"	12"	6"	9"	12"	6"	9"	12"
Soil - SL	10	5	0	20	15	10	30	20	15
Soil - L-CL	15	10	5	30	20	15	40	30	20
Soil - C	20	15	10	40	30	20	50	40	30

For dry seedbed conditions reduce these rates by 50%.

Up to 20lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Minimal irrigation required until flowering. Use a soil probe to check moisture status. Reduce lodging by variety selection, by early seeding, by reducing seeding rates & by allowing the canopy to dry between irrigations. Aim for 1.5" per week through flowering & early boll filling.

HARVEST:

Swath or desiccate when 75% of bolls have turned brown. If regrowth occurs, swath when the greatest amount of ripe seed can be obtained. Immature seed will blacken from a 3-5 degree frost. Early swathing will reduce seed size, but will not cause blackening.

HANDLING, STORAGE & GRADING:

Tough 10.1%; damp 13.5%

ROTATIONS AND CROP PROTECTION:

3 years between flax & flax. 5 years between flax & Solin flax (yellow seeded edible oil varieties). Do not seed flax the year following treatment with Ally or Amber. Flax is a good "break crop" as it is not susceptible to many of the diseases of oilseed, cereal or pulse crops.

ECONOMICS

CROP: PEA

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$19.80	
Seed treatment/inoc			\$3.60	
Fertilizer: N	8	lb	\$3.25	
P	40	lb	\$10.96	
K	15	lb	\$3.18	
Herbicide			\$26.70	
Insecticide			\$0.00	
Fungicide (<i>Headline</i>)			\$16.50	
Equipment fuel			\$14.30	
Equipment repair			\$9.00	
Custom work			\$0.00	
Irrigation power	8	inches	\$7.38	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.08	
Crop insurance	32	bu	\$3.84	
Hail insurance	7.2%		\$10.80	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.82	
TOTAL CASH COSTS			\$173.81	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$8.56	
Land			\$19.68	
TOTAL NON CASH COSTS			\$78.26	
TOTAL COSTS			\$252.07	
RETURNS	LO	AV	HI	
YIELD bu/ac	45	55	65	
PRICE \$/bu		\$4.35		
GROSS	\$196	\$239	\$283	
RETURN TO LABOUR & MGT	(\$56)	(\$13)	\$31	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Flex Header			\$5.01	
Land roller			\$3.54	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$8.56	

MORE INFORMATION:

Call an Irrigation Agrolologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

[See Assumptions.](#)

AGRONOMICS

VARIETY SELECTION:

Green: Cooper, SW Parade. Yellow: SW Cabot, CDC Meadow, Tudor. Semi-leafless, lodging resistant varieties are recommended for irrigation. See 'Crop Varieties for Irrigation' publication.

SEEDING: Seed in late Apr/early May. Roll after seeding.

Plant population	60.0	plants/sq m.
TKW	210.0	grams
Seeding Rate	180.0	lb/ac

TKW is variety specific, see SAF Variety of Grain Crops, & adjust seeding rate accordingly. Test seed for disease.

FERTILIZATION:

Nitrogen: inoculate with the correct strain of Rhizobium. In an N deficient soil, especially during cool weather, a 30 lb/ac N application may be beneficial. P rates: 20-50 lb/ac. Up to 15 lb/ac with the seed.

IRRIGATION:

Minimal irrigation until flowering. Aim for 1.5" per week through flowering & early filling. Reduce lodging & disease by variety selection, by reduced seeding rates & by allowing the canopy to dry between irrigations. Use a soil probe to check moist

HARVEST:

Swath directly ahead of the combine or straight cut when the peas are mature. 75-90% of the pods are tan coloured. Use a flex header, pick-up reel & vine lifters. Combine at 16-18% moisture & aerate, to prevent seed damage.

HANDLING, STORAGE & GRADING:

Tough 16.1%; damp 18.0%

ROTATIONS AND CROP PROTECTION:

4 years between pea & pea, pulses, canola, mustard or sunflower. Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon.

ECONOMICS

CROP: FABABEAN

				My Farm	
ITEM	#	UNIT	\$/ac	\$/ac	
Seed			\$37.80		
Seed treatment/inoc			\$2.56		
Fertilizer: N	11	lb	\$4.47		
P	50	lb	\$13.70		
K	15	lb	\$3.18		
Herbicide			\$46.00		
Insecticide			\$0.00		
Fungicide			\$0.00		
Equipment fuel			\$14.30		
Equipment repair			\$7.60		
Custom work			\$0.00		
Irrigation power	12	inches	\$11.08		
Irrigation repair			\$10.38		
Irrigation service/water charge			\$21.25		
Crop insurance 1984	lb		\$4.52		
Hail insurance			\$10.80		
Hired labour	0	hr/ac	\$0.00		
Other			\$0.00		
Farm overhead			\$9.20		
Operating int	5.7	%	\$5.61		
TOTAL CASH COSTS			\$202.46		
Farm Equipment & Buildings			\$23.71		
Irrigation System			\$26.31		
Specialized Equipment			\$0.17		
Land			\$19.68		
TOTAL NON CASH COSTS			\$69.87		
TOTAL COSTS			\$272.33		
RETURNS	LO	AV	HI		
YIELD lb/ac	2500	3000	3500		
PRICE \$/lb		\$0.09			
GROSS	\$225	\$270	\$315		
RETURN TO					
LABOUR & MGT	(\$47)	(\$2)	\$43		
SPECIALIZED EQUIPMENT			\$/ac/yr		
Sideknife			\$0.17		
0			\$0.00		
0			\$0.00		
0			\$0.00		
0			\$0.00		
TOTAL			\$0.17		

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Use The Pulse Production Manual from The Sask Pulse Growers Assoc.

[See Assumptions.](#)

AGRONOMICS

VARIETY SELECTION:

CDC Fatima combines combines early maturity and shorter height with high yield potential. It's large seed size is preferred in some markets. See 'Crop Varieties for Irrigation' publication.

SEEDING:

Plant population	20.0	plants/sq m.
TKW	440.0	grams
Seeding Rate	180.0	lb/ac

Faba bean is late maturing, and should be sown early for best results.

FERTILIZATION:

Nitrogen: inoculate with the correct strain of Rhizobium. In an N deficient soil, especially during cool weather, a 30 lb/ac N application may be beneficial. P rates: 20-50 lb/ac. Up to 40 lb/ac with the seed.

IRRIGATION:

Maintain good soil moisture through the growing season. Reduce lodging & disease by reduced seeding rates & by allowing the canopy to dry between irrigations. Use a soil probe to check moisture status.

HARVEST:

Swath when 25% of plants have lower pods turning black, or Sept 7th. whichever occurs first. Lay down a light swath as swaths take a long time to dry. Combine at 16-18% moisture & aerate to prevent seed damage. Early swathing will reduce seed size but not quality. Frost on immature seed will reduce quality.

HANDLING, STORAGE & GRADING:

Tough 16.1%; damp 18.0%

ROTATIONS AND CROP PROTECTION:

2 years between Fababean & Fababean, canola, mustard, sunflower or pulses. Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon. Residues may persist up to 4 years. Fababean is a good "break crop" as it is less susceptible to disease than other pulses. Chocolate spot can be a problem. Try to keep the canopy dry between irrigations to control the spread of disease.

ECONOMICS

CROP: LENTIL

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$9.00	
Seed treatment/inoc			\$3.60	
Fertilizer: N	8	lb	\$3.25	
	P	40 lb	\$10.96	
	K	15 lb	\$3.18	
Herbicide			\$38.00	
Insecticide			\$0.00	
Fungicide (<i>Headline</i>)			\$16.50	
Equipment fuel			\$14.30	
Equipment repair			\$9.00	
Custom work			\$0.00	
Irrigation power	8	inches	\$7.38	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.08	
Crop insurance	1325	lb	\$8.88	
Hail insurance	7.2%		\$10.80	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.97	
TOTAL CASH COSTS			\$179.50	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$8.56	
Land			\$19.68	
TOTAL NON CASH COSTS			\$78.26	
TOTAL COSTS			\$257.77	
RETURNS	LO	AV	HI	
YIELD lb/ac	1400	1800	2200	
PRICE \$/lb		\$0.16		
GROSS	\$224	\$288	\$352	
RETURN TO				
LABOUR & MGT	(\$34)	\$30	\$94	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Flex Header			\$5.01	
Land roller			\$3.54	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$8.56	

MORE INFORMATION:

Call an Irrigation Agrolgist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Use The Pulse Production Manual from The Sask Pulse Growers Assoc.

[See Assumptions.](#)

AGRONOMICS

VARIETY SELECTION:

Red lentils are recommended. Small green may also give good results. Large Green tend to grow vegetatively under irrigation.

SEEDING: Seed in late April to early May. Roll after seeding.

Plant population	100.0	plants/sq m.
TKW	35.0	grams
Seeding Rate	45.0	lb/ac

FERTILIZATION:

Nitrogen: inoculate with the correct strain of Rhizobium. In an N deficient soil, especially during cool weather, a 30 lb/ac N application may be beneficial. Phospate:: 20-50 lb/ac. Up to 15 lb/ac with the seed.

IRRIGATION:

Minimal irrigation until flowering. Aim for 1.5" per week during flowering & early filling. Reduce lodging & disease by variety selection, by reduced seeding rates & by allowing the canopy to dry between irrigations. Use a soil probe to check moisture status.

HARVEST:

Desiccate when lower pods are tan & seeds rattle. Lentil matures in patches & some shatter loss will occur. Combine at 18% moisture & aerate to prevent seed damage. Straight cut with a flex header.

HANDLING, STORAGE & GRADING:

Tough 14.1%; damp 16.0%

ROTATIONS AND CROP PROTECTION:

4 years between lentil & lentil, pulses, canola, mustard or sunflower. Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon. Residues may persist up to 4 years. Control the spread of disease by fungicide application & by allowing the canopy to dry between irrigations.

ECONOMICS

CROP: DRY BEAN

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$35.25	
Seed treatment/inoc			\$9.76	
Fertilizer: N	45	lb	\$18.29	
P	40	lb	\$10.96	
K	0	lb	\$0.00	
Herbicide			\$46.78	
Insecticide			\$0.00	
Fungicide			\$45.16	
Equipment fuel			\$15.60	
Equipment repair			\$9.00	
Custom work			\$0.00	
Irrigation power	8	inches	\$7.38	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.08	
Crop insurance	1700	lb	\$13.06	
Hail insurance	7.2%		\$10.80	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$7.46	
TOTAL CASH COSTS			\$269.17	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$27.91	
Land			\$19.68	
TOTAL NON CASH COSTS			\$97.62	
TOTAL COSTS			\$366.79	
RETURNS	LO	AV	HI	
YIELD lb/ac	2000	2500	3000	
PRICE \$/lb		\$0.24		
GROSS	\$480	\$600	\$720	
RETURN TO LABOUR & MGT	\$113	\$233	\$353	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Planter			\$6.69	
Row Crop Cultivator			\$1.34	
Band Sprayer			\$1.50	
Undercutter/windrower			\$11.70	
Tractor accessories - 3Pt hitch			\$3.34	
10" tube belt conveyor			\$3.34	
0			\$0.00	
TOTAL			\$27.91	

MORE INFORMATION:

Call an Irrigation Agriologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Use The Pulse Production Manual from The Sask Pulse Growers Assoc.

AGRONOMICS

VARIETY SELECTION:

Winchester, AC Redbond. Choose an irrigated variety based on yield, maturity and plant structure. Newer varieties have less days to maturity than Othello. Refer to CSIDC's 'Crop Varieties for Irrigation' publication.

SEEDING: Seed after the danger of frost: May 20-25th.

Plant population	25.0	plants/sq m.
TKW	345.0	grams
Seeding Rate	75.0	lb/ac

Seed weights vary with each market class and seed lot. See 'Crop Varieties for Irrigation' for averages. Row crop equipment is required.

FERTILIZATION:

Nitrogen: inoculate with the correct strain of Rhizobium. An application of 40-60 lb/ac N is beneficial. Phosphate: 20-50 lb/ac. Up to 15 lb/ac with the seed. Many bean producers apply Zinc at 5lb/ac for a cost of \$15/ac; follow soil test recommendations.

IRRIGATION:

Minimal irrigation until flowering. Aim for 1.5" per week during flowering & early filling. Reduce lodging & disease by allowing the canopy to dry between irrigations. Use a soil probe to check moisture status.

HARVEST:

Undercut when 40% of pods are buckskin colour & leaves are still attached. Combine without windrowing to avoid wind damage. Combine, using a sund-type pick-up, at 14-16% moisture to avoid seed damage. Handle beans gently, use conveyors & bean ladders.

HANDLING, STORAGE & GRADING:

Tough 15.5%; damp 18.0%

ROTATIONS AND CROP PROTECTION:

Reduce White Mold (sclerotinia) incidence by using a proper crop rotation, choosing a less susceptible variety like Winchester, and treating at the appropriate stage with Lance. Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon. Residues may persist up to 4 years. Using a band sprayer can reduce the cost of herbicide application by 50%.

ECONOMICS

AGRONOMICS

CROP: CORN GRAZING

My Farm

ITEM	#	UNIT	\$/ac	\$/ac
Pasture acres	65			
# of cattle	200			
Consumption/day	20 lbs	dry matter		
Dry matter (DM)	30%	per ton		
Seed			\$42.90	
Seed treatment/inoc			\$7.00	
Fertilizer: N	120	lb	\$48.77	
	P 45	lb	\$12.33	
	K 10	lb	\$2.12	
Herbicide			\$18.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$6.50	
Equipment repair			\$4.00	
Custom work			\$0.00	
Irrigation power	12	inches	\$11.08	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.25	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.52	
TOTAL CASH COSTS			\$199.05	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$16.68	
Land			\$19.68	
TOTAL NON CASH COSTS			\$86.39	
TOTAL COSTS			\$285.44	
Costs				
	LO	AV	HI	
DM in lbs *	5760	7680	9600	
Cow days/ac	288	384	480	
Cost \$/ac		\$285.44		
Cost/Hd/day	\$0.99	\$0.74	\$0.59	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Planter			\$6.69	
Row Crop Cultivator			\$1.34	
Band Sprayer			\$1.50	
Cross Fencing			\$1.08	
Permanent Fencing			\$2.99	
Water Supply			\$3.09	
0			\$0.00	
TOTAL			\$16.68	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

Corn grazing is relatively new under irrigation. Use feed ration program and feed tests to balance ration with supplements.

VARIETY SELECTION

Refer to the Saskatchewan Forage Crop Production Guide and your local dealer. Consider which herbicide tolerance technology best fits your operation.

SEEDING:

Plant population	6.5	plants/sq m.
TKW	<i>variable</i>	grams
Seeding Rate	30,000	1000 seeds/ac

Custom seeding costs \$15 to \$20 per acre.

FERTILIZATION:

Side band up to 75 lb/ac actual N, 2" to the side & 1" below. Side dress the balance before corn reaches 6". Nitrogen: 100-180 lb/ac. Phosphate: 20-50 lb/ac. Potassium: sideband if required.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Aim for 1.5" per week through silking, tasseling & early filling. Use a soil probe to check moisture status.

ROTATIONS AND CROP PROTECTION:

Specialized equipment is required for seeding, but can be hired custom. Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon. Trifluralin residues can stunt corn.

GRAZING MANAGEMENT:

With grazing corn, pregnant beef cows receive an adequately maintained diet and, with good management, gain body condition throughout December and January. First, the cows will immediately take all the cobs off the corn stalks. The cob material averages 80 per cent TDN and 10.5 per cent CP. What remains are stalks and stover - average 54% TDN, <7% crude protein. Modern electric fence systems favour smaller paddocks that can be grazed in two or three days. **Conventional herd wintering costs average \$1.25 per cow day.**

* Based on 80% utilization.

ECONOMICS

AGRONOMICS

CROP: CORN SILAGE

VARIETY SELECTION

Consult your local dealer. RR and Liberty Link varieties are now available with reduced CHU requirements.

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$42.90	
Seed treatment/inoc			\$7.00	
Fertilizer: N	120	lb	\$48.77	
P	45	lb	\$12.33	
K	10	lb	\$2.12	
Herbicide			\$18.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$6.50	
Equipment repair			\$4.00	
Custom work			\$0.00	
Irrigation power	12	inches	\$11.08	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.25	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.52	
TOTAL CASH COSTS			\$199.05	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$12.87	
Land			\$19.68	
TOTAL NON CASH COSTS			\$82.57	
Cust Silage Cost \$/ac	132	176	220	
TOTAL COSTS	\$414	\$458	\$502	
RETURNS	LO	AV	HI	
YIELD t/ac	12	16	20	
PRICE \$/t *		\$34.00		
GROSS	\$408	\$544	\$680	
RETURN TO LABOUR & MGT	(\$6)	\$86	\$178	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Planter			\$6.69	
Row Crop Cultivator			\$1.34	
Band Sprayer			\$1.50	
Tractor accessories - 3Pt hitch			\$3.34	
TOTAL			\$12.87	

SEEDING:

Plant population	6.5	plants/sq m.
TKW	<i>variable</i>	grams
Seeding Rate	30,000	seeds/ac

FERTILIZATION:

Side band up to 75 lb/ac actual N, 2" to the side & 1" below. Side dress the balance before corn reaches 6". Nitrogen: 100-180 lb/ac. Phosphate: 20-50 lb/ac. Potassium: sideband if required.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Aim for 1.5" per week through silking, tasseling & early filling. Use a soil probe to check moisture status.

HARVEST:

Cut at hard dough to early glaze stage. Moisture content will be about 65 - 70%. Corn silage price is for silage already in the pit. Price (adjusted to 65% moisture) based on the corn price times 10. Custom silage harvest - \$11/t for under 3.5 mile haul.

* Value very dependent on location and market need.

HANDLING, STORAGE & GRADING:

See SAF Silage Manual for details on optimizing silage post-harvest operations and utilization.

ROTATIONS AND CROP PROTECTION:

Specialized equipment is required for seeding, but can be hired custom. Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon. Trifluralin residues can stunt corn.

MORE INFORMATION:

Call an Irrigation Agrolgist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

ECONOMICS

CROP: BARLEY SILAGE

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$12.02	
Seed treatment/inoc			\$0.00	
Fertilizer: N	100	lb	\$40.64	
P	40	lb	\$10.96	
K	0	lb	\$0.00	
Herbicide			\$22.27	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$5.20	
Equipment repair			\$3.00	
Custom work			\$0.00	
Irrigation power	10	inches	\$17.75	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	0	hr/ac	\$0.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.33	
TOTAL CASH COSTS			\$156.43	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
Cust Silage \$/ac	110	143	176	
TOTAL COSTS	\$336	\$369	\$402	
RETURNS	LO	AV	HI	
YIELD t/ac	10	13	16	
PRICE \$/t		\$30.00		
GROSS	\$300	\$390	\$480	
RETURN TO				
LABOUR & MGT	(\$36)	\$21	\$78	
SPECIALIZED EQUIPMENT			\$/ac/yr	
TOTAL			\$0.00	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION

Choose variety based on DM yield and resistance to disease and lodging. A six-row barley with smooth awns such as AC Rosser is recommended. Barley, CPS wheat & Triticale are all commonly used in cereal silage.

SEEDING:

Plant population	275.0	plants/sq m.
TKW	35.0	grams
Seeding Rate	120.0	lb/ac

FERTILIZATION:

Rates for seed placed 46-0-0 in lb/ac actual N:

Soil Type	Knife	Hoe	Sweep
Row Spacing	6" 9" 12"	6" 9" 12"	6" 9" 12"
Soil - SL	20 15 15	30 25 20	40 30 25
Soil - L-CL	30 25 20	40 35 30	50 40 35
Soil - C	35 30 30	50 40 35	60 50 40

For 34-0-0 increase these rates by 25%. For dry seedbed conditions reduce these rates by 50%. 50lb/ac of actual phosphate can be applied with the seed.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Reduce lodging by variety selection & by allowing the canopy to dry between irrigations.

HARVEST:

Cut Barley and CPS at soft dough stage. Moisture content 60 - 65%. Barley silage is priced in the pit at 60% moisture at the feed barley price x 10. Custom silage harvest - \$11/t for under 3.5 mile haul.

* Value very dependent on location and market need.

HANDLING, STORAGE & GRADING:

See SAF Silage Manual for details on optimizing silage post-harvest operations and utilization.

ROTATIONS AND CROP PROTECTION:

Fungicide seed treatment recommended. Cereal on cereal will yield at least 15% less than cereal on broadleaf stubble, including silaged cereals. Break from cereal for one year to get higher yields and reduce disease build-up. Spot & net blotch can be severe in irrigated barley.

ECONOMICS

CROP: SEEDLING ALFALFA
(NO COVER CROP)

My Farm

ITEM	#	UNIT	\$/ac	\$/ac
Seed (c/w inoculant)			\$35.00	
Seed treatment			\$0.00	
Fertilizer: N	11	lb	\$4.47	
P	50	lb	\$13.70	
K	15	lb	\$3.18	
Herbicide			\$3.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$11.70	
Equipment repair			\$4.32	
Custom work			\$0.00	
Irrigation power	10	inches	\$9.23	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$20.67	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	0	hr/ac	\$0.00	
Other			\$3.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$3.64	
TOTAL CASH COSTS			\$131.50	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$13.35	
Land			\$19.68	
TOTAL NON CASH COSTS			\$83.05	
TOTAL COSTS			\$214.55	
RETURNS				
	LO	AV	HI	
YIELD t/ac	1.5	2.5	3.0	
PRICE \$/t		\$50.00		
GROSS	\$75	\$125	\$150	
RETURN TO				
LABOUR & MGT	(\$140)	(\$90)	(\$65)	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Mower/condition			\$4.15	
Round Baler			\$6.60	
Bale Mover			\$2.60	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$13.35	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION

Refer to the 'Crop Varieties for Irrigation' publication produced by CSIDC.

SEEDING:

Plant population	450	plants/sq m.
TKW	200,000	seeds/lb
Seeding Rate	10	lb/ac

FERTILIZATION:

Nitrogen: inoculate with the correct strain of Rhizobium. Use the sticker method, refer to the Saskatchewan Forage Crop Production Guide. P rate: 20 - 50 lb/ac. Up to 15 lb/ac with the seed.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Early moisture use is low, but ensure the small seedlings do not dry out. Once the crop is 6" tall, moisture use increases rapidly. Use a soil probe to check moisture status. Irrigate 4 - 6" after cutting for fall regrowth.

HARVEST:

Cut at 25% bloom, mid-late July for a single cut of hay in establishment year.

HANDLING, STORAGE & GRADING:

% Moisture limits to prevent spoilage: small square bale - 18%; round soft core - 17%; round hard core - 16%; large square bale - 14%.

ROTATIONS AND CROP PROTECTION:

Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon.

ECONOMICS

CROP: ESTABLISHED ALFALFA
2-Cut Harvest

ITEM	#	UNIT	My Farm	
			\$/ac	\$/ac
Seed			\$0.00	
Seed treatment/inoc			\$0.00	
Fertilizer: N	11	lb	\$4.47	
P	50	lb	\$13.70	
K	15	lb	\$3.18	
Herbicide			\$0.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$9.75	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	14	inches	\$12.92	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.83	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	1	hr/ac	\$12.00	
Other			\$5.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$3.08	
TOTAL CASH COSTS			\$111.23	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$13.35	
Alfalfa Est'ment (5 yr prod.)			\$17.91	
Land			\$19.68	
TOTAL NON CASH COSTS			\$100.96	
TOTAL COSTS			\$212.19	
RETURNS	LO	AV	HI	
YIELD t/ac	3.5	4.5	5.5	
PRICE \$/t		\$60.00		
GROSS	\$210	\$270	\$330	
RETURN TO				
LABOUR & MGT	(\$2)	\$58	\$118	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Mower/condition			\$4.15	
Round Baler			\$6.60	
Bale Mover			\$2.60	
0			\$0.00	
0			\$0.00	
TOTAL			\$13.35	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

Seedling year costs (p. 19) over 5 years of production included in budget.

FERTILIZATION:

N rate: none if properly inoculated. P rate: Broadcast a minimum of 50 lb/ac annually, in April or right after the bales are hauled from any cut.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Irrigate immediately after hauling bales from any cut. Use a soil probe to check moisture status. Once alfalfa is over 6" tall, most centre pivots can barely keep up with alfalfa moisture use. Irrigate to give at least 12" regrowth before freeze up.

HARVEST:

For good quality alfalfa, cut at 10% flower. First cut late June or early July; Second cut completed by Aug 15. Delaying a cut will set back the dates of subsequent cuts & increase the chance of winter injury. Alfalfa hay should have >18% protein.

HANDLING, STORAGE & GRADING:

Hay moisture limits to prevent spoilage: small square bale - 18%; round soft core - 17%; round hard core - 16%; large square - 14%. Storing for quality is just as important as harvesting for quality. Consider hay sheds which are the most satisfactory and economical type of hay storage. Total cost is \$3-\$4 per tonne. Returns with a hay shed are estimated at \$10-\$50 per tonne.

ROTATIONS AND CROP PROTECTION:

Aim for at least 6" regrowth before freeze up.

ECONOMICS

CROP: ESTABLISHED ALFALFA
3-Cut Harvest

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$0.00	
Seed treatment/inoc			\$0.00	
Fertilizer: N	11	lb	\$4.47	
P	50	lb	\$13.70	
K	15	lb	\$3.18	
Herbicide			\$0.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$14.63	
Equipment repair			\$8.55	
Custom work			\$0.00	
Irrigation power	14	inches	\$12.92	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.83	
Crop insurance	0	bu	\$0.00	
Hail insurance			\$0.00	
Hired labour	1.25	hr/ac	\$15.00	
Other			\$10.50	
Farm overhead			\$9.20	
Operating int	5.7	%	\$3.54	
TOTAL CASH COSTS			\$127.92	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$13.35	
Alfalfa Est'ment (4 yr prod.)			\$22.39	
Land			\$19.68	
TOTAL NON CASH COSTS			\$105.44	
TOTAL COSTS			\$233.36	
RETURNS	LO	AV	HI	
YIELD ton/ac	3.5	4.5	5.5	
PRICE \$/ton		\$80.00		
GROSS	\$280	\$360	\$440	
RETURN TO				
LABOUR & MGT	\$47	\$127	\$207	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Mower/condition			\$4.15	
Round Baler			\$6.60	
Bale Mover			\$2.60	
0			\$0.00	
0			\$0.00	
TOTAL			\$13.35	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

Seedling year costs (p. 19) over 4 years of production included in budget.

FERTILIZATION:

N rate: none if properly inoculated. P rate: Broadcast a minimum of 50 lb/ac annually, in April or right after the bales are hauled from any cut.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Irrigate immediately after hauling bales from any cut. Use a soil probe to check moisture status. Once alfalfa is over 6" tall, most centre pivots can barely keep up with alfalfa moisture use. Irrigate to give at least 6" regrowth before freeze up.

HARVEST:

For very good quality, high protein dairy alfalfa, cut at first flower. First cut should be completed by 3rd week in June. Delaying a cut will set back the dates of subsequent cuts & increase the chance of winter injury. Alfalfa hay should have >18% protein.

HANDLING, STORAGE & GRADING:

Hay moisture limits to prevent spoilage: small square bale - 18%; round soft core - 17%; round hard core - 16%; large square - 14%. Storing for quality is just as important as harvesting for quality. Consider hay sheds which are the most satisfactory and economical type of hay storage. Total cost is \$3-\$4 per tonne. Returns with a hay shed are estimated at \$10-\$50 per tonne.

ROTATIONS AND CROP PROTECTION:

Aim for at least 6" regrowth before freeze up.

ECONOMICS

CROP: ESTABLISHED TIMOTHY

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Fertilizer: N	170	lb	\$69.08	
	P	60	lb	\$16.44
	K	50	lb	\$10.61
Herbicide			\$16.10	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$15.60	
Equipment repair			\$8.55	
Custom work			\$0.00	
Irrigation power	16	inches	\$14.77	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$22.42	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	3	hr/ac	\$36.00	
Other			\$6.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$6.70	
TOTAL CASH COSTS			\$241.86	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$56.25	
Land			\$19.68	
TOTAL NON CASH COSTS			\$125.95	
TOTAL COSTS			\$367.81	
RETURNS	LO	AV	HI	
YIELD t/ac	2.5	3.5	4.5	
PRICE \$/t		\$125		
GROSS	\$313	\$438	\$563	
RETURN TO LABOUR & MGT	(\$55)	\$70	\$195	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Mower/condition			\$4.15	
Big square baler			\$30.09	
Bale Mover			\$2.60	
Swath inverter			\$2.01	
Storage shed			\$17.41	
0			\$0.00	
0			\$0.00	
TOTAL			\$56.25	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION:

Discuss with your local dealer and other producers. Refer to CSIDC's 'Crop Varieties for Irrigation' publication.

SEEDING:

Plant population	200	plants/sq m.
TKW	0	seeds/lb
Seeding Rate	10	lb/ac
Seeding Cost	\$6.80	\$/ac

Seed in the fall (late Aug-early Sept) after a burn off with Glyphosate. Plan ahead to be able to seed late August. Perennial weed control is critical. Seed into a firm seedbed with on-row packing or seed directly into stubble. Irrigate to ensure good stand establishment.

FERTILIZATION:

Every tonne of Timothy uses 35lb N; 10lb. P; 40lb K. Max of 15lb/ac phosphate with the seed in good moisture conditions. Apply 50-100lb/ac phosphate prior to seeding. Apply at least 50lb/ac N per cut.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Irrigate immediately after hauling bales from any cut. Use a soil probe to check moisture status. Established Timothy will use 1.5"-2"/week of moisture. Ensure adequate soil moisture for germination and establishment.

HARVEST:

Cut when the Timothy has reached its full height with long, coarse stems and heads. Second cut late Aug will have smaller heads and finer stems. Cut the outside rounds separately and cut out weedy areas first. Avoid any contamination with straw residue and dirt. Cut with a haybine or discbine, crimp and turn for rapid swath drying. Grazing can damage the stand, and can become an export problem if manure is found in the bales.

HANDLING, STORAGE & GRADING:

Hay moisture limits to prevent spoilage: small square bale - 18%; round soft core - 17%; round hard core - 16%; large square - 14%. Storing for quality is just as important as harvesting for quality. Consider hay sheds which are the most satisfactory and economical type of hay storage.

ROTATIONS AND CROP PROTECTION:

Achieve, MCPA, Lontrel, Banvel & Target may be used. Timothy is susceptible to residues of Edge, Trifluralins, sulphonyl ureas, Tordon, Atrazine & Princep.

ECONOMICS

AGRONOMICS

CROP: RYEGRASS - Partial Budget

ITEM	#	UNIT	\$/ac	My Farm \$/ac
Seed			\$16.25	
Seed treatment/inoc			\$0.00	
Fertilizer: N	130	lb	\$52.83	
P	40	lb	\$10.96	
K	15	lb	\$3.18	
Herbicide			\$6.33	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$15.60	
Equipment repair			\$7.12	
Custom work			\$0.00	
Irrigation power	12	inches	\$11.08	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.25	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	1	hr/ac	\$12.00	
Other			\$0.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$5.02	
TOTAL CASH COSTS			\$181.21	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$0.00	
Land			\$19.68	
TOTAL NON CASH COSTS			\$69.70	
TOTAL COSTS			\$250.91	
RETURNS				
Returns dependent upon method of utilization.				
SPECIALIZED EQUIPMENT			\$/ac/yr	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$0.00	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

VARIETY SELECTION:

Plant a mixture of Italian (vegetative) and Annual (produces heads). Discuss seed mix with your seed dealer.

SEEDING:

Seeding rate - follow seed company recommendations. Seed late April early May. If broadcasting seed increase the rate by 10%.

FERTILIZATION:

Ryegrass requires good N and P fertility levels. Previously manured soils are preferable, as mineralized nutrients are efficiently used by this grass. If removing hay or silage from the field, plan to replace about 50lb N each time. Max of 15lb/ac phosphate with the seed in good moisture conditions.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Minimize irrigation downtime during to hay and silage operations. Established Ryegrass will use 1.5"-2"/week of moisture. Ensure adequate soil moisture for germination and establishment and after second cut for fall grazing.

HARVEST:

Ryegrass can be harvested as pit silage, bale silage or hay in up to two cuts (mid July, mid Aug) and subsequently fall grazed for 2 to 4 months. Ryegrass can survive -10degC in the fall and will remain green under the snow. It may be under seeded to barley silage (harvested early Aug) and then grazed. Harvest for hay is risky and not the best option for utilization. Ryegrass is difficult to dry down due to its waxy cuticle. Harvest or graze before seed is set to avoid volunteering. Volunteer ryegrass can potentially become a herbicide resistance problem.

HANDLING, STORAGE & GRADING:

Italian is faster regrowing and can give 18-20% protein. Annual gives 12-14% protein. Bale below 15% moisture.

ROTATIONS AND CROP PROTECTION:

Ryegrass is a competitive grass that may not require in-crop weed control when direct-seeded following glyphosate application. Achieve, 24D, MCPA, Lontrel, Banvel & Target may be used and the ryegrass fed and/or grazed with practical pre-harvest intervals. Ryegrass is susceptible to residue damage from Edge, Trifluralins, sulphonyl ureas, Tordon, Atrazine & Princep.

ECONOMICS

CROP: SEEDLING PASTURE
Greenfeed Cover Crop

My Farm

ITEM	#	UNIT	\$/ac	\$/ac
Seed			\$29.01	
Seed treatment/inoc			\$0.00	
Fertilizer: N	80	lb	\$32.63	
P	50	lb	\$13.70	
K	15	lb	\$3.18	
Herbicide			\$3.00	
Insecticide			\$0.00	
Fungicide			\$0.00	
Equipment fuel			\$13.65	
Equipment repair			\$5.70	
Custom work			\$0.00	
Irrigation power	12	inches	\$11.08	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$21.25	
Crop insurance	0	tons	\$0.00	
Hail insurance			\$0.00	
Hired labour	0	hr/ac	\$0.00	
Other			\$3.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$4.44	
TOTAL CASH COSTS			\$160.23	
Farm Equipment & Buildings			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$13.35	
Land			\$19.68	
TOTAL NON CASH COSTS			\$83.05	
TOTAL COSTS			\$243.28	
RETURNS	LO	AV	HI	
YIELD t/ac	2.0	2.5	3.0	
PRICE \$/t		\$40.00		
GROSS	\$80	\$100	\$120	
RETURN TO				
LABOUR & MGT	(\$163)	(\$143)	(\$123)	
SPECIALIZED EQUIPMENT			\$/ac/yr	
Mower/condition			\$4.15	
Round Baler			\$6.60	
Bale Mover			\$2.60	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$13.35	

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com.

AGRONOMICS

VARIETY SELECTION

Species and variety selection for an irrigated pasture will take into account the time of the season when you will want to utilize the grazing. For intensive grazing, a series of species can be planted, providing a better range in seasonal forage production than any single species. This is preferable to seeding the same grass species together in a mix. You can include a legume with a grass. Consult a forage specialist for advice on forage selection and matching forage production to your seasonal forage requirements.

Cereal Cover Crop: Select a cereal with short, strong straw to minimize lodging & competition. Reduce the normal seeding

SEEDING:

Plant population	CPS Wheat	125	plants/sq m.
TKW		35.0	grams
Seeding Rate		40	lb/ac
Plant population	Meadow Brome	200	plants/sq m.
TKW		0	seeds/lb
Seeding Rate		10	lb/ac

FERTILIZATION:

Broadcast or deep band 50-80 lb/ac N prior to seeding. Up to 15 lb/ac P can be seed placed in 6" rows with the grass seed. Broadcast or deep band P prior to seeding to give a total of 50-100 lb/ac. Broadcast or deep band K if recommended.

IRRIGATION:

Maintain good soil moisture throughout the growing season. Use a soil probe to check moisture status. Irrigate 4 - 6" after cutting for fall regrowth.

HARVEST:

Cut the cereal at the soft dough stage. Bale the swaths as soon as possible to avoid smothering the seedling forage.

ROTATIONS AND CROP PROTECTION:

Do not seed the year after treatment with Ally, Amber, Lontrel or Tordon.

ECONOMICS

AGRONOMICS

CROP: ESTABLISHED PASTURE

My Farm

ITEM	#	UNIT	\$/ac	\$/ac
Fertilizer: N	110	lb	\$45.10	
P	30	lb	\$8.22	
K	15	lb	\$3.18	
Equipment fuel			\$1.30	
Equipment repair			\$1.00	
Custom work			\$0.00	
Irrigation powe	16	inches	\$14.77	
Irrigation repair			\$10.38	
Irrigation service/water charge			\$22.42	
Farm overhead			\$9.20	
Livestock cost	\$0.00	\$/hd	\$0.00	
Vet/med	\$0.00	\$/hd	\$0.00	
Breeding	\$0.00	\$/hd	\$0.00	
Min/vit	\$3.00	\$/hd	\$7.50	
Supplements	\$3.00	\$/hd	\$7.50	
Other	\$2.00	\$/hd	\$5.00	
Operating int	5.7	%	\$3.86	
TOTAL CASH	\$55.78	\$/hd	\$139.44	
Farm Equipment & Buildings *			\$23.71	
Irrigation System			\$26.31	
Specialized Equipment			\$7.16	
Pasture Establishment (6 yr prod.)			\$23.88	
Land			\$19.68	
TOTAL NON CASH COSTS			\$100.74	
TOTAL COST	\$96.07	(\$/hd)	\$240.18	
Stocking Rate (hd/ac)			2.5	
Days of Grazing			115	
Cash Cost \$/hd/day			\$0.49	
Total Cost \$/hd/day			\$0.84	
Average Daily Gain lb	2		2.5	
Total Cost per lb of Gain (\$/ADG)			\$0.42	\$0.33
SPECIALIZED EQUIPMENT				\$/ac/yr
Cross Fencing			\$1.08	
Permanent Fencing			\$2.99	
Water Supply			\$3.09	
0			\$0.00	
0			\$0.00	
TOTAL			\$7.16	

* Varies significantly based on individual's utilization of owned equipment & buildings.

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Call the SAF Ag Knowledge Centre.

CATTLE ASSUMPTIONS:

Stocking Rate	2.5	hd/ac
Days Grazing	115	days
Weight to Pasture	600	lb/hd
ADG	2.0 to 2.5	lb/hd
Weight off Pasture	830	lb/hd

This budget includes seedling year costs (p. 24) spread over 7 years of production. Pastures frequently need to be renovated or rotated out after 7 years in production.

LIVESTOCK

STOCKING RATE

Steers	2 to 2.5 /ac
Cow-calf (1400 lb cow)	1.0 /ac
Cow-calf (1100 lb cow)	1.5 /ac
Ewes	6 - 8 /ac

Estimates of stocking rate are based on a limited amount of information and producer experience. These may change as more information becomes available.

FERTILIZATION:

Fertility in an established irrigated pasture relies on fertilizer inputs combined with cycling of nutrients through manure and urine deposition. Variability in deposition will cause variable fertility in the forage stand. By combining a legume with grass, the N fertilizer requirement will be reduced.

IRRIGATION:

Frequent light irrigation is required starting in early May. Grass roots are concentrated in the top foot of soil. A combined total of 24" of rain and irrigation is required. Irrigation should continue into September.

WATERING FACILITY

Use water troughs, not bowls, to allow adequate access for a large number of stock. Do not allow direct access to a water source as the animals will contaminate it.

PASTURE MANAGEMENT:

Do not overgraze. By maintaining the pasture in a vegetative stage, digestibility and ADG can be kept at a high level. Use at least four paddocks to allow rapid harvest (one week) and an adequate regrowth period (3 weeks). Avoid grazing when the ground is wet. Fencing and irrigated pasture must take into account either movement of a pivot or other sprinkler irrigation system.

ECONOMICS

AGRONOMICS

CROP: SEED POTATO

My Farm

ITEM	#	UNIT	\$/ac	\$/ac
Seed			\$611.00	
Seed treatment/inoc			\$70.20	
Fertilizer: N	150	lb	\$60.96	
P	90	lb	\$24.67	
K	150	lb	\$31.83	
Herbicide			\$107.89	
Insecticide			\$22.00	
Fungicide			\$100.20	
Equipment fuel			\$100.00	
Equipment repair			\$80.00	
Custom work			\$56.00	
Irrigation power *			\$0.00	
Irrigation repair *			\$0.00	
Irrigation service/water charge *			\$0.00	
Crop insurance	14	tons	\$96.26	
Hail insurance			\$0.00	
Hired labour	30	hr/ac	\$360.00	
Other			\$12.00	
Storage O & M			\$71.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$51.68	
TOTAL CASH COSTS			\$1,864.88	
Farm Equipment & Buildings			\$13.10	
Irrigation System *			\$0.00	
Specialized Equipment			\$311.06	
Land Rental Rate			\$235.00	
TOTAL NON CASH COSTS			\$559.16	
TOTAL COSTS			\$2,424.05	
RETURNS	LO	AV	HI	
YIELD ton/ac	10	12	14	
PRICE \$/ton		\$300		
GROSS	\$3,000	\$3,600	\$4,200	
RETURN TO				
LABOUR & MGT	\$576	\$1,176	\$1,776	
			\$/ac/yr	
SPECIALIZED EQUIPMENT			\$/acre	
Potato Field Equipment			\$130.38	
Potato Storage/Handling			\$60.18	
Potato Storage Facility			\$120.51	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$311.06	

* Provided by landowner.

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Call the SAF Ag Knowledge Centre.

This potato budget is based on 500 acre potato farm that rents land.

VARIETY SELECTION

Choose varieties based on the intended market. Seed cost is based on Elite I or Elite II.

SEEDING:

Plant population	21780.0	plants/acre
Weight of Seed Piece	60.0	grams
Seeding Rate	1.3	tons/ac

FERTILIZATION:

Soil test and tissue test to ensure adequate fertility for yield & quality of this high value crop. Fertigation with 28.0.0 is often the method of fertilizing during the season.

IRRIGATION:

Approx average crop water use per week in inches: June .75, 1.00, 1.25, 1.50; July 1.50, 1.50, 1.50, 1.50; Aug 1.50, 1.00, .75. Maintain soil above 70% available moisture. Use a soil probe to check moisture status. Irrigate by crop stage: planting-emerge (1.5-2.5 weeks): irrigate for emergence to increase stem #, & for early tuber initiation to allow a long bulking period. emerge-stolon initiation (2-3 weeks): irrigate for initiation, to increase veg growth, & to increase tuber set. stolon initiation-tuber set(3-4 weeks): irrigate for increase stolon growth, & to increase tuber initiation. Bulking(8 weeks): irrigate to increase tuber size, & maintain consistent soil moisture for uniform tuber shape.

HARVEST:

Top kill: to remove vine growth that interferes with harvest to mature tubers & set the skin, to control tuber size & to prevent the spread of disease.

HANDLING, STORAGE & GRADING:

Field & storage inspection must be done by AAFC.

ROTATIONS AND CROP PROTECTION:

Rhizoctonia & fungal wilts (fusarium & verticillium) require a 4 year rotation. Low risk of root rot & damping off & Sclerotinia when rotated with other broadleaf crops. Do not seed where residues of Tordon, Glean, Banvel, Lontrel, Atrazine, Princep, Sinbar, Ally, Assert, Muster, Pursuit, Amber, Attain, Curtail M, Prevail, Flaxmax and Unity may be present.

ECONOMICS

CROP: TABLE/PROCESSING

ITEM	#	POTATO		My Farm
		UNIT	\$/ac	\$/ac
Seed			\$351.00	
Seed treatment/inoc			\$48.60	
Fertilizer: N	150	lb	\$60.96	
P	90	lb	\$24.67	
K	150	lb	\$31.83	
Herbicide			\$107.89	
Insecticide			\$22.00	
Fungicide			\$70.00	
Equipment fuel			\$90.00	
Equipment repair			\$80.00	
Custom work			\$48.00	
Irrigation power *			\$0.00	
Irrigation repair *			\$0.00	
Irrigation service/water charge *			\$0.00	
Crop insurance	11	tons	\$62.83	
Hail insurance			\$0.00	
Hired labour	15	hr/ac	\$180.00	
Other			\$0.00	
Storage O & M			\$71.00	
Farm overhead			\$9.20	
Operating int	5.7	%	\$35.85	
TOTAL CASH COSTS			\$1,293.83	
Farm Equipment & Buildings			\$13.10	
Irrigation System *			\$0.00	
Specialized Equipment			\$311.06	
Land Rental Rate			\$235.00	
TOTAL NON CASH COSTS			\$559.16	
TOTAL COSTS			\$1,852.99	
RETURNS	LO	AV	HI	
YIELD ton/ac	12	14	16	
PRICE \$/ton		\$200		
GROSS	\$2,400	\$2,800	\$3,200	
RETURN TO				
LABOUR & MGT	\$547	\$947	\$1,347	
			\$/ac/yr	
SPECIALIZED EQUIPMENT			\$/acre	
Potato Field Equipment			\$130.38	
Potato Storage/Handling			\$60.18	
Potato Storage Facility			\$120.51	
0			\$0.00	
0			\$0.00	
0			\$0.00	
0			\$0.00	
TOTAL			\$311.06	

* Provided by landowner.

MORE INFORMATION:

Call an Irrigation Agrologist at (306) 867-5500 or check our website: www.irrigationsaskatchewan.com. Call the SAF Ag Knowledge Centre.

AGRONOMICS

This potato budget is based on 500 acre potato farm that rents land.

VARIETY SELECTION

Choose varieties based on the intended market.

SEEDING

Plant population	14520.0	plants/acre
Weight of Seed Piece	60.0	grams
Seeding Rate	0.9	tons/ac

FERTILIZATION:

Soil test and tissue test to ensure adequate fertility for yield & quality of this high value crop. Use 34.0.0 (not 46.0.0) for top dressing; fertigation with 28.0.0 is another method of fertilizing.

IRRIGATION:

Approx average crop water use per week in inches: June .75, 1.00, 1.25, 1.50; July 1.50, 1.50, 1.50, 1.50; Aug 1.50, 1.00, .75. Maintain soil above 70% available moisture. Use a soil probe to check moisture status. Irrigate by crop stage: planting-emerge (1.5-2.5 weeks): irrigate for emergence to increase stem #, & for early tuber initiation to allow a long bulking period. emerge-stolon initiation (2-3 weeks): irrigate for initiation, to increase veg growth, & to increase tuber set. stolon initiation-tuber set(3-4 weeks): irrigate for increase stolon growth, & to increase tuber initiation. bulking(8 weeks): irrigate to increase tuber size, & maintain consistent soil moisture for uniform tuber shape.

HARVEST:

Top kill: to remove vine growth that interferes with harvest to mature tubers & set the skin, to control tuber size & to prevent the spread of disease. Allow processing potatoes to grow longer than table potatoes for approximately 10% extra yield.

HANDLING, STORAGE & GRADING:

ROTATIONS AND CROP PROTECTION:

Rhizoctonia & fungal wilts (fusarium & verticillium) require a 4 year rotation. Low risk of root rot & damping off & Sclerotinia when rotated with other broadleaf crops. Do not seed where residues of Tordon, Glean, Banvel, Lontrel, Atrazine, Princep, Velpar, Sinbar, Ally, Assert, Muster, Pursuit, Amber, Attain, Curtail M, Prevail, Flaxmax and Unity may be present.

Appendix A

CROP	Seed Cost	Herbicide	Custom Costs	Other Costs
Hard Wheat	\$0.11/lb	Target / Horizon		
Durum	\$0.12/lb	Buctril M / Puma		
CPS Wheat	\$0.10/lb	Target / Horizon		
Soft Wheat	\$0.10/lb	Target / Horizon		
Barley	\$0.10/lb	Achieve Liquid Gold		
Canary Seed	\$0.23/lb	Prestige		
Canola	\$5.00/lb	Glyphosate +TUA		
Brown/Oriental Mustard	\$1.10/lb	Fusion		
Yellow Mustard	\$0.70/lb	Fusion		
Flax	\$0.17/lb	FlaxMax		
Sunflower	\$1.53/lb	Edge		
Pea	\$0.11/lb	Pursuit Ultra		
Fababean	\$0.21/lb	Treflan EC; Sencor; Reglone		
Eston Lentil	\$0.20/lb	Edge; Reglone		
Dry Bean	\$0.475/lb	Edge; Basagran		
Corn Silage	\$1.43/lb	Glyphosate +TUA	Silage	
Barley Silage	\$0.10/lb	Achieve Liquid Gold	Silage	
Seedling Alfalfa	\$3.50/lb	Glyphosate		Twine
Alfalfa (2 or 3 cut)				Twine
Seedling Pasture with greenfeed cover	\$2.50/lb \$0.10/lb	Glyphosate		Twine
Pasture				
Seedling Timothy				Twine
Timothy	\$1.70/lb	Glyphosate; 2(2,4D+Banvel)		Twine, plastic flooring
Ryegrass	\$1.25/lb	Glyphosate; MCPA	<i>variable</i>	<i>variable</i>
Seed Potato	\$500.00/ton	Eptam 8-E; Poast Ultra;	7 aerial spray	Inspection
Table Potato	\$300.00/ton	Reglone	6 aerial spray	

For more information:

Irrigation in Saskatchewan website:

www.irrigationsaskatchewan.com

SAF Irrigation Development Branch- - Outlook Office

(306) 867-5500

<http://www.agr.gov.sk.ca>

Canada-Saskatchewan Irrigation Diversification Centre

(306) 867-5400

www.agr.gc.ca/pfra/csfdc/