


Farm Business Management Reports		EB1945E
	<p style="text-align: center;"> 2002 COST OF PRODUCING ALFALFA SEED IN THE COLUMBIA BASIN OF WASHINGTON STATE </p>	
	<p style="text-align: center;"> Herbert Hinman and John Kugler </p>	
<p style="text-align: center;"> COOPERATIVE EXTENSION WASHINGTON STATE  UNIVERSITY </p>	<p style="text-align: center;"> Online at: http://farm.mngt.wsu.edu/ </p>	

Pollination Cost Per Acre (continued)

	Prod. Year 1	Prod. Year 2	Prod. Year 3
<u>Annual operating cost per acre:</u>	<u>Cost</u>	<u>Cost</u>	<u>Cost</u>
Electricity	3.00	3.00	3.00
Labor	58.00	58.00	58.00
Materials	4.00	4.00	4.00
Repairs	3.00	3.00	3.00
Interest on operating cost (9% for 6 mo.)	<u>3.06</u>	<u>3.06</u>	<u>3.06</u>
Subtotal	71.06	71.06	71.06
 Total cost per acre	 <u>348.85</u>	 <u>294.25</u>	 <u>186.25</u>

Pollination Cost Per Acre

Average Annual Investment Cost Per Acre:	<u>Depr.</u>	<u>Interest</u>	<u>Insurance</u>	<u>Taxes</u>	Prod. Year 1 <u>Cost</u>	Prod. Year 2 <u>Cost</u>	Prod. Year 3 <u>Cost</u>
Incubator	5.00	4.50	.30	.90	10.70	10.70	10.70
Incubator trays (2.5/acre)	4.50	2.02	.14	.40	7.06	7.06	10.70
Laminated bee boards (3.5/acre)	29.75	13.39	.89	2.68	46.71	46.71	46.71
Punch out machine	1.50	1.35	.09	.27	3.21	3.21	3.21
Cell breaker	1.00	.90	.06	.18	2.14	2.14	2.14
Shelter	7.50	3.37	.22	.68	<u>11.77</u>	<u>11.77</u>	<u>11.77</u>
Subtotal					81.59	81.59	81.59

<u>Bee larvae cost per acre:</u>	<u>Prod. Year 1</u>	<u>Prod. Year 2</u>	<u>Prod. Year 3</u>			
Gallons of bee larvae required	3.0	4.0	4.0			
Gallons of bee larvae purchased	3.0	2.0	1.4			
Gallons of bee larvae lost	1.0	1.4	1.4			
Annual investment cost	\$180	\$240	\$240			
Interest on annual investment cost @ 9%				16.20	21.60	21.60
Bee larvae purchased				180.00	120.00	84.00
Bee larvae sold (2.4 gal. @ \$30/gal.)				_____	_____	<u>(72.00)</u>
Subtotal				196.20	141.60	33.60

Pollination Cost Calculations

The following are the basic assumptions and calculations used to estimate the per-acre cost of pollinating an alfalfa seed field with leafcutter bees.

Basic Assumptions

1. The cost of bee larvae (from Canada) has cost anywhere between \$20 to \$120 per gallon over the past several years. For this study bee larvae cost \$60 per gallon.
2. Sixty-five percent of the bee larvae are regenerated by the existing bees each year. The remaining bee larvae at the end of year three are sold. Thus, the current year bee cost is equivalent to the 35% bee larvae replacement cost for the following year.
3. Bee larvae requirements per acre:

<u>Production Year</u>	<u>Gals. of Bee Larvae Purchased</u>	<u>Gals. of Bee Larvae Furnished</u>	<u>Gals. of Bee Larvae Returned</u>	<u>Gals. of Bee Larvae Lost</u>
1	3.0	3.0	2.0	1.0
2	2.0	4.0	2.6	1.4
3	1.4	4.0	2.6	1.4

4. Incubator construction cost with heating and refrigeration is \$100 per acre with a 20-year life.
5. Incubator trays cost \$18.00 per tray with a 10-year life. Two and a half trays per acre required.
6. Laminated bee boards cost \$85.00 per board with a 10-year life. Three and one-half boards per acre required.
7. Punch out machine cost \$7,500.00 with a 20-year life. One punch out machine will handle 250 acres.
8. Cell breaker machine cost \$5,000.00 with a 20-year life. One cell breaker will handle 250 acres.
9. Shelters cost \$150.00 per shelter with a 10-year life. One shelter will handle 2.0 acres.
10. Other costs:
 - electricity, \$3.00/acre/year
 - labor, 4 hr./acre/year
 - materials, \$4.00/acre/year
 - repairs, \$3.00/acre/year

APPENDIX III

Pollination Cost Calculations

Table 18. Input Prices.

Input	Unit	Cost
Services:		\$
Water Charge	Acre	45.00
Soil Test	Acre	1.00
Custom Fertilize	Acre	7.00
Custom Aerial	Acre	7.50
Seed Certification Fee	Field	15.00
Seed Production Fee	Acre	1.75
Materials:		
Alfalfa Seed	Lb.	5.00
2,4-DB-Amine	Qt.	11.25
Nitrogen (Actual)	Lb.	.28
Phosphorus (Actual)	Lb.	.24
Potash (Actual)	Lb.	.14
Sulfur (Actual)	Lb.	.11
Boron (Actual)	Lb.	2.70
Buctril	Pint	7.75
Fusilade	Pint	15.25
PAM	Lb.	3.32
Treflan	Pint	2.75
Eptan	Pint	5.00
Methylated Seed Oil	Gal.	14.50
Prowl	Pint	3.62
Dimethoate	Pint	6.00
Warrior	Oz.	3.51
Velpar	Qt.	18.00
Sencor	Lb.	21.00
Roundup	Qt.	10.00
Foliar Feed	Acre	4.00
Roguing Spray	Acre	1.00
Insecticide	Acre	12.00
Gasoline	Gal.	1.40
Diesel	Gal.	.95
Labor	Hour	14.50
Land Rent:		
Rill Irrigated	Acre	135.00
Center Pivot Irrigated	Acre	235.00

TABLE 17. MACHINERY AND BUILDING COSTS.

MACHINERY	PURCHASE PRICE	YEARS TO TRADE	ANNUAL DEPREC- IATION	INTER- EST	INSUR- ANCE	TAXES	HOUSING	TOTAL FIXED COST		REPAIR	FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST
								COST	REPAIR				
				COST PER HOUR									
				COST PER ACRE									
150HP-WT	90,000.00	15	700	6.95	6.88	.46	1.38	.00	15.67	3.57	4.37*	7.94	23.61
100HP-WT	62,000.00	15	500	6.40	6.84	.46	1.37	.00	15.06	3.00	3.28	6.28	21.34
PICKUP, MANAGEMENT	26,000.00	5	800	3.50	2.14	.14	.43	.00	6.21	1.25	3.22	4.47	10.68
PICKUP, LABOR'S	12,000.00	5	400	4.50	1.69	.11	.34	.00	6.64	1.25	1.61	2.86	9.50
NURSE TRUCK/TANK	10,000.00	10	50	16.00	10.80	.72	2.16	.00	29.68	6.00	3.28	9.28	38.96
70 HP SWATHER	65,000.00	10	200	26.25	17.44	1.16	3.49	.00	48.34	7.50	4.83	12.33	60.67
14' COMBINE	100,000.00	10	300	30.00	16.50	1.10	3.30	.00	50.90	20.00	6.55	26.56	77.46
4-18" MB PLOW	7,300.00	8	250	2.80	1.62	.11	.32	.00	4.85	3.60	.00	3.60	8.45
10' CHISEL PLOW	5,800.00	15	150	2.04	2.10	.14	.42	.00	4.70	2.00	.00	2.00	6.70
7' PACKER	2,600.00	8	250	1.00	.58	.04	.12	.00	1.73	.52	.00	.52	2.25
14' PACKER	3,600.00	8	250	1.48	.76	.05	.15	.00	2.45	.70	.00	.70	3.15
12' OFFSET DISC	12,000.00	8	250	5.50	2.34	.16	.47	.00	8.46	4.00	.00	4.00	12.46
6R-CULTIVATOR	3,000.00	15	150	1.20	.99	.07	.20	.00	2.45	1.33	.00	1.33	3.79
6R-CULT/CORRUGAT	4,400.00	15	150	1.78	1.44	.10	.29	.00	3.60	1.67	.00	1.67	5.27
6R-ROLLING CULT.	5,500.00	15	150	2.22	1.80	.12	.36	.00	4.50	2.00	.00	2.00	6.50
3&5R CORRUGATOR	1,400.00	15	150	.58	.45	.03	.09	.00	1.15	.43	.00	.43	1.58
HEADLAND CORRUGATOR	2,500.00	5	250	1.80	.50	.03	.10	.00	2.43	.60	.00	.60	3.03
12' ROTOVATOR	11,000.00	10	150	6.00	3.90	.26	.78	.00	10.94	6.00	.00	6.00	16.94
SKEWTREADER	7,500.00	5	250	4.80	1.62	.11	.32	.00	6.85	3.00	.00	3.00	9.85
FLAIL SHREDDER	10,000.00	10	150	5.33	3.60	.24	.72	.00	9.89	3.33	.00	3.33	13.23
RESERVOIR TILLER	13,000.00	15	150	4.89	4.50	.30	.90	.00	10.59	5.67	.00	5.67	16.26
6R-PLANT/CORRUGATOR	9,000.00	12	100	7.00	4.32	.29	.86	.00	12.47	3.50	.00	3.50	15.97
40' SPRAY BOOM	1,500.00	10	100	1.30	.77	.05	.15	.00	2.27	1.00	.00	1.00	3.27
SADDLE TANK SPRY	2,200.00	10	175	.97	.69	.05	.14	.00	1.85	1.71	.00	1.71	3.57
BACKPACK SPRAYER	100.00	10	50	.20	.09	.01	.02	.00	.31	.00	.00	.00	.31
IRRIGATION TUBES	505.00	5	50	2.02	.45	.03	.09	.00	2.60	.00	.00	.00	2.60
IRRIGATION DAMS	170.00	3	50	1.13	.15	.01	.03	.00	1.33	.00	.00	.00	1.33
MACH SHED & SHOP	60,000.00	30	750	2.67	3.60	.24	.72	.00	7.23	.80	.00	.80	8.03
SHOP TOOLS	50,000.00	15	750	4.44	3.00	.20	.60	.00	8.24	.00	.00	.00	8.24

*SHOWN AT 4 GALLONS OF DIESEL PER HOUR. AT 6 GALLONS OF DIESEL PER HOUR THE FUEL AND LUBE COST IS \$6.55.

TABLE 16. MACHINERY AND BUILDING COMPLEMENT.

MACHINE NAME	PURCHASE PRICE \$	YEARS OF USE	SALVAGE VALUE \$	ANNUAL REPAIR COST \$	ANNUAL HOURS OF USE	GALLONS OF FUEL USED PER HOUR
150HP-WT	90,000	15	17,000	2,500	700	4D, 6D
100HP-WT	62,000	15	14,000	1,500	500	3D
PICKUP, MANAGEMENT	26,000	5	12,000	1,000	800	2G
PICKUP, IRRIGATOR	12,000	5	3,000	500	400	2G
NURSE TRUCK & TANK	10,000	10	2000	300	50	3D
70HP SWATHER	65,000	10	12,500	1,500	200	3G
14' COMBINE	100,000	10	10,000	6,000	300	6D
4-18" MB PLOW	7,300	8	1,700	900	250	
10' CHISEL PLOW	5,800	15	1,200	300	150	
7' PACKER	2,600	8	600	130	250	
14' PACKER	3,600	8	640	175	250	
12' OFFSET DISC	12,000	8	1,000	1,000	250	
6R-CULTIVATOR	3,000	15	300	200	150	
6R-CULTIVATOR/	4,400	15	400	250	150	
6R-ROLLING	5,500	15	500	300	150	
3 & 5R CORRUGATOR	1,400	15	100	65	150	
HEADLAND CORRUGATOR	2,500	5	250	150	250	
12' ROTOVATOR	11,000	10	2,000	900	150	
SKEWTREADER	7,500	5	1,500	750	250	
FLAIL SHREDDER	10,000	10	2,000	500	150	
RESERVOIR TILLER	13,000	15	2,000	850	150	
6R-SM SEED PLANT	9,000	12	600	350	100	
40' SPRAY BOOM	1,500	10	200	100	100	
SADDLE TANK SPRAYER	2,200	10	500	300	175	
BACKPACK SPRAYER	100	10	0	0	50	
IRRIGATION TUBES	505	5	0	0	50 ACRES	
IRRIGATION DAMS	170	3	0	0	50 ACRES	
MACH SHED & SHOP	60,000	30	0	600	750 ACRES	
SHOP TOOLS	50,000	15	0	0	750 ACRES	

Table 15. Continued.

Price\Yield*:	550 lbs.	600 lbs.	650 lbs.	700 lbs.	750 lbs.	800 lbs.
	\$	\$	\$	\$	\$	\$
\$1.60/Lb.						
Year 1:						
Minus V. C.	317.74	397.74	477.74	557.74	637.74	717.74
Minus T. C.	-239.25	-159.25	-79.25	0.75	80.75	160.75
Year 2:						
Minus V. C.	378.57	458.57	538.57	618.57	698.57	778.57
Minus T. C.	-174.84	-94.84	-14.84	65.16	145.16	225.16
Year 3:						
Minus V. C.	479.34	559.34	639.34	719.34	799.34	879.34
Minus T. C.	-70.47	9.53	89.53	169.53	249.53	329.53
3-Year Average						
Minus V. C.	391.88	471.88	551.88	631.88	711.88	791.88
Minus T. C.	-161.52	-81.52	-1.52	78.48	158.48	238.48

*Price is net of seed cleaning charges and yield is clean seed.

**V.C. = Variable cost (includes establishment year variable cost amortized over 3 years at 9% interest = \$105.97).

***T.C. = Total cost.

Table 15. Returns Minus Variable Costs and Total Costs for Alfalfa Seed Produced Under Center Pivot Irrigation.

Price\Yield*:	650 lbs.	700 lbs.	750 lbs.	800 lbs.	850 lbs.	900 lbs.
	\$	\$	\$	\$	\$	\$
\$1.00/Lb.						
Year 1:						
Minus V. C.**	-72.26	-22.26	27.74	77.74	127.74	177.74
Minus T. C.***	-629.25	-579.25	-529.25	-479.25	-429.25	-379.25
Year 2:						
Minus V. C.	-11.43	38.57	88.57	138.57	188.57	238.57
Minus T. C.	-564.84	-514.84	-464.84	-414.84	-364.84	-314.84
Year 3:						
Minus V. C.	89.34	139.34	189.34	239.34	289.34	339.34
Minus T. C.	-460.47	-410.47	-360.47	-310.47	-260.47	-210.47
3-Year Average						
Over V. C.	1.88	51.88	101.88	151.88	201.88	251.88
Over T. C.	-551.52	-501.52	-451.52	-401.52	-351.52	-301.52
\$1.20/Lb.						
Year 1:						
Minus V. C.	57.74	117.74	177.74	237.74	297.74	357.74
Minus T. C.	-499.25	-439.25	-379.25	-319.25	-259.25	-199.25
Year 2:						
Minus V. C.	118.57	178.57	238.57	298.57	358.57	418.57
Minus T. C.	-434.84	-374.84	-314.84	-254.84	-194.84	-134.84
Year 3:						
Minus V. C.	219.34	279.34	339.34	399.34	459.34	519.34
Minus T. C.	-330.47	-270.47	-210.47	-150.47	-90.47	-30.47
3-Year Average						
Minus V. C.	131.88	191.88	251.88	311.88	371.88	431.88
Minus T. C.	-421.52	-361.52	-301.52	-241.52	-181.52	-121.52
\$1.40/Lb.						
Year 1:						
Minus V. C.	187.74	257.74	327.74	397.74	467.74	537.74
Minus T. C.	-369.25	-299.25	-229.25	-159.25	-89.25	-19.25
Year 2:						
Minus V. C.	248.57	318.57	388.57	458.57	528.57	598.57
Minus T. C.	-304.84	-234.84	-164.84	-94.84	-24.84	45.16
Year 3:						
Minus V. C.	349.34	419.34	489.34	559.34	629.34	699.34
Minus T. C.	-200.47	-130.47	-60.47	9.53	79.53	149.53
3-Year Average						
Minus V. C.	261.88	331.88	401.88	471.88	541.88	611.88
Minus T. C.	-291.52	-221.52	-151.52	-81.52	-11.52	58.48

TABLE 14.4. ITEMIZED COST PER ACRE FOR THE **THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.**

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
SENCOR	LB.	21.00	.67	14.07	_____
PROWL	PINT	3.62	5.00	18.10	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
DIMETHOATE	PINT	6.00	.75	4.50	_____
WARRIOR	OZ.	3.51	3.84	13.48	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
CUSTOM AERIAL	ACRE	7.50	1.50	11.25	_____
CLEANUP SPRAY	ACRE	12.00	1.50	18.00	_____
ROUNDUP	QT.	10.00	1.00	10.00	_____
2-4-DB-AMINE	QT.	11.25	1.00	11.25	_____
POLLINATION COST	ACRE	104.66	1.00	104.66	_____
SEED CERTIFICATION FEE	ACRE	.12	1.00	.12	_____
SEED PRODUCTION FEE	ACRE	1.75	1.00	1.75	_____
HAULING COST	ACRE	4.75	1.00	4.75	_____
WATER CHARGE	ACRE	45.00	1.00	45.00	_____
IRRIGATION POWER	ACRE	40.00	1.00	40.00	_____
IRRIGATION REPAIR	ACRE	20.00	1.00	20.00	_____
TRACTOR REPAIR	ACRE	2.48	1.00	2.48	_____
TRACTOR FUEL/LUBE	ACRE	3.09	1.00	3.09	_____
MACHINERY REPAIRS	ACRE	22.38	1.00	22.38	_____
MACHINE FUEL/LUBE	ACRE	14.24	1.00	14.24	_____
LABOR	HOUR	14.50	4.00	57.94	_____
INTEREST ON OP. CAP.	ACRE	12.39	1.00	12.39	_____
OVERHEAD	ACRE	22.10	1.00	22.10	_____

TOTAL VARIABLE COST				464.05	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	5.21	1.00	5.21	_____
TRACTOR INTEREST	ACRE	5.49	1.00	5.49	_____
TRACTOR INSURANCE	ACRE	.37	1.00	.37	_____
TRACTOR TAXES	ACRE	1.10	1.00	1.10	_____
MACHINE DEPRECIATION*	ACRE	47.19	1.00	47.19	_____
MACHINE INTEREST*	ACRE	30.46	1.00	30.46	_____
MACHINE INSURANCE*	ACRE	2.03	1.00	2.03	_____
MACHINE TAXES*	ACRE	6.09	1.00	6.09	_____
POLLINATION COST	ACRE	81.59	1.00	81.59	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
AMORT ESTAB COST	ACRE	181.89	1.00	181.89	_____
LAND RENT	ACRE	235.00	1.00	235.00	_____

TOTAL FIXED COST				646.42	_____
TOTAL COST				1110.47	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 13.4. MATERIALS AND SERVICES USED BY OPERATION FOR THE THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	FEBRUARY	0.67 POUND OF SENCOR @ \$21.00/POUND
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.62/PINT
IRRIGATE (4X)	SEASON	IRRIGATION CHARGE @ 45.00/ACRE POWER CHARGE @ \$40.00/ACRE
PRE-BLOOM SPRAY	MAY	CUSTOM AERIAL @ \$7.50/ACRE 0.75 PINT OF DIMETHOATE @ \$6.00/PINT 3.84 OUNCES OF WARRIOR @ \$3.51/OUNCE FOLIAR FEED @ \$4.00/ACRE
POLLINATION	MAY	VARIABLE POLLINATION COSTS @ \$104.66/ACRE
CERTIFICATION	JUNE	SEED CERTIFICATION FEE @ \$15.00/FIELD
PRODUCTION FEE	JUNE	SEED PRODUCTION FEE @ \$1.75/ACRE
ROGUE FIELD (BACKPACK SPRAY)	JULY	ROGUING SPRAY @ \$1.00/ACRE
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50/ACRE CLEANUP SPRAY @ \$12.00/ACRE
HAULING SEED	AUGUST	TOTAL COST @ \$4.75/ACRE
SPRAY TO KILL CROP	OCTOBER	1 QUART OF ROUNDUP @ \$10.00/QUART 1 QUART OF 2-4-DB-AMINE @ \$11.25/QT.
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 12.4. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR THE THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST
							FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.		
						\$	\$	\$	\$	\$	\$	\$	
DORM. WEED SPRAY	100HP-WT, SADDLE TK W/40' BOOM	FEB	2002	.10	.13	1.92	.90	1.93	.00	14.07	1.14	18.04	19.96
HAUL WATER	NURSE TRUCK	FEB	2002	.04	.04	1.19	.37	.64	.00	.00	.07	1.08	2.26
SKEWTRREAD	100HP-WT, 16' SKEWTREADER	MAR	2002	.13	.14	2.74	1.16	1.99	.00	.00	.19	3.34	6.08
APPLY HERBICIDE	100HP-WT, ROLL CULT/SADDLE TK	APR	2002	.33	.44	7.14	3.33	6.44	.00	18.10	1.46	29.34	36.48
HAUL WATER	NURSE TRUCK	APR	2002	.04	.04	1.19	.37	.64	.00	.00	.05	1.06	2.25
IRRIGATE*	CENTER PIVOT IRRIGATION	SEA	2002	.00	.85	.00	20.00	12.32	85.00	.00	5.28	122.60	122.60
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2002	.00	.00	.00	.00	.00	7.50	21.98	1.33	30.80	30.80
POLLINATION**	DOLLAR COST OF POLLINATION	MAY	2002	.00	.00	81.59	.00	.00	104.66	.00	.00	104.66	186.25
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2002	.00	.00	.00	.00	.00	.30	.00	.01	.31	.31
PRODUCTION FEE	SEED PRODUCTION FEE	JUN	2002	.00	.00	.00	.00	.00	1.75	.00	.07	1.82	1.82
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2002	.00	1.00	.31	.00	14.50	.00	1.00	.47	15.97	16.28
CLEANUP SPRAY	CUSTOM AERIAL(1.5X)***	AUG	2002	.00	.00	.00	.00	.00	11.25	18.00	.66	29.91	29.91
SWATH	14' SWATHER	AUG	2002	.25	.28	12.08	3.08	3.99	.00	.00	.16	7.23	19.31
COMBINE	14' COMBINE	AUG	2002	.67	.73	33.94	17.70	10.63	.00	.00	.64	28.97	62.91
HAUL SEED	HAULING COST****	AUG	2002	.00	.00	.00	.00	.00	4.75	.00	.11	4.86	4.86
SPRAY	100HP-WT, SADDLE TK W/40' BOOM	OCT	2002	.10	.13	1.92	.90	1.93	.00	21.25	.18	24.26	26.18
HAUL WATER	NURSE TRUCK	OCT	2002	.04	.04	1.19	.37	.64	.00	.00	.01	1.02	2.20
CHISEL PLOW (2X)	150HP-WT, 10' CHISEL PLOW	OCT	2002	.14	.16	2.91	1.73	2.28	.00	.00	.03	4.04	6.95
BUILDINGS	MACHINE SHED AND SHOP	ANN	2002	.00	.00	7.23	.80	.00	.00	.00	.04	.84	8.06
MISC. USE	SHOP TOOLS	ANN	2002	.00	.00	8.24	.00	.00	.00	.00	.00	.00	8.24
MISC. USE	MANAGER'S PICKUP	ANN	2002	1.07	.00	6.62	4.77	.00	.00	.00	.21	4.98	11.60
MISC. USE	LABOR'S PICKUP	ANN	2002	1.50	.00	9.31	6.70	.00	.00	.00	.30	7.01	16.32
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2002	.00	.00	.00	.00	.00	22.10	.00	.00	22.10	22.10
LAND COST	LAND RENT	ANN	2002	.00	.00	235.00	.00	.00	.00	.00	.00	.00	235.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2002	.00	.00	181.89	.00	.00	.00	.00	.00	.00	181.89
MANAGEMENT	MANAGEMENT COST	ANN	2002	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				4.40	4.00	646.42	62.19	57.94	237.13	94.40	12.39	464.05	1110.47

* AN AVERAGE OF FOUR IRRIGATIONS PER SEASON.

** SEE APPENDIX III: POLLINATION COST CALCULATIONS.

*** ONE TO TWO TIMES PER YEAR. AN AVERAGE OF 1.5 TIMES.

**** TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75/ACRE.

TABLE 14.3. ITEMIZED COST PER ACRE FOR THE **SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.**

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
VELPAR	QT.	18.00	1.00	18.00	_____
PROWL	PINT	3.62	5.00	18.10	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
DIMETHOATE	PINT	6.00	.75	4.50	_____
WARRIOR	OZ.	3.51	3.84	13.48	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
CUSTOM AERIAL	ACRE	7.50	1.50	11.25	_____
CLEANUP SPRAY	ACRE	12.00	1.50	18.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
POLLINATION COST	ACRE	212.66	1.00	212.66	_____
SEED PRODUCTION FEE	ACRE	1.75	1.00	1.75	_____
SEED CERTIFICATION FEE	ACRE	.12	1.00	.12	_____
HAULING COST	ACRE	4.75	1.00	4.75	_____
WATER CHARGE	ACRE	45.00	1.00	45.00	_____
IRRIGATION POWER	ACRE	40.00	1.00	40.00	_____
IRRIGATION REPAIR	ACRE	20.00	1.00	20.00	_____
TRACTOR REPAIR	ACRE	3.28	1.00	3.28	_____
TRACTOR FUEL/LUBE	ACRE	4.78	1.00	4.78	_____
MACHINERY REPAIRS	ACRE	22.85	1.00	22.85	_____
MACHINE FUEL/LUBE	ACRE	14.10	1.00	14.10	_____
LABOR	HOUR	14.50	4.16	60.27	_____
INTEREST ON OP. CAP.	ACRE	12.53	1.00	12.53	_____
OVERHEAD	ACRE	26.90	1.00	26.90	_____

TOTAL VARIABLE COST				564.82	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	6.70	1.00	6.70	_____
TRACTOR INTEREST	ACRE	6.91	1.00	6.91	_____
TRACTOR INSURANCE	ACRE	.46	1.00	.46	_____
TRACTOR TAXES	ACRE	1.38	1.00	1.38	_____
MACHINE DEPRECIATION*	ACRE	47.64	1.00	47.64	_____
MACHINE INTEREST*	ACRE	30.36	1.00	30.36	_____
MACHINE INSURANCE*	ACRE	2.02	1.00	2.02	_____
MACHINE TAXES*	ACRE	6.07	1.00	6.07	_____
POLLINATION COST	ACRE	81.59	1.00	81.59	_____
LAND RENT	ACRE	235.00	1.00	235.00	_____
AMORT ESTAB COST	ACRE	181.89	1.00	181.89	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____

TOTAL FIXED COST				650.02	_____

TOTAL COST				1214.84	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 13.3. MATERIALS AND SERVICES USED BY OPERATION FOR THE SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	FEBRUARY	1 QUART OF VELPAR @ \$18.00/QUART
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.62/PINT
IRRIGATE (4X)	SEASON	IRRIGATION CHARGE @ \$45.00/ACRE POWER CHARGE @ \$40.00/ACRE
PRE-BLOOM SPRAY	MAY	CUSTOM AERIAL @ \$7.50/ACRE 0.75 PINT OF DIMETHOLATE @ \$6.00/PINT 3.84 OUNCES OF WARRIOR @ \$3.51/OUNCE FOLIAR FEED @ \$4.00/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$212.66/ACRE
CERTIFICATION FEE	JUNE	SEED CERTIFICATION FEE @ \$15.00/FIELD
PRODUCTION FEE	JUNE	SEED PRODUCTION FEE @ \$1.75/ACRE
ROGUE FIELD (BACKPACK SPRAY)	JULY	ROGUING SPRAY @ \$1.00/ACRE
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50/ACRE CLEANUP SPRAY @ \$12.00/ACRE
HAUL SEED	AUGUST	TOTAL COST @ \$4.75/ACRE
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 14.2. ITEMIZED COST PER ACRE FOR THE **FIRST YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.**

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
PROWL	PINT	3.62	5.00	18.10	_____
CHEMIGATOR RENT	ACRE	1.00	1.00	1.00	_____
BUCTRIL	PINT	7.75	2.00	15.50	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
DIMETHOATE	PINT	6.00	.75	4.50	_____
WARRIOR	OZ.	3.51	3.84	13.48	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
CUSTOM AERIAL	ACRE	7.50	1.50	11.25	_____
CLEANUP SPRAY	ACRE	12.00	1.50	18.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
POLLINATION COST	ACRE	267.26	1.00	267.26	_____
SEED PRODUCTION FEE	ACRE	1.75	1.00	1.75	_____
SEED CERTIFICATION FEE	ACRE	.12	1.00	.12	_____
HAULING COST	ACRE	4.75	1.00	4.75	_____
WATER CHARGE	ACRE	45.00	1.00	45.00	_____
IRRIGATION POWER	ACRE	40.00	1.00	40.00	_____
IRRIGATION REPAIR	ACRE	20.00	1.00	20.00	_____
TRACTOR REPAIR	ACRE	4.06	1.00	4.06	_____
TRACTOR FUEL/LUBE	ACRE	6.07	1.00	6.07	_____
MACHINERY REPAIRS	ACRE	23.29	1.00	23.29	_____
MACHINE FUEL/LUBE	ACRE	13.97	1.00	13.97	_____
LABOR	HOUR	14.50	4.34	62.92	_____
INTEREST ON OP. CAP.	ACRE	12.34	1.00	12.34	_____
OVERHEAD	ACRE	29.79	1.00	29.79	_____
TOTAL VARIABLE COST				625.65	_____

FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	8.25	1.00	8.25	_____
TRACTOR INTEREST	ACRE	8.48	1.00	8.48	_____
TRACTOR INSURANCE	ACRE	.57	1.00	.57	_____
TRACTOR TAXES	ACRE	1.70	1.00	1.70	_____
MACHINE DEPRECIATION	ACRE	47.34	1.00	47.34	_____
MACHINE INTEREST	ACRE	30.62	1.00	30.62	_____
MACHINE INSURANCE	ACRE	2.04	1.00	2.04	_____
MACHINE TAXES	ACRE	6.12	1.00	6.12	_____
POLLINATION COST	ACRE	81.59	1.00	81.59	_____
LAND RENT	ACRE	235.00	1.00	235.00	_____
AMORT ESTAB COST	ACRE	181.89	1.00	181.89	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
TOTAL FIXED COST				653.60	_____
TOTAL COST				1279.25	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 13.2. MATERIALS AND SERVICES USED BY OPERATION FOR THE FIRST YEAR OF ALFALFA
SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.

OPERATION	MONTH	MATERIAL AND/OR SERVICE
HERBICIDE SPRAY	APRIL	5 PINTS OF PROWL @ \$3.62/PINT
IRRIGATE (5X)	SEASON	IRRIGATION CHARGE @ 45.00/ACRE POWER CHARGE @40.00/ACRE
APPLY HERBICIDE	MAY	CHEMIGATOR RENTAL @ \$1.00/ACRE 2 PINTS OF BUCTRIL @ \$7.75/PINT
PRE-BLOOM SPRAY	MAY	CUSTOM AERIAL @ \$7.50/ACRE 0.75 PINT OF DIMETHOATE @ \$6.00/PINT 3.84 OUNCES OF WARRIOR @ \$3.51/OUNCE FOLIAR FEED @ \$4.00/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$267.26/ACRE
CERTIFICATION	JUNE	SEED CERTIFICATION FEE @ \$15.00/FIELD
PRODUCTION FEE	JUNE	SEED PRODUCTION FEE @ \$1.75/ACRE
ROGUE FIELD (BACKPACK SPRAY)	JULY	ROGUING SPRAY @ \$1.00/ACRE
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50/ACRE CLEANUP SPRAY @ \$12.00/ACRE
HAUL SEED	AUGUST	TOTAL COST @ \$4.75/ACRE
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 12.2. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR THE FIRST YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.

		VARIABLE COST										
OPERATION	TOOLING	MTH YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL, LUBE, & REPAIRS					TOTAL	TOTAL
					FIXED COST	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST	COST	
						\$	\$	\$	\$	\$	\$	\$
CULTIVATE	100HP-WT, 6R CULTIVATOR	MAR 2002	.29	.31	5.00	2.17	4.56	.00	.00	.40	7.14	12.14
RESERVOIR TILL	150HP-WT, RESERVOIR TILLER	MAR 2002	.17	.18	4.38	2.63	2.66	.00	.00	.32	5.61	9.98
HERBICIDE SPRAY	100HP-WT, ROLL CULT/SADDLE TK	APR 2002	.33	.44	7.14	3.33	6.44	.00	18.10	1.46	29.34	36.48
HAUL WATER	NURSE TRUCK	APR 2002	.04	.04	1.19	.37	.64	.00	.00	.05	1.06	2.25
IRRIGATE*	CENTER PIVOT IRRIGATION	SEA 2002	.00	.85	.00	20.00	12.32	85.00	.00	5.28	122.60	122.60
APPLY HERBICIDE	THROUGH THE CENTER PIVOT	MAY 2002	.00	.00	.00	.00	.00	1.00	15.50	.74	17.24	17.24
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY 2002	.00	.00	.00	.00	.00	7.50	21.98	1.33	30.80	30.80
POLLINATION**	DOLLAR COST OF POLLINATION	MAY 2002	.00	.00	81.59	.00	.00	267.26	.00	.00	267.26	348.85
CERTIFICATION	SEED CERTIFICATION FEE	JUN 2002	.00	.00	.00	.00	.00	.12	.00	.00	.12	.12
PRODUCTION FEE	SEED PRODUCTION FEE	JUN 2002	.00	.00	.00	.00	.00	1.75	.00	.07	1.82	1.82
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL 2002	.00	1.00	.31	.00	14.50	.00	1.00	.47	15.97	16.28
CLEANUP SPRAY	CUSTOM AERIAL (1.5X)***	AUG 2002	.00	.00	.00	.00	.00	11.25	18.00	.66	29.91	29.91
SWATH	14' SWATHER	AUG 2002	.25	.28	12.08	3.08	3.99	.00	.00	.16	7.23	19.31
COMBINE	14' COMBINE	AUG 2002	.67	.73	33.94	17.70	10.63	.00	.00	.64	28.97	62.91
HAUL SEED	HAULING COST****	AUG 2002	.00	.00	.00	.00	.00	4.75	.00	.11	4.86	4.86
RESIDUE MANAGEMT	150HP-WT, 12' OFFSET DISK	OCT 2002	.25	.28	6.03	3.53	3.99	.00	.00	.06	7.58	13.61
THIN FIELD	150HP-WT, 6 ROW CULTIVATOR	OCT 2002	.20	.22	3.62	2.29	3.19	.00	.00	.04	5.52	9.15
BUILDINGS	MACHINE SHED AND SHOP	ANN 2002	.00	.00	7.23	.80	.00	.00	.00	.04	.84	8.06
MISC. USE	SHOP TOOLS	ANN 2002	.00	.00	8.24	.00	.00	.00	.00	.00	.00	8.24
MISC. USE	MANAGER'S PICKUP	ANN 2002	1.07	.00	6.62	4.77	.00	.00	.00	.21	4.98	11.60
MISC. USE	LABOR'S PICKUP	ANN 2002	1.50	.00	9.31	6.70	.00	.00	.00	.30	7.01	16.32
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN 2002	.00	.00	.00	.00	.00	29.79	.00	.00	29.79	29.79
LAND COST	LAND RENT	ANN 2002	.00	.00	235.00	.00	.00	.00	.00	.00	.00	235.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN 2002	.00	.00	181.89	.00	.00	.00	.00	.00	.00	181.89
MANAGEMENT	MANAGEMENT COST	ANN 2002	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE			4.76	4.34	653.60	67.39	62.92	408.42	74.58	12.34	625.65	1279.25

* AN AVERAGE OF FIVE IRRIGATIONS PER SEASON.

** SEE APPENDIX III: POLLINATION COST CALCULATIONS.

*** ONE TO TWO TIMES PER YEAR. AN AVERAGE OF 1.5 TIMES.

**** TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75/ACRE.

TABLE 14.1. ITEMIZED COST PER ACRE FOR **ESTABLISHING AN ALFALFA SEED FIELD**, FOLLOWING WHEAT, UNDER **CENTER PIVOT IRRIGATION** IN THE COLUMBIA BASIN.

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM
VARIABLE COSTS		\$		\$	
SOIL TEST	ACRE	1.00	1.00	1.00	_____
CUSTOM FERTILIZE	ACRE	7.00	1.00	7.00	_____
NITROGEN	LB.	.28	30.00	8.40	_____
PHOSPHORUS	LB.	.24	30.00	7.20	_____
POTASH	LB.	.14	30.00	4.20	_____
SULFUR	LB.	.11	10.00	1.10	_____
TREFLAN	PINT	2.75	1.00	2.75	_____
EPTAM	PINT	5.00	3.00	15.00	_____
BORON	LB.	2.70	1.00	2.70	_____
ALFALFA SEED	LB.	5.00	.75	3.75	_____
FUSILADE	PINT	15.25	1.50	22.88	_____
METHYLATED SEED OIL	GAL.	14.50	.25	3.62	_____
BUCTRIL	PINT	7.75	2.00	15.50	_____
CHEMIGATOR RENT	ACRE	1.00	1.00	1.00	_____
SEED CERTIFICATION FEE	ACRE	.12	1.00	.12	_____
WATER CHARGE	ACRE	45.00	.50	22.50	_____
IRRIGATION POWER	ACRE	40.00	.50	20.00	_____
IRRIGATION REPAIR	ACRE	20.00	.50	10.00	_____
TRACTOR REPAIR	ACRE	7.37	1.00	7.37	_____
TRACTOR FUEL/LUBE	ACRE	11.87	1.00	11.87	_____
MACHINERY REPAIRS	ACRE	15.00	1.00	15.00	_____
MACHINE FUEL/LUBE	ACRE	3.06	1.00	3.06	_____
LABOR	HOUR	14.50	2.91	42.14	_____
INTEREST ON OP. CAP.	ACRE	4.77	1.00	4.77	_____
OVERHEAD	ACRE	11.65	1.00	11.65	_____
TOTAL VARIABLE COST				244.56	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	14.54	1.00	14.54	_____
TRACTOR INTEREST	ACRE	14.56	1.00	14.56	_____
TRACTOR INSURANCE	ACRE	.97	1.00	.97	_____
TRACTOR TAXES	ACRE	2.91	1.00	2.91	_____
MACHINE DEPRECIATION*	ACRE	22.97	1.00	22.97	_____
MACHINE INTEREST*	ACRE	13.74	1.00	13.74	_____
MACHINE INSURANCE*	ACRE	.92	1.00	.92	_____
MACHINE TAXES*	ACRE	2.75	1.00	2.75	_____
LAND RENT	ACRE	235.00	.50	117.50	_____
MANAGEMENT FEE	ACRE	50.00	.50	25.00	_____
TOTAL FIXED COST				215.86	_____
TOTAL COST				460.42	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 13.1. MATERIALS AND SERVICES USED BY OPERATION FOR ESTABLISHING AN ALFALFA SEED FIELD, FOLLOWING WHEAT, UNDER CENTER PIVOT IRRIGATION.

OPERATION	MONTH	MATERIAL AND/OR SERVICE
IRRIGATE (3X)	AUG.-SEPT.	50% OF THE ANNUAL IRRIGATION CHARGE @ \$45.00/ACRE 2 APPLICATIONS OF PAM AT 0.5 LB. PER APPLICATION @ \$3.32/LB.
SOIL TEST	AUGUST	CUSTOM HIRED @ \$1.00/ACRE
FERTILIZE	AUGUST	CUSTOM FERTILIZE @ \$7.00/ACRE 30 LBS. OF NITROGEN @ \$.28/LB. 30 LBS. OF PHOSPHORUS @ \$.24/LB. 30 LBS. OF POTASH @ \$.14/LB. 10 LBS. OF SULFUR @ \$.11/LB. 1 LB. OF BORON @ \$2.70/LB.
ROTOTILL/HERBICIDE	AUGUST	1.0 PINT OF TREFLAN @ \$2.75/PINT 3.0 PINTS OF EPTAM @ \$5.00/PINT
PLANT/CORRUGATE	SEPTEMBER	0.75 LB. OF ALFALFA SEED @ \$5.00/LB.
APPLY HERBICIDE	SEPTEMBER	1.5 PINTS OF FUSILADE @ \$15.25/PINT 1.0 QUART OF METHYLATED SEED OIL @ \$14.50/GAL.
APPLY HERBICIDE	OCTOBER	CHEMIGATOR RENTAL @ \$1.00/ACRE 2.0 PINTS OF BUCTRIL @ \$7.75/PINT
SEED CERTIFICATION	OCTOBER	SEED CERTIFICATION FEE @ \$15.00/FIELD
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 12.1. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING AN ALFALFA SEED FIELD, FOLLOWING WHEAT, UNDER CENTER PIVOT IRRIGATION.*

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST
							FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.		
						\$	\$	\$	\$	\$	\$	\$	
SHRED STUBBLE	150HP-WT, 12' FLAIL SHREDDER	AUG	2001	.40	.44	10.22	4.51	6.38	.00	.00	.25	11.13	21.36
DISK & PACK (2X)	150HP-WT, 12' DISC W/14' PACK.	AUG	2001	.50	.55	13.29	7.41	7.98	.00	.00	.35	15.73	29.02
IRRIGATE (3X)**	CENTER PIVOT IRRIGATION	AUG	2001	.00	.43	.00	10.00	6.24	42.50	.00	1.32	60.06	60.06
DISK & PACK	150HP-WT, 12' DISC W/14' PACK.	AUG	2001	.25	.28	6.64	3.71	3.99	.00	.00	.17	7.87	14.51
SOIL TEST	CUSTOM HIRE	AUG	2001	.00	.00	.00	.00	.00	1.00	.00	.02	1.02	1.02
FERTILIZE	CUSTOM HIRE	AUG	2001	.00	.00	.00	.00	.00	7.00	23.60	.69	31.29	31.29
PLOW & PACK	150HP-WT, 4BTM PLOW W/7' PACK.	AUG	2001	.29	.31	6.36	4.07	4.56	.00	.00	.19	8.82	15.18
ROTOTILL/HERBIC.	150HP-WT, 12'ROTO. W/SADDLE TK	AUG	2001	.33	.44	9.48	5.95	6.44	.00	17.75	.68	30.82	40.30
HAUL WATER	NURSE TRUCK	AUG	2001	.04	.04	1.19	.37	.64	.00	.00	.02	1.03	2.22
PLANT	100HP-WT, 6R PLANTER W/CORRUG.	SEP	2001	.25	.28	6.88	2.44	3.99	.00	3.75	.15	10.33	17.22
APPLY HERBICIDE	100HP-WT, SADDLE TK W/40' BOOM	SEP	2001	.10	.13	1.92	.90	1.93	.00	26.50	.44	29.77	31.69
APPLY HERBICIDE	THROUGH THE CENTER PIVOT	OCT	2001	.00	.00	.00	.00	.00	1.00	15.50	.12	16.62	16.62
CERTIFICATION	SEED CERTIFICATION FEE	OCT	2001	.00	.00	.00	.00	.00	.12	.00	.00	.12	.12
BUILDINGS	MACHINE SHED AND SHOP	ANN	2001	.00	.00	3.61	.40	.00	.00	.00	.02	.42	4.03
MISC. USE	SHOP TOOLS	ANN	2001	.00	.00	5.47	3.00	.00	.00	.00	.14	3.14	8.61
MISC. USE	MANAGER'S PICKUP	ANN	2001	.53	.00	3.31	2.38	.00	.00	.00	.11	2.49	5.80
MISC. USE	LABOR'S PICKUP	ANN	2001	.75	.00	4.98	2.14	.00	.00	.00	.10	2.24	7.22
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2001	.00	.00	.00	.00	.00	11.65	.00	.00	11.65	11.65
LAND COST	LAND RENT	ANN	2001	.00	.00	117.50	.00	.00	.00	.00	.00	.00	117.50
MANAGEMENT	MANAGEMENT COST	ANN	2001	.00	.00	25.00	.00	.00	.00	.00	.00	.00	25.00
TOTAL PER ACRE				3.44	2.91	215.86	47.29	42.13	63.27	87.10	4.77	244.56	460.42

* FOR THE ESTABLISHMENT YEAR, THE FOLLOWING COSTS ARE ALLOCATED 50% ALFALFA ESTABLISHMENT AND 50% WHEAT: IRRIGATION, PICKUPS, MACHINE SHED AND SHOP, SHOP TOOLS, LAND RENT AND MANAGEMENT COST.

** IRRIGATE ONCE IN AUGUST BEFORE PLANTING AND TWICE IN SEPTEMBER AFTER PLANTING.

APPENDIX II

Detailed Budgets for Alfalfa Seed
Produced Under Center Pivot
Irrigation

Table 11. Input Prices.

Input	Unit	Cost
Services:		\$
Water Charge	Acre	45.00
Soil Test	Acre	1.00
Custom Fertilize	Acre	7.00
Custom Aerial	Acre	7.50
Seed Certification Fee	Field	15.00
Seed Production Fee	Acre	1.75
Materials:		
Alfalfa Seed	Lb.	5.00
2,4-DB-Amine	Qt.	11.25
Nitrogen (Actual)	Lb.	.28
Phosphorus (Actual)	Lb.	.24
Potash (Actual)	Lb.	.14
Sulfur (Actual)	Lb.	.11
Boron (Actual)	Lb.	2.70
Buctril	Pint	7.75
Fusilade	Pint	15.25
PAM	Lb.	3.32
Treflan	Pint	2.75
Eptan	Pint	5.00
Methylated Seed Oil	Gal.	14.50
Prowl	Pint	3.62
Dimethoate	Pint	6.00
Warrior	Oz.	3.51
Velpar	Qt.	18.00
Sencor	Lb.	21.00
Roundup	Qt.	10.00
Foliar Feed	Acre	4.00
Roguing Spray	Acre	1.00
Insecticide	Acre	12.00
Gasoline	Gal.	1.40
Diesel	Gal.	.95
Labor	Hour	14.50
Land Rent:		
Rill Irrigated	Acre	135.00
Center Pivot Irrigated	Acre	235.00

TABLE 10. MACHINERY AND BUILDING COSTS.

MACHINERY	PURCHASE PRICE	YEARS TO TRADE	ANNUAL HOURS	DEPREC-IATION	INTER-EST	INSUR-ANCE	TAXES	HOUSING	TOTAL FIXED COST	REPAIR	FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST
	\$								-----COST PER HOUR-----				
150HP-WT	90,000.00	15	700	6.95	6.88	.46	1.38	.00	15.67	3.57	4.37*	7.94	23.61
100HP-WT	62,000.00	15	500	6.40	6.84	.46	1.37	.00	15.06	3.00	3.28	6.28	21.34
PICKUP, MANAGEMENT	26,000.00	5	800	3.50	2.14	.14	.43	.00	6.21	1.25	3.22	4.47	10.68
PICKUP, LABOR'S	12,000.00	5	400	4.50	1.69	.11	.34	.00	6.64	1.25	1.61	2.86	9.50
NURSE TRUCK/TANK	10,000.00	10	50	16.00	10.80	.72	2.16	.00	29.68	6.00	3.28	9.28	38.96
70 HP SWATHER	65,000.00	10	200	26.25	17.44	1.16	3.49	.00	48.34	7.50	4.83	12.33	60.67
14' COMBINE	100,000.00	10	300	30.00	16.50	1.10	3.30	.00	50.90	20.00	6.55	26.56	77.46
4-18" MB PLOW	7,300.00	8	250	2.80	1.62	.11	.32	.00	4.85	3.60	.00	3.60	8.45
10' CHISEL PLOW	5,800.00	15	150	2.04	2.10	.14	.42	.00	4.70	2.00	.00	2.00	6.70
7' PACKER	2,600.00	8	250	1.00	.58	.04	.12	.00	1.73	.52	.00	.52	2.25
14' PACKER	3,600.00	8	250	1.48	.76	.05	.15	.00	2.45	.70	.00	.70	3.15
12' OFFSET DISC	12,000.00	8	250	5.50	2.34	.16	.47	.00	8.46	4.00	.00	4.00	12.46
6R-CULTIVATOR	3,000.00	15	150	1.20	.99	.07	.20	.00	2.45	1.33	.00	1.33	3.79
6R-CULT/CORRUGAT	4,400.00	15	150	1.78	1.44	.10	.29	.00	3.60	1.67	.00	1.67	5.27
6R-ROLLING CULT.	5,500.00	15	150	2.22	1.80	.12	.36	.00	4.50	2.00	.00	2.00	6.50
3&5R CORRUGATOR	1,400.00	15	150	.58	.45	.03	.09	.00	1.15	.43	.00	.43	1.58
HEADLAND CORRUGATOR	2,500.00	5	250	1.80	.50	.03	.10	.00	2.43	.60	.00	.60	3.03
12' ROTOVATOR	11,000.00	10	150	6.00	3.90	.26	.78	.00	10.94	6.00	.00	6.00	16.94
SKEWTREADER	7,500.00	5	250	4.80	1.62	.11	.32	.00	6.85	3.00	.00	3.00	9.85
FLAIL SHREDDER	10,000.00	10	150	5.33	3.60	.24	.72	.00	9.89	3.33	.00	3.33	13.23
RESERVOIR TILLER	13,000.00	15	150	4.89	4.50	.30	.90	.00	10.59	5.67	.00	5.67	16.26
6R-PLANT/CORRUGATOR	9,000.00	12	100	7.00	4.32	.29	.86	.00	12.47	3.50	.00	3.50	15.97
40' SPRAY BOOM	1,500.00	10	100	1.30	.77	.05	.15	.00	2.27	1.00	.00	1.00	3.27
SADDLE TANK SPRY	2,200.00	10	175	.97	.69	.05	.14	.00	1.85	1.71	.00	1.71	3.57
BACKPACK SPRAYER	100.00	10	50	.20	.09	.01	.02	.00	.31	.00	.00	.00	.31
			ACRES						-----COST PER ACRE-----				
IRRIGATION TUBES	505.00	5	50	2.02	.45	.03	.09	.00	2.60	.00	.00	.00	2.60
IRRIGATION DAMS	170.00	3	50	1.13	.15	.01	.03	.00	1.33	.00	.00	.00	1.33
MACH SHED & SHOP	60,000.00	30	750	2.67	3.60	.24	.72	.00	7.23	.80	.00	.80	8.03
SHOP TOOLS	50,000.00	15	750	4.44	3.00	.20	.60	.00	8.24	.00	.00	.00	8.24

*SHOWN AT 4 GALLONS OF DIESEL PER HOUR. AT 6 GALLONS OF DIESEL PER HOUR THE FUEL AND LUBE COST IS \$6.55.

TABLE 9. MACHINERY AND BUILDING COMPLEMENT.

MACHINE NAME	PURCHASE PRICE \$	YEARS OF USE	SALVAGE VALUE \$	ANNUAL REPAIR COST \$	ANNUAL HOURS OF USE	GALLONS OF FUEL USED PER HOUR
150HP-WT	90,000	15	17,000	2,500	700	4D, 6D
100HP-WT	62,000	15	14,000	1,500	500	3D
PICKUP, MANAGEMENT	26,000	5	12,000	1,000	800	2G
PICKUP, IRRIGATOR	12,000	5	3,000	500	400	2G
NURSE TRUCK & TANK	10,000	10	2000	300	50	3D
70HP SWATHER	65,000	10	12,500	1,500	200	3G
14' COMBINE	100,000	10	10,000	6,000	300	6D
4-18" MB PLOW	7,300	8	1,700	900	250	
10' CHISEL PLOW	5,800	15	1,200	300	150	
7' PACKER	2,600	8	600	130	250	
14' PACKER	3,600	8	640	175	250	
12' OFFSET DISC	12,000	8	1,000	1,000	250	
6R-CULTIVATOR	3,000	15	300	200	150	
6R-CULTIVATOR/	4,400	15	400	250	150	
6R-ROLLING	5,500	15	500	300	150	
3 & 5R CORRUGATOR	1,400	15	100	65	150	
HEADLAND CORRUGATOR	2,500	5	250	150	250	
12' ROTOVATOR	11,000	10	2,000	900	150	
SKEWTREADER	7,500	5	1,500	750	250	
FLAIL SHREDDER	10,000	10	2,000	500	150	
RESERVOIR TILLER	13,000	15	2,000	850	150	
6R-SM SEED PLANT	9,000	12	600	350	100	
40' SPRAY BOOM	1,500	10	200	100	100	
SADDLE TANK SPRAYER	2,200	10	500	300	175	
BACKPACK SPRAYER	100	10	0	0	50 ACRES	
IRRIGATION TUBES	505	5	0	0	50 ACRES	
IRRIGATION DAMS	170	3	0	0	50 ACRES	
MACH SHED & SHOP	60,000	30	0	600	750 ACRES	
SHOP TOOLS	50,000	15	0	0	750 ACRES	

Table 8. Continued.

Price\Yield*:	550 lbs.	600 lbs.	650 lbs.	700 lbs.	750 lbs.	800 lbs.
	\$	\$	\$	\$	\$	\$
\$1.50/Lb.						
Year 1:						
Minus V. C.	349.31	429.31	509.31	589.31	669.31	749.31
Minus T. C.	-97.83	-17.83	62.17	142.17	222.17	302.17
Year 2:						
Minus V. C.	388.83	468.83	548.83	628.83	708.83	788.83
Minus T. C.	-62.17	17.83	97.83	177.83	257.83	337.83
Year 3:						
Minus V. C.	496.19	576.19	656.19	736.19	816.19	896.19
Minus T. C.	53.24	133.24	213.24	293.24	373.24	453.24
3-Year Average						
Minus V. C.	411.44	491.44	571.44	651.44	731.44	811.44
Minus T. C.	-35.59	44.41	124.41	204.41	284.41	364.41

*Price is net of seed cleaning charges and yield is clean seed.

**V.C. = Variable cost (includes establishment year variable cost amortized over 3 years at 9% interest = \$105.97).

***T.C. = Total cost.

Table 8. Returns Minus Variable Costs and Total Costs for Alfalfa Seed Produced Under Rill Irrigation.

Price\Yield*:	650 lbs.	700 lbs.	750 lbs.	800 lbs.	850 lbs.	900 lbs.
	\$	\$	\$	\$	\$	\$
\$1.00/Lb.						
Year 1:						
Minus V. C.**	-40.69	9.31	59.31	109.31	159.31	209.31
Minus T. C.***	-487.83	-437.83	-387.83	-337.83	-287.83	-237.83
Year 2:						
Minus V. C.	-1.17	48.83	98.83	148.83	198.83	248.83
Minus T. C.	-452.17	-402.17	-352.17	-302.17	-252.17	-202.17
Year 3:						
Minus V. C.	106.19	156.19	206.19	256.19	306.19	356.19
Minus T. C.	-336.76	-286.76	-236.76	-186.76	-136.76	-86.76
3-Year Average						
Over V. C.	21.44	71.44	121.44	171.44	221.44	271.44
Over T. C.	-425.59	-375.59	-325.59	-275.59	-225.59	-175.59
\$1.20/Lb.						
Year 1:						
Minus V. C.	89.31	149.31	209.31	269.31	329.31	389.31
Minus T. C.	-357.83	-297.83	-237.83	-177.83	-117.83	-57.83
Year 2:						
Minus V. C.	128.83	188.83	248.83	308.83	368.83	428.83
Minus T. C.	-322.17	-262.17	-202.17	-142.17	-82.17	-22.17
Year 3:						
Minus V. C.	236.19	296.19	356.19	416.19	476.19	536.19
Minus T. C.	-206.76	-146.76	-86.76	-26.76	33.24	93.24
3-Year Average						
Minus V. C.	151.44	211.44	271.44	331.44	391.44	451.44
Minus T. C.	-295.59	-235.59	-175.59	-115.59	-55.59	4.41
\$1.35/Lb.						
Year 1:						
Minus V. C.	219.31	289.31	359.31	429.31	499.31	569.31
Minus T. C.	-227.83	-157.83	-87.83	-17.83	52.17	122.17
Year 2:						
Minus V. C.	258.83	328.83	398.83	468.83	538.83	608.83
Minus T. C.	-192.17	-122.17	-52.17	17.83	87.83	157.83
Year 3:						
Minus V. C.	366.19	436.19	506.19	576.19	646.19	716.19
Minus T. C.	-76.76	-6.76	63.24	133.24	203.24	273.24
3-Year Average						
Minus V. C.	281.44	351.44	421.44	491.44	561.44	631.44
Minus T. C.	-165.59	-95.59	-25.59	44.41	114.41	184.41

TABLE 7.4. ITEMIZED COST PER ACRE FOR THE **THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

		PRICE OR	QUANTITY	VALUE OR	YOUR
		UNIT COST/UNIT		COST	FARM

VARIABLE COSTS		\$		\$	
SENCOR	LB.	21.00	.67	14.07	_____
PROWL	PINT	3.62	5.00	18.10	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
DIMETHOATE	PINT	6.00	.75	4.50	_____
WARRIOR	OZ.	3.51	3.84	13.48	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
CUSTOM AERIAL	ACRE	7.50	1.50	11.25	_____
CLEANUP SPRAY	ACRE	12.00	1.50	18.00	_____
ROUNDUP	QT.	10.00	1.00	10.00	_____
2-4-DB-AMINE	QT.	11.25	1.00	11.25	_____
POLLINATION COST	ACRE	104.66	1.00	104.66	_____
SEED PRODUCTION FEE	ACRE	1.75	1.00	1.75	_____
SEED CERTIFICATION FEE	ACRE	.30	1.00	.30	_____
PAM	LB.	3.32	1.50	4.98	_____
HAULING COST	ACRE	4.75	1.00	4.75	_____
WATER CHARGE	ACRE	45.00	1.00	45.00	_____
IRRIGATION REPAIR	ACRE	8.00	1.00	8.00	_____
TRACTOR REPAIR	ACRE	3.38	1.00	3.38	_____
TRACTOR FUEL/LUBE	ACRE	4.16	1.00	4.16	_____
MACHINERY REPAIRS	ACRE	22.50	1.00	22.50	_____
MACHINE FUEL/LUBE	ACRE	14.24	1.00	14.24	_____
LABOR	HOUR	14.50	5.43	78.76	_____
INTEREST ON OP. CAP.	ACRE	11.36	1.00	11.36	_____
OVERHEAD	ACRE	20.85	1.00	20.85	_____

TOTAL VARIABLE COST				437.84	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	6.98	1.00	6.98	_____
TRACTOR INTEREST	ACRE	7.27	1.00	7.27	_____
TRACTOR INSURANCE	ACRE	.48	1.00	.48	_____
TRACTOR TAXES	ACRE	1.45	1.00	1.45	_____
MACHINE DEPRECIATION*	ACRE	50.27	1.00	51.27	_____
MACHINE INTEREST*	ACRE	31.19	1.00	31.19	_____
MACHINE INSURANCE*	ACRE	2.08	1.00	2.08	_____
MACHINE TAXES*	ACRE	6.24	1.00	6.24	_____
POLLINATION COST	ACRE	81.59	1.00	81.59	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
AMORT ESTAB. COST	ACRE	176.07	1.00	176.07	_____
LAND RENT	ACRE	135.00	1.00	135.00	_____

TOTAL FIXED COST				548.92	_____
TOTAL COST				986.76	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 6.4. MATERIALS AND SERVICES USED BY OPERATION FOR THE **THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	FEBRUARY	0.67 POUND OF SENCOR @ \$21.00/POUND
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.62/PINT
IRRIGATE (4X)	SEASON	IRRIGATION CHARGE @ 45.00/ACRE 3 APPLICATIONS OF PAM AT 0.5 LB. PER APPLICATION @ \$3.32/LB.
PRE-BLOOM SPRAY	MAY	CUSTOM AERIAL @ \$7.50/ACRE 0.75 PINT OF DIMETHOATE @ \$6.00/PINT 3.84 OUNCES OF WARRIOR @ \$3.51/OUNCE FOLIAR FEED @ \$4.00/ACRE
POLLINATION	MAY	VARIABLE POLLINATION COSTS @ \$104.66/ACRE
CERTIFICATION	JUNE	SEED CERTIFICATION FEE @ \$15.00/FIELD
PRODUCTION FEE	JUNE	SEED PRODUCTION FEE @ \$1.75/ACRE
ROGUE FIELD (BACKPACK SPRAY)	JULY	ROGUING SPRAY @ \$1.00/ACRE
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50/ACRE CLEANUP SPRAY @ \$12.00/ACRE
HAUL SEED	AUGUST	TOTAL COST @ \$4.75/ACRE
SPRAY TO KILL CROP	OCTOBER	1 QUART OF ROUNDUP @ \$10.00/QUART 1 QUART OF 2-4-DB-AMINE @ \$11.25/QT.
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 5.4. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR THE THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.

OPERATION	TOOLING	MTH YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST
						FUEL, LUBE, & REPAIRS	LABOR	SERVICE MATER.	INTER.			
					\$	\$	\$	\$	\$	\$	\$	\$
DORM. WEED SPRAY	100HP-WT, SADDLE TK W/40' BOOM	FEB 2002	.10	.13	1.92	.90	1.93	.00	14.07	1.14	18.04	19.96
HAUL WATER	NURSE TRUCK	FEB 2002	.04	.04	1.19	.37	.64	.00	.00	.07	1.08	2.26
SKEWTTREAD	100HP-WT, 16' SKEWTREADER	MAR 2002	.13	.14	2.74	1.16	1.99	.00	.00	.19	3.34	6.08
APPLY HERBICIDE	100HP-WT, ROLL CULT/SADDLE TK	APR 2002	.33	.44	7.14	3.33	6.44	.00	18.10	1.46	29.34	36.48
HAUL WATER	NURSE TRUCK	APR 2002	.04	.04	1.19	.37	.64	.00	.00	.05	1.06	2.25
LAYBY	150HP-WT, 5 ROW CORRUGATOR	APR 2002	.20	.22	3.36	1.67	3.19	.00	.00	.26	5.12	8.48
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	APR 2002	.06	.07	1.05	.41	.96	.00	.00	.07	1.44	2.49
IRRIGATE (4X)*	RILL IRRIGATION	SEA 2002	.00	2.00	3.92	8.00	29.00	45.00	4.98	3.91	90.89	94.82
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY 2002	.00	.00	.00	.00	.00	7.50	21.98	1.33	30.80	30.80
POLLINATION**	DOLLAR COST OF POLLINATION	SEA 2002	.00	.00	81.59	.00	.00	104.66	.00	.00	104.66	186.25
CERTIFICATION	SEED CERTIFICATION FEE	JUN 2002	.00	.00	.00	.00	.00	.30	.00	.01	.31	.31
PRODUCTION FEE	SEED PRODUCING FEE	JUN 2002	.00	.00	.00	.00	.00	1.75	.00	.07	1.82	1.82
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL 2002	.00	1.00	.31	.00	14.50	.00	1.00	.47	15.97	16.28
CLEANUP SPRAY	CUSTOM AERIAL(1.5X)***	AUG 2002	.00	.00	.00	.00	.00	11.25	18.00	.66	29.91	29.91
SWATH	14' SWATHER	AUG 2002	.25	.28	12.08	3.08	3.99	.00	.00	.16	7.23	19.31
COMBINE	14' COMBINE	AUG 2002	.67	.73	33.94	17.70	10.63	.00	.00	.64	28.97	62.91
HAUL SEED	HAULING COST****	AUG 2002	.00	.00	.00	.00	.00	4.75	.00	.11	4.86	4.86
SPRAY	100HP-WT, SADDLE TK W/40' BOOM	OCT 2002	.10	.13	1.92	.90	1.93	.00	21.25	.18	24.26	26.18
HAUL WATER	NURSE TRUCK	OCT 2002	.04	.04	1.19	.37	.64	.00	.00	.01	1.02	2.20
CHISEL PLOW (2X)	150HP-WT, 10' CHISEL PLOW	OCT 2002	.14	.16	2.91	1.73	2.28	.00	.00	.03	4.04	6.95
BUILDINGS	MACHINE SHED AND SHOP	ANN 2002	.00	.00	7.23	.80	.00	.00	.00	.04	.84	8.06
MISC USE	SHOP TOOLS	ANN 2002	.00	.00	8.24	.00	.00	.00	.00	.00	.00	8.24
MISC USE	MANAGER'S PICKUP	ANN 2002	1.07	.00	6.62	4.77	.00	.00	.00	.21	4.98	11.60
MISC USE	LABOR'S PICKUP	ANN 2002	1.50	.00	9.31	6.70	.00	.00	.00	.30	7.01	16.32
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN 2002	.00	.00	.00	.00	.00	20.85	.00	.00	20.85	20.85
LAND COST	LAND RENT	ANN 2002	.00	.00	135.00	.00	.00	.00	.00	.00	.00	135.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN 2002	.00	.00	176.07	.00	.00	.00	.00	.00	.00	176.07
MANAGEMENT	MANAGEMENT COST	ANN 2002	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE			4.66	5.43	548.92	52.28	78.76	196.06	99.38	11.36	437.84	986.76

* AN AVERAGE OF FOUR IRRIGATIONS PER SEASON.

** SEE APPENDIX II: POLLINATION COST CALCULATIONS.

*** ONE TO TWO TIMES PER YEAR. AN AVERAGE OF 1.5 TIMES.

**** TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75/ACRE.

TABLE 7.3. ITEMIZED COST PER ACRE FOR THE **SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
		\$		\$	
VELPAR	QT.	18.00	1.00	18.00	_____
PROWL	PINT	3.62	5.00	18.10	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
DIMETHOATE	PINT	6.00	.75	4.50	_____
WARRIOR	OZ.	3.51	3.84	13.48	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
CUSTOM AERIAL	ACRE	7.50	1.50	11.25	_____
CLEANUP SPRAY	ACRE	12.00	1.50	18.00	_____
POLLINATION COST	ACRE	212.66	1.00	212.66	_____
SEED CERTIFICATION FEE	ACRE	.30	1.00	.30	_____
SEED PRODUCTION FEE	ACRE	1.75	1.00	1.75	_____
PAM	LB.	3.32	1.50	4.98	_____
HAULING COST	ACRE	4.75	1.00	4.75	_____
WATER CHARGE	ACRE	45.00	1.00	45.00	_____
IRRIGATION REPAIR	ACRE	8.00	1.00	8.00	_____
TRACTOR REPAIR	ACRE	5.07	1.00	5.07	_____
TRACTOR FUEL/LUBE	ACRE	6.92	1.00	6.92	_____
MACHINERY REPAIRS	ACRE	23.09	1.00	23.09	_____
MACHINE FUEL/LUBE	ACRE	14.10	1.00	14.10	_____
LABOR (TRAC/MACH)	HOUR	14.50	5.88	85.24	_____
INTEREST ON OP. CAP.	ACRE	11.55	1.00	11.55	_____
OVERHEAD	ACRE	25.96	1.00	25.96	_____
TOTAL VARIABLE COST				545.20	_____
FIXED COSTS					
		\$		\$	
TRACTOR DEPRECIATION	ACRE	10.25	1.00	10.25	_____
TRACTOR INTEREST	ACRE	10.49	1.00	10.49	_____
TRACTOR INSURANCE	ACRE	.70	1.00	.70	_____
TRACTOR TAXES	ACRE	2.10	1.00	2.10	_____
MACHINE DEPRECIATION*	ACRE	51.25	1.00	51.25	_____
MACHINE INTEREST*	ACRE	31.21	1.00	31.21	_____
MACHINE INSURANCE*	ACRE	2.08	1.00	2.08	_____
MACHINE TAXES*	ACRE	6.24	1.00	6.24	_____
POLLINATION COST	ACRE	81.59	1.00	81.59	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
AMORT ESTAB. COST	ACRE	176.07	1.00	176.07	_____
LAND RENT	ACRE	135.00	1.00	135.00	_____
TOTAL FIXED COST				556.97	_____
TOTAL COST				1102.17	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 6.3. MATERIALS AND SERVICES USED BY OPERATION FOR THE **SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	FEBRUARY	1 QUART OF VELPAR @ \$18.00/QUART
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.62/PINT
IRRIGATE (4X)	SEASON	IRRIGATION CHARGE @ \$45.00/ACRE 3 APPLICATIONS OF PAM AT 0.5 LB. PER APPLICATION @ \$3.32/LB.
PRE-BLOOM SPRAY	MAY	CUSTOM AERIAL @ \$7.50/ACRE 0.75 PINT OF DIMETHOATE @ \$6.00/PINT 3.84 OUNCES OF WARRIOR @ \$3.51/OUNCE FOLIAR FEED @ \$4.00/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$212.66/ACRE
CERTIFICATION	JUNE	SEED CERTIFICATION FEE @ \$15.00/FIELD
PRODUCTION FEE	JUNE	SEED PRODUCTION FEE @ \$1.75/ACRE
ROGUE FIELD (BACKPACK SPRAY)	JULY	ROGUING SPRAY @ \$1.00/ACRE
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50/ACRE CLEANUP SPRAY @ \$12.00/ACRE
HAUL SEED	AUGUST	TOTAL COST @ \$4.75/ACRE
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 5.3. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR THE SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.

		VARIABLE COST											
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	MACH LABOR	SERVICE MATER.	INTER.	TOTAL VARIABLE COST	TOTAL COST	
						\$	\$	\$	\$	\$	\$	\$	
DORM. WEED SPRAY	100HP-WT, SADDLE TK W/40' BOOM	FEB	2002	.10	.13	1.92	.90	1.93	.00	18.00	1.41	22.24	24.16
HAUL WATER	NURSE TRUCK	FEB	2002	.04	.04	1.19	.37	.64	.00	.00	.07	1.08	2.26
SKEWTREAD	100HP-WT, 16' SKEWTREADER	MAR	2002	.13	.14	2.74	1.16	1.99	.00	.00	.19	3.34	6.08
APPLY HERBICIDE	100HP-WT, ROLL CULT/SADDLE TK	APR	2002	.33	.44	7.14	3.33	6.44	.00	18.10	1.46	29.34	36.48
HAUL WATER	NURSE TRUCK	APR	2002	.04	.04	1.19	.37	.64	.00	.00	.05	1.06	2.25
LAYBY	150HP-WT, 5 ROW CORRUGATOR	APR	2002	.20	.22	3.36	1.67	3.19	.00	.00	.26	5.12	8.48
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	APR	2002	.06	.07	1.05	.41	.96	.00	.00	.07	1.44	2.49
IRRIGATE (4X)*	RILL IRRIGATION	SEA	2002	.00	2.00	3.92	8.00	29.00	45.00	4.98	3.91	90.89	94.82
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2002	.00	.00	.00	.00	.00	7.50	21.98	1.33	30.80	30.80
POLLINATION**	DOLLAR COST OF POLLINATION	SEA	2002	.00	.00	81.59	.00	.00	212.66	.00	.00	212.66	294.25
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2002	.00	.00	.00	.00	.00	.30	.00	.01	.31	.31
PRODUCTION FEE	SEED PRODUCING FEE	JUN	2002	.00	.00	.00	.00	.00	1.75	.00	.07	1.82	1.82
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2002	.00	1.00	.31	.00	14.50	.00	1.00	.47	15.97	16.28
CLEANUP SPRAY	CUSTOM AERIAL(1.5X)***	AUG	2002	.00	.00	.00	.00	.00	11.25	18.00	.66	29.91	29.91
SWATH	14' SWATHER	AUG	2002	.25	.28	12.08	3.08	3.99	.00	.00	.16	7.23	19.31
COMBINE	14' COMBINE	AUG	2002	.67	.73	33.94	17.70	10.63	.00	.00	.64	28.97	62.91
HAUL SEED	HAULING COST****	AUG	2002	.00	.00	.00	.00	.00	4.75	.00	.11	4.86	4.86
RESIDUE MANAGEMT	150HP-WT, 12' OFFSET DISK	OCT	2002	.25	.28	6.03	3.53	3.99	.00	.00	.06	7.58	13.61
CORRUGATE	150HP-WT, 5 ROW CORRUGATOR	OCT	2002	.20	.22	3.36	1.67	3.19	.00	.00	.04	4.90	8.26
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	OCT	2002	.06	.07	1.05	.41	.96	.00	.00	.01	1.38	2.43
THIN FIELD	150HP-WT, 6 ROW CULTIVATOR	OCT	2002	.20	.22	3.62	2.29	3.19	.00	.00	.04	5.52	9.15
BUILDINGS	MACHINE SHED AND SHOP	ANN	2002	.00	.00	7.23	.80	.00	.00	.00	.04	.84	8.06
MISC. USE	SHOP TOOLS	ANN	2002	.00	.00	8.24	.00	.00	.00	.00	.00	.00	8.24
MISC USE	MANAGER'S PICKUP	ANN	2002	1.07	.00	6.62	4.77	.00	.00	.00	.21	4.98	11.60
MISC USE	LABOR'S PICKUP	ANN	2002	1.50	.00	9.31	6.70	.00	.00	.00	.30	7.01	16.32
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2002	.00	.00	.00	.00	.00	25.96	.00	.00	25.96	25.96
LAND COST	LAND RENT	ANN	2002	.00	.00	135.00	.00	.00	.00	.00	.00	.00	135.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2002	.00	.00	176.07	.00	.00	.00	.00	.00	.00	176.07
MANAGEMENT	MANAGEMENT COST	ANN	2002	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				5.09	5.88	556.97	57.19	85.24	309.17	82.06	11.55	545.20	1102.17

* AN AVERAGE OF FOUR IRRIGATIONS PER SEASON.

** SEE APPENDIX II: POLLINATION COST CALCULATIONS.

*** ONE TO TWO TIMES PER YEAR. AN AVERAGE OF 1.5 TIMES.

**** TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75/ACRE.

TABLE 7.2. ITEMIZED COST PER ACRE FOR THE **FIRST YEAR OF ALFALFA**
SEED PRODUCTION UNDER RILL IRRIGATION.

		PRICE OR UNIT COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM

VARIABLE COSTS		\$		\$	
PROWL	PINT	3.62	5.00	18.10	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
DIMETHOATE	PINT	6.00	.75	4.50	_____
WARRIOR	OZ.	3.51	3.84	13.48	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
POLLINATION COST	ACRE	267.26	1.00	267.26	_____
SEED CERTIFICATION FEE	ACRE	.30	1.00	.30	_____
SEED PRODUCTION FEE	ACRE	1.75	1.00	1.75	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
CUSTOM AERIAL	ACRE	7.50	1.50	11.25	_____
CLEANUP SPRAY	ACRE	12.00	1.50	18.00	_____
PAM	LB.	3.32	1.50	4.98	_____
WATER CHARGE	ACRE	45.00	1.00	45.00	_____
HAULING COST	ACRE	4.75	1.00	4.75	_____
IRRIGATION REPAIR	ACRE	8.00	1.00	8.00	_____
TRACTOR REPAIR	ACRE	4.54	1.00	4.54	_____
TRACTOR FUEL/LUBE	ACRE	6.25	1.00	6.25	_____
MACHINERY REPAIRS	ACRE	22.60	1.00	22.60	_____
MACHINE FUEL/LUBE	ACRE	13.97	1.00	13.97	_____
LABOR	ACRE	14.50	6.16	89.29	_____
INTEREST ON OP. CAP.	ACRE	10.36	1.00	10.36	_____
OVERHEAD	ACRE	27.84	1.00	27.84	_____

TOTAL VARIABLE COST				584.72	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	9.25	1.00	9.25	_____
TRACTOR INTEREST	ACRE	9.53	1.00	9.53	_____
TRACTOR INSURANCE	ACRE	.64	1.00	.64	_____
TRACTOR TAXES	ACRE	1.91	1.00	1.91	_____
MACHINE DEPRECIATION*	ACRE	50.17	1.00	50.17	_____
MACHINE INTEREST*	ACRE	30.75	1.00	30.75	_____
MACHINE INSURANCE*	ACRE	2.05	1.00	2.05	_____
MACHINE TAXES*	ACRE	6.15	1.00	6.15	_____
POLLINATION COST	ACRE	81.59	1.00	81.59	_____
AMORT ESTAB. COST	ACRE	176.07	1.00	176.07	_____
LAND RENT	ACRE	135.00	1.00	135.00	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____

TOTAL FIXED COST				553.11	_____
TOTAL COST				1137.83	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 6.2. MATERIALS AND SERVICES USED BY OPERATION FOR THE FIRST YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.

OPERATION	MONTH	MATERIAL AND/OR SERVICE
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.62/PINT
IRRIGATE (5X)	SEASON	IRRIGATION CHARGE @ 45.00/ACRE 3 APPLICATIONS OF PAM AT 0.5 LB. PER APPLICATION @ \$3.32/LB.
PRE-BLOOM SPRAY	MAY	CUSTOM AERIAL @ \$7.50/ACRE 0.75 PINT OF DIMETHOATE @ \$6.00/PINT 3.84 OUNCES OF WARRIOR @ \$3.51/OUNCE FOLIAR FEED @ \$4.00/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$267.26/ACRE
CERTIFICATION	JUNE	SEED CERTIFICATION FEE @ \$15.00/FIELD
PRODUCTION FEE	JUNE	SEED PRODUCTION FEE @ \$1.75/ACRE
ROGUE FIELD (BACKPACK SPRAY)	JULY	ROGUING SPRAY @ \$1.00/ACRE
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50/ACRE CLEANUP SPRAY @ \$12.00/ACRE
HAUL SEED	AUGUST	TOTAL COST @ \$4.75/ACRE
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 5.2. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR THE FIRST YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.

OPERATION	TOOLING	MTH YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST
						FUEL, LUBE, & REPAIRS	LABOR	SERVICE MATER.	INTER.	TOTAL		
						\$	\$	\$	\$	\$	\$	\$
CULTIVATE/CORRUG	100HP-WT, 6R CULTIV./CORRUGA.	MAR 2002	.29	.31	5.33	2.27	4.56	.00	.00	.41	7.24	12.57
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	APR 2002	.06	.07	1.05	.41	.96	.00	.00	.07	1.44	2.49
APPLY HERBICIDE	100HP-WT, ROLL CULT/SADDLE TK	APR 2002	.33	.44	7.14	3.33	6.44	.00	18.10	1.46	29.34	36.48
HAUL WATER	NURSE TRUCK	APR 2002	.04	.04	1.19	.37	.64	.00	.00	.05	1.06	2.25
IRRIGATE (5X)*	RILL IRRIGATION	SEA 2002	.00	2.50	3.92	8.00	36.25	45.00	4.98	4.24	98.47	102.39
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY 2002	.00	.00	.00	.00	.00	7.50	21.98	1.33	30.80	30.80
POLLINATION**	DOLLAR COST OF POLLINATION	MAY 2002	.00	.00	81.59	.00	.00	267.26	.00	.00	267.26	348.85
CERTIFICATION	SEED CERTIFICATION FEE	JUN 2002	.00	.00	.00	.00	.00	.30	.00	.01	.31	.31
PRODUCTION FEE	SEED PRODUCTION FEE	JUN 2002	.00	.00	.00	.00	.00	1.75	.00	.07	1.82	1.82
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL 2002	.00	1.00	.31	.00	14.50	.00	1.00	.47	15.97	16.28
CLEANUP SPRAY	CUSTOM AERIAL (1.5X)***	AUG 2002	.00	.00	.00	.00	.00	11.25	18.00	.66	29.91	29.91
SWATH	14' SWATHER	AUG 2002	.25	.28	12.08	3.08	3.99	.00	.00	.16	7.23	19.31
COMBINE	14' COMBINE	AUG 2002	.67	.73	33.94	17.70	10.63	.00	.00	.64	28.97	62.91
HAUL SEED	HAULING COST****	AUG 2002	.00	.00	.00	.00	.00	4.75	.00	.11	4.86	4.86
RESIDUE MANAGEMT	150HP-WT, 12' OFFSET DISK	OCT 2002	.25	.28	6.03	3.53	3.99	.00	.00	.06	7.58	13.61
CORRUGATE	150HP-WT, 3 ROW CORRUGATOR	OCT 2002	.20	.22	3.36	1.67	3.19	.00	.00	.04	4.90	8.26
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	OCT 2002	.06	.07	1.05	.41	.96	.00	.00	.01	1.38	2.43
THIN FIELD	150HP-WT, 6 ROW CULTIVATOR	OCT 2002	.20	.22	3.62	2.29	3.19	.00	.00	.04	5.52	9.15
BUILDINGS	MACHINE SHED AND SHOP	ANN 2002	.00	.00	7.23	.80	.00	.00	.00	.04	.84	8.06
MISC. USE	SHOP TOOLS	ANN 2002	.00	.00	8.24	.00	.00	.00	.00	.00	.00	8.24
MISC. USE	MANAGER'S PICKUP	ANN 2002	1.07	.00	6.62	4.77	.00	.00	.00	.21	4.98	11.60
MISC. USE	LABOR'S PICKUP	ANN 2002	1.50	.00	9.31	6.70	.00	.00	.00	.30	7.01	16.32
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN 2002	.00	.00	.00	.00	.00	27.84	.00	.00	27.84	27.84
LAND COST	LAND RENT	ANN 2002	.00	.00	135.00	.00	.00	.00	.00	.00	.00	135.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN 2002	.00	.00	176.07	.00	.00	.00	.00	.00	.00	176.07
MANAGEMENT	MANAGEMENT COST	ANN 2002	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE			4.91	6.16	553.11	55.36	89.29	365.65	64.06	10.36	584.72	1137.83

* AN AVERAGE OF FIVE IRRIGATIONS PER SEASON.

** SEE APPENDIX II: POLLINATION COST CALCULATIONS.

*** ONE TO TWO TIMES PER YEAR. AN AVERAGE OF 1.5 TIMES.

**** TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75/ACRE.

TABLE 7.1. ITEMIZED COST PER ACRE FOR ESTABLISHING AN ALFALFA SEED FIELD, FOLLOWING WHEAT, UNDER RILL IRRIGATION.

		PRICE OR	QUANTITY	VALUE OR	YOUR
		UNIT COST/UNIT		COST	FARM

VARIABLE COSTS		\$		\$	
SOIL TEST	ACRE	1.00	1.00	1.00	_____
CUSTOM FERTILIZE	ACRE	7.00	1.00	7.00	_____
NITROGEN	LB.	.28	30.00	8.40	_____
PHOSPHORUS	LB.	.24	30.00	7.20	_____
POTASH	LB.	.14	30.00	4.20	_____
SULFUR	LB.	.11	10.00	1.10	_____
TREFLAN	PINT	2.75	1.00	2.75	_____
EPTAM	PINT	5.00	3.00	15.00	_____
BORON	LB.	2.70	1.00	2.70	_____
ALFALFA SEED	LB.	5.00	.75	3.75	_____
FUSILADE	PINT	15.25	1.50	22.88	_____
METHYLATED SEED OIL	GAL.	14.50	.25	3.62	_____
2-4-DB-AMINE	QT.	11.25	3.00	33.75	_____
SEED CERTIFICATION FEE	ACRE	.30	1.00	.30	_____
PAM	LB.	3.32	1.00	3.32	_____
WATER CHARGE	ACRE	45.00	.50	22.50	_____
IRRIGATION REPAIR	ACRE	8.00	.50	4.00	_____
TRACTOR REPAIR	ACRE	8.63	1.00	8.63	_____
TRACTOR FUEL/LUBE	ACRE	13.25	1.00	13.25	_____
MACHINERY REPAIRS	ACRE	15.91	1.00	15.91	_____
MACHINE FUEL/LUBE	ACRE	3.32	1.00	3.32	_____
LABOR	HOURLY	14.50	4.55	65.96	_____
INTEREST ON OP. CAP.	ACRE	4.93	1.00	4.93	_____
OVERHEAD	ACRE	12.77	1.00	12.77	_____

TOTAL VARIABLE COST				268.24	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	17.23	1.00	17.23	_____
TRACTOR INTEREST	ACRE	17.43	1.00	17.43	_____
TRACTOR INSURANCE	ACRE	1.16	1.00	1.16	_____
TRACTOR TAXES	ACRE	3.49	1.00	3.49	_____
MACHINE DEPRECIATION*	ACRE	26.38	1.00	26.38	_____
MACHINE INTEREST*	ACRE	15.20	1.00	15.20	_____
MACHINE INSURANCE*	ACRE	1.01	1.00	1.01	_____
MACHINE TAXES*	ACRE	3.04	1.00	3.04	_____
LAND RENT	ACRE	135.00	.50	67.50	_____
MANAGEMENT FEE	ACRE	50.00	.50	25.00	_____

TOTAL FIXED COST				177.45	_____
TOTAL COST				445.69	_____

* INCLUDES MACHINERY, MACHINE SHED AND SHOP, SHOP TOOLS AND IRRIGATION.

TABLE 6.1. MATERIALS AND SERVICES USED BY OPERATION FOR ESTABLISHING AN ALFALFA SEED FIELD, FOLLOWING WHEAT, UNDER RILL IRRIGATION.

OPERATION	MONTH	MATERIAL AND/OR SERVICE
IRRIGATE (3X)	AUG.-SEPT.	50% OF THE ANNUAL IRRIGATION CHARGE @ \$45.00/ACRE 2 APPLICATIONS OF PAM AT 0.5 LB. PER APPLICATION @ \$3.32/LB.
SOIL TEST	AUGUST	CUSTOM HIRED @ \$1.00/ACRE
FERTILIZE	AUGUST	CUSTOM FERTILIZE @ \$7.00/ACRE 30 LBS. OF NITROGEN @ \$.28/LB. 30 LBS. OF PHOSPHORUS @ \$.24/LB. 30 LBS. OF POTASH @ \$.14/LB. 10 LBS. OF SULFUR @ \$.11/LB. 1 LB. OF BORON @ \$2.70/LB.
ROTOTILL/HERBICIDE	AUGUST	1.0 PINT OF TREFLAN @ \$2.75/PINT 3.0 PINTS OF EPTAM @ \$5.00/PINT
PLANT/CORRUGATE	SEPTEMBER	0.75 LB. OF ALFALFA SEED @ \$5.00/LB.
SPRAY (1ST TIME)	SEPTEMBER	1.5 PINTS OF FUSILADE @ \$15.25/PINT 1.0 QUART OF METHYLATED SEED OIL @ \$14.50/GAL.
SPRAY (2ND TIME)	OCTOBER	3.0 QUARTS OF 2,4-DB-AMINE @ \$11.25/QT.
CERTIFICATION	OCTOBER	SEED CERTIFICATION FEE @ \$15.00/FIELD
OVERHEAD	ANNUAL	5% OF VARIABLE COST

TABLE 5.1. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING AN ALFALFA SEED FIELD, FOLLOWING WHEAT, UNDER RILL IRRIGATION.*

VARIABLE COST													

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE MATER.	INTER.	TOTAL VARIABLE COST	TOTAL COST	

						\$	\$	\$	\$	\$	\$	\$	
SHRED STUBBLE	150HP-WT, 12' FLAIL SHREDDER	AUG	2001	.40	.44	10.22	4.51	6.38	.00	.00	.25	11.13	21.36
DISK & PACK (2X)	150HP-WT, 12' DISC W/14' PACK.	AUG	2001	.50	.55	13.29	7.41	7.98	.00	.00	.35	15.73	29.02
CORRUGATE	100HP-WT, 5-ROW CORRUGATOR	AUG	2001	.20	.22	3.24	1.34	3.19	.00	.00	.10	4.63	7.88
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	AUG	2001	.06	.07	1.05	.41	.96	.00	.00	.03	1.40	2.45
IRRIGATE (3X)**	RILL IRRIGATION	AUG	2001	.00	1.50	1.96	4.00	21.75	22.50	3.32	1.16	52.73	54.69
DISK & PACK	150HP-WT, 12' DISC W/14' PACK.	AUG	2001	.25	.28	6.64	3.71	3.99	.00	.00	.17	7.87	14.51
SOIL TEST	CUSTOM HIRE	AUG	2001	.00	.00	.00	.00	.00	1.00	.00	.02	1.02	1.02
FERTILIZE	CUSTOM HIRE	AUG	2001	.00	.00	.00	.00	.00	7.00	23.60	.69	31.29	31.29
PLOW & PACK	150HP-WT, 4BTM PLOW W/7' PACK.	AUG	2001	.29	.31	6.36	4.07	4.56	.00	.00	.19	8.82	15.18
ROTOTILL/HERBIC.	150HP-WT, 12'ROTO. W/SADDLE TK	AUG	2001	.33	.44	9.48	5.95	6.44	.00	17.75	.68	30.82	40.30
HAUL WATER	NURSE TRUCK	AUG	2001	.04	.04	1.19	.37	.64	.00	.00	.02	1.03	2.22
PLANT/CORRUGATE	100HP-WT, 6R PLANTER W/CORRUG.	SEP	2001	.25	.28	6.88	2.44	3.99	.00	3.75	.15	10.33	17.22
HEADLAND	100HP-WT, HEADLAND CORRUGATOR	SEP	2001	.06	.07	1.05	.41	.96	.00	.00	.02	1.39	2.44
SPRAY	100HP-WT, SADDLE TK W/40' BOOM	SEP	2001	.10	.13	1.92	.90	1.93	.00	26.50	.44	29.77	31.69
HAUL WATER	NURSE TRUCK	SEP	2001	.04	.04	1.19	.37	.64	.00	.00	.02	1.02	2.21
SPRAY	100HP-WT, SADDLE TK W/40' BOOM	OCT	2001	.10	.13	1.92	.90	1.93	.00	33.75	.27	36.86	38.77
HAUL WATER	NURSE TRUCK	OCT	2001	.04	.04	1.19	.37	.64	.00	.00	.01	1.02	2.20
CERTIFICATION	SEED CERTIFICATION FEE	OCT	2001	.00	.00	.00	.00	.00	.30	.00	.00	.30	.30
BUILDINGS	MACHINE SHED AND SHOP	ANN	2001	.00	.00	3.61	.40	.00	.00	.00	.02	.42	4.03
MISC. USE	SHOP TOOLS	ANN	2001	.00	.00	5.47	3.00	.00	.00	.00	.14	3.14	8.61
MISC. USE	MANAGER'S PICKUP	ANN	2001	.53	.00	3.31	2.38	.00	.00	.00	.11	2.49	5.80
MISC. USE	LABOR'S PICKUP	ANN	2001	.75	.00	4.98	2.14	.00	.00	.00	.10	2.24	7.22
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2001	.00	.00	.00	.00	.00	12.72	.00	.00	12.72	12.72
LAND COST	LAND RENT	ANN	2001	.00	.00	67.50	.00	.00	.00	.00	.00	.00	67.50
MANAGEMENT	MANAGEMENT COST	ANN	2001	.00	.00	25.00	.00	.00	.00	.00	.00	.00	25.00
TOTAL PER ACRE				3.94	4.55	177.45	49.10	65.96	43.57	105.67	4.93	268.24	445.69

* FOR THE ESTABLISHMENT YEAR, THE FOLLOWING COSTS ARE ALLOCATED 50% ALFALFA ESTABLISHMENT AND 50% WHEAT: IRRIGATION, PICKUPS, MACHINE SHED AND SHOP, SHOP TOOLS, LAND RENT AND MANAGEMENT COST.

** IRRIGATE ONCE IN AUGUST BEFORE PLANTING AND TWICE IN SEPTEMBER AFTER PLANTING.

APPENDIX I

Detailed Budgets for Alfalfa Seed

Produced Under Rill Irrigation

and be able to interpret the results accordingly. Thus, to help readers more fully understand crop enterprise budgets developed by Washington State University, one may log on to the Internet at <http://farm.mngt.wsu.edu> and click on “Publication Links”, “Unpublished” and “Understanding and Using WSU Crop Enterprise Budgets.” This paper can be read directly from the screen or downloaded in printed form.

This publication does not recommend production practices. Rather, it presents current technology used to raise alfalfa seed.

produced. Current replacement costs are used for all machinery and buildings. While this assumption may result in an overstatement of production costs, it is an indication of the enterprise's ability to generate the earnings needed to replace depreciable assets. Continuing increases in prices paid for machinery and buildings means that depreciation claimed on assets purchased before price advances understates the amount of capital currently required to replace assets. When an enterprise is evaluated to determine its long-run viability, it is important to consider its ability to replace depreciable assets. Interest on investment represents a 9% opportunity cost to the enterprise. These are earnings foregone by investing money in machinery and buildings rather than the next best alternative. This may also represent the interest paid on funds borrowed to finance machinery purchases.

Machinery and building variable costs include machine and building repair, fuel, and lubrication--costs that vary with the crop grown and the number of acres of crop produced.

Input Prices

Prices used for fuel, fertilizer, chemicals, seed, custom services, and other inputs are listed in Tables 11 and 18.

CONCLUDING NOTE

The results of this study show that under the given assumptions used for this study the total "economic" cost of producing an acre of alfalfa seed under rill irrigation averages \$1,076 per year over a three-year production period. For alfalfa seed grown under center pivot irrigation, the average annual per acre cost is \$1,202. The main difference in cost between the two irrigation methods lies in the fact that center pivot irrigation has an increase of \$40 per acre in power charges and \$100 per acre in land rent charges. These increases in power and rent charges are only partially offset by a decrease in labor cost of approximately \$25 per acre for center pivot irrigation when compared with rill irrigation. However, it should be noted that producers are willing to pay more for center pivot ground than rill ground for several different reasons. There is a shortage of rill ground available, thus alfalfa seed growers must compete with other crops for the circle ground and pay the going price. In addition, center pivot ground is easier to manage for insect and weed control due to the ease of application of chemical inputs and increased pesticide efficacy and timeliness afforded by chemigation. Timing is the key to successful pest control and soil moisture availability. Some growers have experienced greater seed yields under center pivot irrigation when high summer temperatures prompt irrigation within a short time span.

Considering these cost figures, for an 800-pound yield, one must receive \$1.34 per pound to cover all "economic" costs for alfalfa seed grown under rill irrigation and \$1.50 per pound to cover all "economic" costs for alfalfa seed grown under center pivot irrigation. Producers may look at these figures and say, "I produce for less costs than these figures show." This may be true for some producers, for the authors and producers who organized this data fully recognize that these budgets do not represent any particular operation and should be used as a general guide to help derive budgets for individual operations. However, to appropriately use these budgets one needs to fully comprehend the procedures and assumptions used in this study

years of use. The 9% interest charge made against this "average" value is the total interest cost.

The amortization of the first year establishment cost was divided into variable cost and fixed cost. This was done so that in determining break-even prices at the variable cost level (Tables 2 and 4), the amortization of the establishment year variable costs would be correctly included as part of total overall variable cost.

Returns Over Variable Costs and Total Costs

Tables 8 and 15 present returns over variable cost and total cost, for each production year at different prices and yields for alfalfa seed produced under rill and center pivot irrigation, respectively. Prices vary from \$1.00 per pound of clean seed to \$1.60 per pound. Yields vary from 550 lbs. to 800 lbs. of clean seed.

Returns over variable costs represent those returns over costs that occur only if the crop is maintained and harvested. If returns fail to cover these costs, alfalfa seed becomes uneconomical to produce even in the short run because the added costs of production are greater than the added returns.

Returns over total costs represent the compensation you receive for producing alfalfa seed after covering all costs of production including cash costs, depreciation, operator labor and management, and opportunity costs for investments in equipment. Failure to receive a positive return means you will not realize a return on your management, labor, and capital contributions equivalent to what you could earn from an alternative use.

Machinery and Building Complement

Tables 9 and 16 identify the machinery and building complement used to derive machinery costs. They include the type of machines used on the representative farm, their current replacement value (new or used), years of use before trade-in, salvage value at trade-in, annual repair cost and annual hours of use. In this study, all machinery was assumed to be purchased new with the exception of the pickup used for irrigating and other field operations. This pickup is considered to be the pickup previously used by management.

Machinery and Building Cost Per Hour/Per Acre

Tables 10 and 17 identify the type of machinery and buildings used to derive machinery and building costs. They include the type of machines used on the representative farm, their current replacement price, annual hours of use, and estimated per-hour fixed and variable costs. For buildings, irrigation tubes and dams, and shop tools they include their current replacement price, acres covered by the asset(s), and estimated per-acre fixed and variable costs.

Machinery and building fixed costs include depreciation and interest on investment, property taxes, and insurance--costs that do not vary with the crop grown or the number of acres

Land fixed cost is equal to the gross cash rental rate typical of the area. Much of the land used for production is rented. Even if the producer produces a crop on owned land, the prevailing rental rate is an opportunity cost or foregone return for not renting out the land. Although individual rental arrangements vary, in most situations the tenant pays a cash rent and the landowner pays the property taxes.

For each production year, an establishment cost is included. This cost represents establishment year costs amortized over three years at 9% interest that must be recaptured during the three production years.

An opportunity cost for management is also included. For management, a cost of \$50 per acre was considered reasonable and fair by the producer committee. For the establishment year, only 50% of the management fee was applied; the other 50% was applied to the preceding crop. Management is regarded as a fixed rather than a variable cost because one either uses management skills or loses them during the production year.

Variable costs depend directly on the number of crop acres and type of enterprise. These costs include labor, fuel, oil, repairs, fertilizer, chemicals, custom work, interest on operating capital, and overhead (telephone, utilities, legal, accounting, organization dues, etc.). Also included is a dollar figure for pollination cost. Pollination costs involving an alfalfa seed field were calculated separately and are detailed in Appendix III.

Two pickup trucks are included in the cost estimate, one for the manager and one for the hired labor. No labor hours are assigned to the use of these pickups. In the manager's case, labor costs for using this pickup are part of the management cost. For the pickup used by the hired labor, labor cost for using the pickup are included in the other labor figures, i.e., irrigation labor costs, etc.

Materials and Services Used by Operation

Tables 5.1-5.4 and 12.1-12.4 list the "Schedule of Operations and Estimated Cost Per Acre..." for the establishment year and each production year for alfalfa seed produced under rill and center pivot irrigation, respectively. The "Service" and "Materials" columns of these tables list dollar amounts spent on services and materials used with individual operations. Tables 6.1-6.4 and 13.1-13.4 list, by operation, the specific services and/or materials used, the quantities used, and the prices paid for the establishment year and each production year analyzed in this study.

Itemized Costs Per Acre

Tables 7.1-7.4 provide itemized lists of the costs detailed in Tables 5.1-5.4, respectively. Tables 14.1-14.4 provide itemized lists of the costs detailed in Tables 12.1-12.4, respectively. Most items are self-explanatory. However, "Tractor Interest" and "Machinery Interest" represent the opportunity cost (returns foregone by investing in machinery rather than in alternative investments) or interest paid to finance this equipment. Total interest cost on these capital purchases is calculated on the average value of the machinery over the respective

Table 4 presents the prices, net of seed cleaning charges, necessary at different average annual yield levels in order to cover all costs over the three-year production period for alfalfa seed produced under center pivot irrigation.

TABLE 4. PRICES, NET OF SEED CLEANING CHARGES, NEEDED TO COVER COSTS FOR DIFFERENT AVERAGE ANNUAL YIELD LEVELS OVER THE THREE-YEAR PRODUCTION PERIOD FOR ALFALFA SEED GROWN UNDER CENTER PIVOT IRRIGATION.

AVERAGE 3-YEAR YIELD LEVEL:	650 LBS.	700 LBS.	750 LBS.	800 LBS.	850 LBS.	900 LBS.
PRICE/LB. NEEDED TO COVER:	\$	\$	\$	\$	\$	\$
VARIABLE COST*	1.00	.93	.87	.81	.76	.72
TOTAL COST	1.85	1.72	1.60	1.50	1.41	1.34

*INCLUDES ESTABLISHMENT YEAR VARIABLE COST AMORTIZED OVER 3 YEARS AT 9% INTEREST.

DISCUSSION OF DETAILED BUDGETS

Appendix I presents the detailed budgets developed for alfalfa seed produced under rill irrigation. Appendix II presents the detailed budgets developed for alfalfa seed produced under center pivot irrigation. A discussion of the data in each of the tables follows.

Schedule of Operations and Estimated Costs Per Acre

Tables 5.1 through 5.4, in Appendix I, and Tables 12.1 through 12.4, in Appendix II, outline the schedule of field operations by month, the type of machinery and labor used, the hours of machine use per acre, and total costs for the establishment year and each of the three production years for alfalfa seed produced under rill irrigation and center pivot irrigation, respectively.

The costs are divided into two categories: (1) fixed costs include machinery and building ownership, land, establishment, and management costs; (2) variable costs are associated with operating machinery, hiring labor, and purchasing services and materials. Total cost is the sum of fixed and variable costs.

Machinery and building fixed costs include depreciation, interest on the investment, property taxes, and insurance. These costs are incurred whether or not a crop is grown and do not vary with the size of the enterprise, given the ownership of a specific machinery and building complement. Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the per-hour fixed cost. The per-hour fixed costs, shown in Tables 9 and 15 for machinery used to produce alfalfa seed under rill and center pivot irrigation, respectively, are determined by dividing the total annual fixed cost by the annual hours of machinery use over all enterprises for the representative farm. Building, irrigation and shop tool costs are calculated on a per-acre basis.

The detailed schedule of operations and itemized costs per acre for the establishment year and the three production years for alfalfa seed produced under rill irrigation are presented in Tables 5.1 through Table 7.4 in Appendix I. The detailed schedule of operations and itemized costs per acre for the establishment year and the three production years for alfalfa seed produced under center pivot irrigation are presented in Tables 11.1 through Table 13.4 in Appendix II. A discussion of this budget information is presented later.

From information presented in Table 1, it can be determined that the average annual variable cost (including the establishment year variable cost amortized over three years at 9% interest) encountered over the three producing years for alfalfa seed produced under rill irrigation is

$$[(\$584.72 + \$105.97) + (\$545.20 + \$105.97) + (\$437.84 + \$105.97)]/3 = \$628.56$$

The average annual total cost encountered over the three producing years is

$$(\$1,137.83 + \$1,102.17 + \$986.76)/3 = \$1,075.59$$

Table 3 presents the prices, net of seed cleaning charges, necessary at different average annual yield levels in order to cover all costs over the three-year production period for alfalfa seed produced under rill irrigation.

TABLE 3. PRICES, NET OF SEED CLEANING CHARGES, NEEDED TO COVER COSTS FOR DIFFERENT AVERAGE ANNUAL YIELD LEVELS OVER THE THREE-YEAR PRODUCTION PERIOD FOR ALFALFA SEED GROWN UNDER RILL IRRIGATION.

AVERAGE 3-YEAR YIELD LEVEL:	650 LBS.	700 LBS.	750 LBS.	800 LBS.	850 LBS.	900 LBS.
PRICE/LB. NEEDED TO COVER:	\$	\$	\$	\$	\$	\$
VARIABLE COST*	.97	.90	.84	.79	.74	.70
TOTAL COST	1.65	1.54	1.43	1.34	1.27	1.20

*INCLUDES ESTABLISHMENT YEAR VARIABLE COST AMORTIZED OVER 3 YEARS AT 9% INTEREST.

From information presented in Table 2, it can be determined that the average annual variable cost (including the establishment year variable cost amortized over three years at 9% interest) encountered over the three producing years for alfalfa seed produced under center pivot irrigation is

$$[(\$625.65 + \$96.61) + (\$564.82 + \$96.61) + (\$464.05 + \$96.61)]/3 = \$648.12$$

The average annual total cost encountered over the three producing years is

$$(\$1,279.25 + \$1,214.84 + \$1,110.47)/3 = \$1,201.52$$

Table 2 presents a summary of the establishment year costs and the production costs for the three producing years for alfalfa seed produced under center pivot irrigation.

TABLE 2. SUMMARY OF ESTABLISHMENT AND PRODUCTION COSTS PER ACRE FOR ALFALFA SEED PRODUCED UNDER CENTER PIVOT IRRIGATION IN THE COLUMBIA BASIN.

	ESTAB. YEAR	YEAR 1	YEAR 2	YEAR 3
	\$	\$	\$	\$
VARIABLE COSTS:				
ALFALFA SEED	3.75	-	-	-
SOIL TEST	1.00	-	-	-
POLLINATION COST	-	267.26	212.66	104.66
SEED CERTIFICA. FEE	.12	.12	.12	.12
SEED PRODUCTION FEE	-	1.75	1.75	1.75
FERTILIZER	20.90	4.00	4.00	4.00
CHEMICALS	62.45	70.58	73.08	90.40
CHEMIGATOR RENT	1.00	1.00	-	-
WATER CHARGE	22.50	45.00	45.00	45.00
IRRIGATION POWER	20.00	40.00	40.00	40.00
CUSTOM OPERATIONS	7.00	18.75	18.75	18.75
HAULING COST*	-	4.75	4.75	4.75
MACHINERY COST**	47.28	67.39	65.01	62.19
LABOR	42.14	62.92	60.27	57.94
OVERHEAD	11.65	29.79	26.90	22.10
INTEREST	<u>4.77</u>	<u>12.34</u>	<u>12.53</u>	<u>12.39</u>
TOTAL VARIABLE COST	244.56	625.65	564.82	464.05
FIXED COST:				
MACHINERY COST**	73.36	105.12	101.54	97.94
POLLINATION COST	-	84.09	84.09	84.09
AMORT. ESTAB. VC***	-	96.61	96.61	96.61
AMORT. ESTAB. FC***	-	85.28	85.28	85.28
LAND RENT	117.50	235.00	235.00	235.00
MANAGEMENT	<u>25.00</u>	<u>50.00</u>	<u>50.00</u>	<u>50.00</u>
TOTAL FIXED COST	215.86	653.60	650.02	646.42
TOTAL COST	460.42	1279.25	1214.84	1110.47

* TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75 PER ACRE.

** INCLUDES ALL MACHINERY COSTS PLUS MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION COSTS.

*** ESTABLISHMENT YEAR VARIABLE COSTS (VC) AND FIXED COSTS (FC) AMORTIZED OVER THE 3-YEAR PRODUCTION PERIOD AT 9% INTEREST.

include establishment year costs amortized over three years at 9% interest. These amortized establishment year costs must be recaptured during the three production years if the enterprise is to be profitable.

TABLE 1. SUMMARY OF ESTABLISHMENT AND PRODUCTION COSTS PER ACRE FOR ALFALFA SEED PRODUCED UNDER RILL IRRIGATION IN THE COLUMBIA BASIN.

	ESTAB. YEAR	YEAR 1	YEAR 2	YEAR 3
	\$	\$	\$	\$
VARIABLE COSTS:				
ALFALFA SEED	3.75	-	-	-
SOIL TEST	1.00	-	-	-
POLLINATION COST	-	267.26	212.66	104.66
SEED CERTIFICA. FEE	.30	.30	.30	.30
SEED PRODUCTION FEE	-	1.75	1.75	1.75
FERTILIZER	20.90	4.00	4.00	4.00
CHEMICALS	84.02	60.06	78.06	95.38
WATER CHARGE	22.50	45.00	45.00	45.00
CUSTOM OPERATIONS	7.00	18.75	18.75	18.75
HAULING COST*	-	4.75	4.75	4.75
MACHINERY COST**	45.11	55.36	57.18	52.28
LABOR	65.96	89.29	85.24	78.76
OVERHEAD	12.77	27.84	25.96	20.85
INTEREST	<u>4.93</u>	<u>10.36</u>	<u>11.55</u>	<u>11.36</u>
TOTAL VARIABLE COST	268.24	584.72	545.20	437.84
FIXED COST:				
MACHINERY COST**	84.95	110.45	114.31	106.26
POLLINATION COST	-	81.59	81.59	81.59
AMORT. ESTAB. VC***	-	105.97	105.97	105.97
AMORT. ESTAB. FC***	-	70.10	70.10	70.10
LAND RENT	67.50	135.00	135.00	135.00
MANAGEMENT	<u>25.00</u>	<u>50.00</u>	<u>50.00</u>	<u>50.00</u>
TOTAL FIXED COST	177.45	553.11	556.97	548.92
TOTAL COST	445.69	1137.83	1102.17	986.76

* TOTAL SEED HAULING COST, REGARDLESS OF METHOD, ESTIMATED AT \$4.75 PER ACRE.

** INCLUDES ALL MACHINERY COSTS PLUS MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION COSTS.

*** ESTABLISHMENT YEAR VARIABLE COSTS (VC) AND FIXED COSTS (FC) AMORTIZED OVER THE 3-YEAR PRODUCTION PERIOD AT 9% INTEREST.

BUDGET ASSUMPTIONS

The following assumptions were made in developing the enterprise budgets:

1. The farm has 750 acres under irrigation with 250 acres devoted to the production of alfalfa seed.
2. The enterprise budgets are for alfalfa seed established and produced under a 50-acre rill irrigation system, and for alfalfa seed established and produced under a 125-acre center pivot irrigation system.
3. The alfalfa seed field is established in late summer - early fall following the harvest of wheat. The alfalfa seed field produces seed for three years.
4. Rill irrigated land is rented for \$135 per acre with the landowner furnishing the irrigation system and the operator paying the water charge of \$45 per acre, along with annual repairs of approximately \$8 per acre.
5. Center pivot irrigated land is rented for \$235 per acre with the landowner furnishing the center pivot system and the operator paying the water charge amounting to \$45/acre, along with annual repairs of about \$20 per acre per year. The operator also pays the irrigation power charge of approximately \$40 per acre, pumping out of the irrigation canal. Power costs are higher for those producers pumping from deep wells. Center pivot irrigated land commands a higher rent for several reasons: more efficient chemical application (chemigation), less machinery operations (no corrugating or end-corrugating), reduced irrigation labor, reduced ditch maintenance, better weed control, better soil moisture management especially during spikes in temperature, and better yields during seasons of high heat.
6. Producer yields range from 550 to 900 pounds of clean seed per acre.
7. Net price to the producer, after all deductions, ranges from \$.70 to \$1.25 per pound of clean seed per acre. Management costs were valued at \$50 per acre.
8. The interest rate is 9% for both operating and machinery loans.
9. All labor cost are estimated at \$14.50/hour including social security and labor and industries. These employees are mostly permanent employees skilled in equipment operation and maintenance and are utilized in other specialized crop management as well.

SUMMARY OF RESULTS

Table 1 presents a summary of the establishment year costs and the production costs for the three producing years for alfalfa seed produced under rill irrigation. Production year costs

2002 Cost of Producing Alfalfa Seed in the Columbia Basin of Washington State

Herbert Hinman and John Kugler¹

INTRODUCTION

In 2000, approximately 17,000 acres of alfalfa seed were produced in Washington State. Alfalfa seed ranked 30th in agricultural commodity value within the state with a value of \$16,875,000. Walla Walla County was the largest alfalfa seed producing county with 10,000 acres and a production of 81,000 cwt. of seed. Franklin and Grant counties produced a total of 6,000 acres and 47,000 cwt. of seed. All other counties in the state produced a total of 1,000 acres and 7,000 cwt. of seed.²

Rainfall in the Columbia Basin, which include Franklin and Grant counties, ranges from 6-10 inches annually. Crops grown in the Columbia Basin depend largely on irrigation water pumped from behind Grand Coulee Dam. Irrigation water availability, coupled with a growing season of 150 to 200 days, makes it possible to grow alfalfa seed in this area.

The general objective of this study was to develop enterprise budgets for alfalfa seed production within the Columbia Basin. The specific objectives were:

1. To identify production practices representative of well-managed alfalfa seed enterprises grown under both rill and center pivot irrigation in the Columbia Basin.
2. To provide estimates of capital requirements, production costs, and returns.
3. To give producers a procedure for analyzing the profitability of their alfalfa seed enterprise.

SOURCES OF INFORMATION

The primary information for this study was obtained from a group of Franklin, Grant and Adams county alfalfa seed producers. These producers were considered representative of well-managed farms. Their production practices and requirements for labor, equipment, and supplies are the basis for the assumptions used in this study and represent what this group of producers consider to be the latest developments. Local farm suppliers provided price information on materials and other services commonly used by farmers. Machinery costs were based on current purchase prices and rates of annual use considered typical by the producer committee.

¹Authorship is equally shared among the two authors. Herbert Hinman is an extension farm management specialist and John Kugler is an area educator (agronomy), Grant/Adams counties, Cooperative Extension, Washington State University.

²Washington Agricultural Statistics, 2001, pages 6 and 123.

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NOTE

Enterprise costs and returns vary from one farm to the next and over time for any particular farm. Variability stems from differences in:

- Capital, labor, land, and management resources
- Type and size of machinery complement
- Cultural practices
- Size of farm and enterprise
- Crop yields
- Input prices
- Commodity prices

Costs can also be calculated differently depending on the intended use of the cost estimate. The information in this publication serves as a general guide for alfalfa seed grown on modern, well-managed farms in the Columbia Basin of Washington State. To avoid drawing unwarranted conclusions for any particular operation, closely examine the assumptions used. If they are not appropriate for the situation at hand, you should adjust the costs and/or returns.

To help readers more fully understand crop enterprise budgets developed by Washington State University, log on to the Internet at <http://farm.mngt.wsu.edu> and click on "Publication Links," "Unpublished" and "Understanding and Using WSU Crop Enterprise Budgets." This paper can be read direct from the screen or downloaded in printed form.