

2006 Cost Of Producing Alfalfa Seed in the Columbia Basin of Washington State

By
Herbert Hinman and John Kugler

Photo: John Kugler, Alfalfa Seed Field in Columbia Basin, WA, used with permission



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://www.farm-mgmt.wsu.edu> and click on "Publication Links," "Unpublished," and "Understanding and Using WSU Crop Enterprise Budgets."

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Herbert Hinman and John Kugler¹

INTRODUCTION

In 2005, approximately 13,000 acres of alfalfa seed were produced in Washington State with a value of \$11,730,000. Walla Walla County was the largest alfalfa seed producing county with 6,800 acres with a production of 52,000 cwt. of seed. Franklin and Grant counties produced a total of 5,600 acres and 45,800 cwt. of seed. All other counties in the state produced a total of 600 acres and 4,200 cwt. of seed.²

Rainfall in the Columbia Basin, which includes 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 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 these 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

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²http://www.nass.usda.gov/Statistics_by_State/Washington/Publications/Specialty_Commodities/grass06.pdf. Downloaded 3-27-06.

current purchase prices and rates of annual use considered typical by the producer committee.

BUDGET ASSUMPTIONS

The following assumptions were made in developing the enterprise budgets:

1. The farm has 1,000 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 two to three years depending upon the contract from the buyer.
4. Rill irrigated land is rented for \$135 per acre with the landowner furnishing the irrigation system and the operator paying the irrigation charge of \$51 per acre, along with annual repairs of approximately \$9 per acre.
5. Center pivot irrigated land is rented for \$250 per acre with the landowner furnishing the center pivot system and the operator paying the irrigation charge amounting to \$51/acre, along with annual repairs of about \$20 per acre per year. The operator also pays the irrigation power charge of approximately \$25 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 500 to 1,000 pounds of clean seed per acre.
7. Management costs were valued at \$50 per acre.
8. The interest rate is 10% for both operating and machinery loans.
9. All labor cost are estimated at \$14.50/hour including social security and labor and industries. Workers are mostly permanent employees skilled in equipment operation and maintenance who also work in other specialized crop production.

SUMMARY OF RESULTS

Alfalfa seed is typically produced under 2- or 3-year contracts. Table 1 presents a summary of the establishment year costs and the production costs for the three producing years of a 3-year contract for alfalfa seed produced under rill irrigation. Production year costs include

establishment year costs amortized over three years at 10% 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 for Three Years Under Rill Irrigation in the Columbia Basin.

	Estab. Year	Year 1	Year 2	Year 3
	\$	\$	\$	\$
Variable Costs:				
Alfalfa Seed	4.12	-	-	-
Soil Test	1.00	-	-	-
Pollination Cost	-	171.45	144.45	126.45
Application Fee	0.60	-	-	-
Field Inspection Fee	1.00	-	-	-
Certification Renewal Fee	-	0.60	0.60	0.60
Production Fee	-	1.85	1.85	1.85
Seed Commission*	-	4.24	4.24	4.24
Chemicals	87.04	92.23	81.67	92.67
Fertilizers	38.20	4.00	4.00	4.00
Custom Fertilize	7.00	-	-	-
Custom Aerial	7.50	33.75	33.75	33.75
Water Charge	25.50	51.00	51.00	51.00
Hauling Cost*	-	3.36	3.36	3.36
Irrigation Repair	4.50	9.00	9.00	9.00
Machinery Repair**	23.08	21.11	21.25	21.67
Machinery Fuel & Lube**	29.39	34.05	33.26	33.90
Labor	52.50	77.15	70.85	71.05
Overhead	14.38	25.90	23.63	23.35
Interest	6.17	14.27	13.32	13.42
Total Variable Cost	301.98	543.96	496.23	490.31
Fixed Costs:				
Machinery Cost***	80.14	114.66	115.76	116.42
Pollination Cost	-	92.39	92.39	92.39
Amortized Estab. Cost****	-	190.85	190.85	190.85
Land Rent	67.50	135.00	135.00	135.00
Management	25.00	50.00	50.00	50.00
Total Fixed Cost	172.64	582.90	584.00	584.66
Total Cost	474.62	1,126.86	1,080.23	1,074.97

*Assumed production level of 800 lbs. of clean seed.

**Includes tractors, machinery, machine shed and shop, and shop tools.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, and shop tools.

****Establishment year costs amortized over the 3-year production period at 10% interest.

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 9.1 through 11.4 in Appendix I.

Table 2 presents the break-even prices necessary to cover total cost of production at different average annual yield levels over a three-year production period for alfalfa seed grown under rill irrigation.

Table 2. Break-Even Prices Needed to Cover Costs by Yield Levels Over the Three-Year Production Period for Alfalfa Seed Grown Under Rill Irrigation.

Average Yield (lbs.)	Year 1 Cost \$	Year 2 Cost \$	Year 3 Cost \$	Total Cost \$	Break-Even Price \$
500	1124.01	1077.38	1072.12	3273.51	2.18
600	1124.96	1078.35	1073.07	3276.36	1.82
700	1125.91	1079.28	1074.02	3279.21	1.56
800	1126.86	1080.23	1074.97	3282.07	1.37
900	1127.81	1081.18	1075.92	3284.91	1.22
1000	1128.76	1082.13	1076.87	3287.76	1.10

The break-even price represents the price the producer must receive for producing alfalfa seed at the given production level in order to cover all costs of production including cash costs, depreciation, operator labor and management, and opportunity costs for investments in equipment. Failure to receive this price means the producer will not realize a return to management, labor, and capital contributions equivalent to what could be earned from an alternative use. Any price difference the producer may receive above the break-even price is compensation for the risk taken in producing the crop.

Since alfalfa seed varieties frequently change, alfalfa seed buyers occasionally offer only 2-year rather than 3-year contracts. Table 3 presents a summary of the establishment year costs and production costs for the two producing years of a 2-year contract for alfalfa seed produced under rill irrigation. The establishment year costs are the same as for the 3-year production period. The first production year costs are also the same as for the 3-year production period except that establishment year costs are now allocated over two rather than three years. This increases the amortized establishment cost, and total cost, by \$82.62 per acre. The second production year costs are the same as the third production year costs for the 3-year production contract except for the increase in amortized establishment year costs, as previously explained, and pollination costs (detailed calculations in Appendix III) that are the same as year two of the 3-year production period.

Table 3. Summary of Establishment and Production Costs Per Acre for Alfalfa Seed Produced for Two Years Under Rill Irrigation in the Columbia Basin.

	Estab. Year	Year 1	Year 2
	\$	\$	\$
Variable Costs:			
Alfalfa Seed	4.12	-	-
Soil Test	1.00	-	-
Pollination Cost	-	171.45	144.45
Application Fee	0.60	-	-
Field Inspection Fee	1.00	-	-
Certification Renewal Fee	-	0.60	0.60
Production Fee	-	1.85	1.85
Seed Commission*	-	4.24	4.24
Chemicals	87.04	92.23	92.67
Fertilizers	38.20	4.00	4.00
Custom Fertilize	7.00	-	-
Custom Aerial	7.50	33.75	33.75
Water Charge	25.50	51.00	51.00
Hauling Cost*	-	3.36	3.36
Irrigation Repair	4.50	9.00	9.00
Machinery Repair**	23.08	21.11	21.67
Machinery Fuel & Lube**	29.39	34.05	33.90
Labor	52.50	77.15	71.05
Overhead	14.38	25.90	23.35
Interest	6.17	14.27	13.42
Total Variable Cost	301.98	543.96	508.31
Fixed Costs:			
Machinery Cost***	80.14	114.66	116.42
Pollination Cost	-	92.39	92.39
Amortized Estab. Cost****	-	273.47	273.47
Land Rent	67.50	135.00	135.00
Management	25.00	50.00	50.00
Total Fixed Cost	172.64	665.52	667.28
Total Cost	474.62	1,209.48	1,175.59

*Assumed production level of 800 lbs. of clean seed.

**Includes tractors, machinery, machine shed and shop, and shop tools.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, and shop tools.

****Establishment year costs amortized over the 2-year production period at 10% interest.

Table 4 presents the break-even prices necessary to cover total cost of production at different average annual yield levels over a two-year production period for alfalfa seed grown under rill irrigation.

Table 4. Break-Even Prices Needed to Cover Costs by Yield Levels Over the Two-Year Production Period for Alfalfa Seed Grown Under Rill Irrigation.

Average Yield (lbs.)	Year 1 Cost \$	Year 2 Cost \$	Total Cost \$	Break-Even Price \$
500	1206.63	1172.74	2379.37	2.38
600	1207.58	1173.69	2381.27	1.98
700	1208.53	1174.64	2383.17	1.70
800	1209.48	1175.59	2385.07	1.49
900	1210.43	1176.54	2386.97	1.33
1000	1211.38	1177.49	2388.87	1.19

Table 5 presents a summary of the establishment year costs and the production costs for the three producing years of a 3-year contract for alfalfa seed produced under center pivot irrigation.

Table 5. Summary of Establishment and Production Costs Per Acre for Alfalfa Seed Produced for Three Years Under Center Pivot Irrigation in the Columbia Basin.

	Estab. Year	Year 1	Year 2	Year 3
	\$	\$	\$	\$
Variable Costs:				
Alfalfa Seed	4.12	-	-	-
Soil Test	1.00	-	-	-
Pollination Cost	-	171.45	144.45	126.45
Application Fee	0.60	-	-	-
Field Inspection Fee	1.00	-	-	-
Certification Renewal Fee	-	0.60	0.60	0.60
Production Fee	-	1.85	1.85	1.85
Seed Commission*	-	4.24	4.24	4.24
Chemicals	83.54	79.70	76.42	87.42
Fertilizers	38.20	4.00	4.00	4.00
Chemigator Rent	4.50	4.50	4.50	4.50
Custom Fertilization	7.00	-	-	-
Custom Aerial	7.50	33.75	33.75	33.75
Water Charge	25.50	51.00	51.00	51.00
Hauling Cost*	-	3.36	3.36	3.36
Irrigation Power	12.50	25.00	25.00	25.00
Irrigation Repair	10.00	20.00	20.00	20.00
Machinery Repair**	21.71	21.00	17.29	18.65
Machinery Fuel & Lube**	25.67	33.53	26.26	28.82
Labor	32.17	50.18	43.77	47.21
Overhead	13.82	25.92	23.48	23.51
Interest	5.91	14.17	13.16	13.31
Total Variable Cost	290.24	544.25	493.13	493.67
Fixed Costs:				
Machinery Cost***	70.52	106.75	91.68	97.15
Pollination Cost	-	92.39	92.39	92.39
Amortized Estab. Cost****	-	205.38	205.38	205.38
Land Rent	125.00	250.00	250.00	250.00
Management	25.00	50.00	50.00	50.00
Total Fixed Cost	220.52	704.52	689.45	694.92
Total Cost	510.76	1,248.77	1,182.58	1,188.59

*Assumed production level of 800 lbs. of clean seed.

**Includes tractors, machinery, machine shed and shop, and shop tools.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, and shop tools.

****Establishment year costs amortized over the 3-year production period at 10% interest.

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 15.1 through 17.4 in Appendix II.

Table 6 presents the break-even prices necessary to cover total cost of production at different average annual yield levels over a three-year production period for alfalfa seed grown under center pivot irrigation.

Table 6. Break-Even Prices Needed to Cover Costs by Yield Levels Over the Three-Year Production Period for Alfalfa Seed Grown Under Center Pivot Irrigation.

Average Yield (lbs.)	Year 1 Cost \$	Year 2 Cost \$	Year 3 Cost \$	Total Cost \$	Break-Even Price \$
500	1245.92	1179.73	1185.74	3611.39	2.41
600	1246.87	1180.68	1186.69	3614.24	2.01
700	1247.82	1181.63	1187.64	3617.09	1.72
800	1248.77	1182.58	1188.59	3619.94	1.51
900	1249.72	1183.53	1189.54	3622.79	1.34
1000	1250.67	1184.48	1190.49	3625.64	1.21

Table 7 presents a summary of the establishment year costs and production costs for the two producing years of a 2-year contract for alfalfa seed produced under center pivot irrigation. The establishment year costs are the same as for the 3-year production period. The first production year costs are also the same as for the 3-year production period except that establishment year costs are now allocated over two rather than three years. This increases the amortized establishment cost, and total cost, by \$88.91 per acre. The second production year costs are the same as the third production year costs for the 3-year production contract except for the increase in amortized establishment year costs, as previously explained, and pollination costs (detailed calculations in Appendix III) that are the same as year two of the 3-year production period.

Table 7. Summary of Establishment and Production Costs Per Acre for Alfalfa Seed Produced for Two Years Under Center Pivot Irrigation in the Columbia Basin.

	Estab. Year	Year 1	Year 2
	\$	\$	\$
Variable Costs:			
Alfalfa Seed	4.12	-	-
Soil Test	1.00	-	-
Pollination Cost	-	171.45	144.45
Application Fee	0.60	-	-
Field Inspection Fee	1.00	-	-
Certification Renewal Fee	-	0.60	0.60
Production Fee	-	1.85	1.85
Seed Commission*	-	4.24	4.24
Chemicals	83.54	79.70	87.42
Fertilizers	38.20	4.00	4.00
Chemigator Rent	-	4.50	4.50
Custom Fertilization	7.00	-	-
Custom Aerial	7.50	33.75	33.75
Water Charge	25.50	51.00	51.00
Hauling Cost*	-	3.36	3.36
Irrigation Power	12.50	25.00	25.00
Irrigation Repair	10.00	20.00	20.00
Machinery Repair**	21.71	21.00	18.65
Machinery Fuel & Lube**	25.67	33.53	28.82
Labor	32.17	50.18	47.21
Overhead	13.82	25.92	23.51
Interest	5.91	14.17	13.31
Total Variable Cost	290.24	544.25	511.67
Fixed Costs:			
Machinery Cost***	70.52	106.75	97.15
Pollination Cost	-	92.39	92.39
Amortized Estab. Cost****	-	294.30	294.30
Land Rent	125.00	250.00	250.00
Management	25.00	50.00	50.00
Total Fixed Cost	220.52	793.44	783.84
Total Cost	510.76	1,337.69	1,295.51

*Assumed production level of 800 lbs. of clean seed.

**Includes tractors, machinery, machine shed and shop, and shop tools.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, and shop tools.

****Establishment year costs amortized over the 3-year production period at 10% interest.

Table 8 presents the break-even prices necessary to cover total cost of production at different average annual yield levels over a two-year production period for alfalfa seed grown under center pivot irrigation.

Table 8. Break-Even Prices Needed to Cover Costs by Yield Levels Over the Two-Year Production Period for Alfalfa Grown Under Center Pivot Irrigation.

Average Yield (lbs.)	Year 1 Cost \$	Year 2 Cost \$	Total Cost \$	Break-Even Price \$
500	1334.84	1292.66	2627.50	2.63
600	1335.79	1293.61	2629.40	2.19
700	1336.74	1294.56	2631.30	1.88
800	1337.69	1295.51	2633.20	1.65
900	1338.64	1296.46	2635.10	1.46
1000	1339.59	1297.41	2637.00	1.32

DISCUSSION OF DETAILED BUDGETS

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

Schedule of Operations and Estimated Costs per Acre

Tables 9.1 through 9.4, in Appendix I, and Tables 15.1 through 15.4, 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 13 and 19 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.

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 grows 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 10% 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 9.1-9.4 and 15.1-17.4 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 10.1-10.4 and 16.1-16.4 list, by operation, the specific services and/or materials used, quantities used, and prices paid during the establishment year and each production year analyzed in this study.

Itemized Costs Per Acre

Tables 11.1-11.4 provide itemized lists of the costs detailed in Tables 9.1-9.4, respectively. Tables 17.1-17.4 provide itemized lists of the costs detailed in Tables 15.1-15.4, respectively. Most items are self-explanatory. However, "Machinery Interest" represents 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 years of use. The 10% interest charge made against this average value is the total interest cost.

Machinery and Building Complement

Tables 12 and 18 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), number of 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, and the skewtreader. The pickup is considered to be the pickup previously used by management. New skewtreaders are too aggressive for alfalfa; only used skewtreaders with worn tines should be used.

Machinery and Building Cost per Hour/per Acre

Tables 13 and 19 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 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 10% 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 14 and 20.

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 \$1,094 per year over a three-year production period. For a two-year production period, the average yearly total “economic” cost is \$1,193. For alfalfa seed grown under center pivot irrigation, the average annual per acre cost is \$1,207 over a three-year production period. For a two-year production period, the average yearly total “economic” cost is \$1,317. By comparing the variable costs of the two irrigation methods for both the three-year and two-year production periods it can be seen that the total variable cost for each establishment and production year within the respective production periods are approximately the same. Although the center pivot has less chemical, fuel and lube, labor, and machinery repair costs, this savings is replaced by greater irrigation repair and power costs along with the addition of chemigator cost. In terms of fixed costs, machinery costs are \$12 per acre lower under rill irrigation but land rental rates are \$115 higher under center pivot irrigation. Added to slightly higher amortization costs for the establishment year, total fixed costs for center pivot irrigation are over \$110 per acre higher than for 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. 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 \$1.37 per pound to cover all “economic” costs for alfalfa seed grown for a three-year period under rill irrigation and \$1.49 per pound for that grown for a two-year period. For alfalfa seed grown under center pivot, \$1.51 per pound is needed to cover all “economic” costs for a three year production period and \$1.65 for a two year production period. Producers may look at these figures and say they produce for less than these costs figures show. 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. Furthermore, users of these budgets must fully understand that these are “economic” budgets that include all opportunity costs for operator labor, management, and equity invested. In addition, machinery costs are included on a “replacement cost” basis. To appropriately use these budgets one needs to fully comprehend the procedures and assumptions used in this study 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://www.farm-mgmt.wsu.edu/> and click on “Publication Links”, “Unpublished,” and “Understanding and Using WSU Crop Enterprise Budgets.”

For those readers familiar with using spreadsheets, Excel spreadsheets similar to Tables 1, 3, 5, and 7, shown in Appendix IV, can be downloaded and modified by the user to best meet their situation. These spreadsheets can be downloaded from the Internet at <http://www.farm-mgmt.wsu.edu/> and clicking on “Publication Links” then on “Irrigated Crops.”

This publication describes current production practices used in the production of alfalfa seed under rill and center pivot irrigation and for different contract periods. The authors are presenting information based on data collected from active producers of alfalfa seed. They are not recommending particular production practices; each producer’s situation is unique so they will need to make their own decisions regarding production practices based on their own particular circumstances.

APPENDIX I

Detailed Budgets for Alfalfa Seed

Produced Under Rill Irrigation

(3-Year Production Period)

TABLE 9.1: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHMENT OF ALFALFA FOLLOWING WHEAT UNDER RILL IRRIGATION.*

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST	
						TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER. INTER.			
SHRED STUBBLE	150HP-WT, 14' FLAIL SHREDDER	AUG	2005	.17	.18	\$ 6.47	\$ 3.55	\$ 2.66	\$.00	\$.00	\$.16	\$ 6.37	\$ 12.84
DISK & PACK (2X)	150HP-WT, 13.4' DISC W/14'PACK	AUG	2005	.25	.28	9.77	6.94	3.99	.00	.00	.27	11.21	20.97
CORRUGATE	150HP-WT, 11-ROW CORRUGATOR	AUG	2005	.18	.20	4.57	3.70	2.90	.00	.00	.16	6.76	11.34
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	AUG	2005	.06	.07	1.21	.69	.96	.00	.00	.04	1.69	2.90
IRRIGATE (3X)**	RILL IRRIGATION	AUG	2005	.00	1.50	2.64	4.50	21.75	25.50	3.50	1.38	56.63	59.27
DISK & PACK	150HP-WT, 13.4' DISC W/14'PACK	AUG	2005	.13	.14	4.88	3.47	1.99	.00	.00	.14	5.60	10.49
SOIL TEST	CUSTOM HIRE	AUG	2005	.00	.00	.00	.00	.00	1.00	.00	.03	1.03	1.03
FERTILIZE	CUSTOM HIRE	AUG	2005	.00	.00	.00	.00	.00	7.00	38.20	1.14	46.33	46.33
PLOW & PACK	150HP-WT, 4BTM PLOW W/7' PACK.	AUG	2005	.29	.31	9.42	6.85	4.56	.00	.00	.29	11.69	21.12
ROTOVAT./HERBIC.	150HP-WT, 12'ROTO. W/SADDLE TK	AUG	2005	.33	.44	12.06	9.77	6.44	.00	15.13	.78	32.12	44.19
HAUL WATER	LABOR'S PICKUP	AUG	2005	.04	.04	1.24	.55	.64	.00	.00	.03	1.22	2.45
PLANT/CORRUGATE	150HP-WT, 12R PLANTER W/CORRUG	SEP	2005	.13	.16	5.64	3.44	2.32	.00	4.12	.16	10.05	15.68
HAUL SEED	PICKUP	SEP	2005	.02	.02	.09	.08	.32	.00	.00	.01	.40	.50
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	SEP	2005	.06	.07	1.21	.69	.96	.00	.00	.03	1.68	2.89
SPRAY (INSECTS)	CUSTOM AERIAL	SEP	2005	.00	.00	.00	.00	.00	7.50	10.08	.29	17.87	17.87
SPRAY (HERBICIDE)	110HP-WT, SADDLE TK W/44' BOOM	SEP	2005	.05	.06	1.25	.76	.87	.00	24.13	.43	26.19	27.44
HAUL WATER	NURSE TRUCK	SEP	2005	.04	.04	1.24	.55	.64	.00	.00	.02	1.21	2.44
SPRAY (HERBICIDE)	110HP-WT, SADDLE TK W/44' BOOM	OCT	2005	.05	.06	1.25	.76	.87	.00	34.20	.30	36.13	37.38
HAUL WATER	NURSE TRUCK	OCT	2005	.04	.04	1.24	.55	.64	.00	.00	.01	1.20	2.43
CERTIFICATION	APPLIC. & FIELD INSPECT. FEES	OCT	2005	.00	.00	.00	.00	.00	1.60	.00	.01	1.61	1.61
BUILDINGS	MACHINE SHED AND SHOP	ANN	2005	.00	.00	2.86	.30	.00	.00	.00	.02	.32	3.18
MISC USE	SHOP TOOLS	ANN	2005	.00	.00	5.91	3.33	.00	.00	.00	.17	3.50	9.41
MISC USE	MANAGER'S PICKUP	ANN	2005	.53	.00	3.81	3.52	.00	.00	.00	.18	3.70	7.51
MISC USE	LABOR'S PICKUP	ANN	2005	.75	.00	3.41	2.95	.00	.00	.00	.15	3.09	6.51
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2005	.00	.00	.00	.00	.00	14.38	.00	.00	14.38	14.38
LAND COST	LAND RENT	ANN	2005	.00	.00	67.50	.00	.00	.00	.00	.00	.00	67.50
MANAGEMENT	MANAGEMENT COST	ANN	2005	.00	.00	25.00	.00	.00	.00	.00	.00	.00	25.00
TOTAL PER ACRE				3.12	3.62	172.64	56.96	52.50	56.98	129.36	6.17	301.98	474.62

*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.

TABLE 10.1: 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 @ \$51.00 /ACRE 2 APPLICATIONS OF PAM @ 0.5 LB. PER APPLICATION @ 3.50/LB.
SOIL TEST	AUGUST	CUSTOM HIRED @ \$ 1.00 /ACRE
FERTILIZE	AUGUST	CUSTOM FERTILIZE @ \$7.00 /ACRE 30 LB. NITROGEN @ \$0.46/LB. 30 LB. PHOSPHORUS @ \$0.31/LB. 30 LB. POTASH @ \$0.34/LB. 10 LB. SULFUR @ \$0.19/LB. 1 LB. BORON @ \$3.00/LB.
ROTOVATE / HERBICIDE	AUGUST	1.0 PINT TREFLAN @ \$3.13/PINT 3.0 PINTS EPTAM @ \$4.00/PINT
INSECTICIDE (OPTIONAL)	SEPTEMBER	CUSTOM AERIAL @ \$7.50/ACRE 1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT.
PLANT/CORRUGATE	SEPTEMBER	0.75 LB. ALFALFA SEED @ \$5.50/LB.
HERBICIDE SPRAY (1 ST TIME)	SEPTEMBER	10 FL. OZ. SELECT @ \$1.84/OZ. 1 QT. OF CROP OIL CONCENTRATE @ \$3.13/QT. 5 LB SPRAY-GRADE AMM.- SULFATE @ \$0.52/LB.
HERBICIDE SPRAY (2 ND TIME)	OCTOBER	*3 QT. 2,4-DB AMINE @ \$9.90/QT. *0.5 PINT BROMOXYNIL @ \$9.00/PINT OR 5 FL. OZ. RAPTOR @ \$4.30/FL. OZ. 10 FL. OZ. OF CROP OIL CONCENTRATE @ \$0.10/ FL. OZ. 5 LB SPRAY-GRADE AMM.- SULFATE @ \$0.52/LB
CERTIFICATION FEES	OCTOBER	APPLICATION FEE \$0.60/ACRE FIELD INSPECTION FEE @ \$1.00/ACRE
OVERHEAD	ANNUAL	5 % OF VARIABLE COST

*USED IN BUDGET.

TABLE 11.1: ITEMIZED COST PER ACRE FOR ESTABLISHMENT OF ALFALFA
FOLLOWING WHEAT UNDER RILL IRRIGATION.

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

VARIABLE COSTS		\$		\$	
TREFLAN	PINT	3.13	1.00	3.13	_____
EPTAM	PINT	4.00	3.00	12.00	_____
PAM	LB.	3.50	1.00	3.50	_____
THIONEX	QT.	7.75	1.30	10.08	_____
SELECT	OZ.	1.84	10.00	18.40	_____
CROP OIL	QT.	3.13	1.00	3.13	_____
AMMONIUM-SULFATE	LB.	.52	5.00	2.60	_____
2,4-DB-AMINE	QT.	9.90	3.00	29.70	_____
BROMOXYNIL	PINT	9.00	.50	4.50	_____
SOIL TEST	ACRE	1.00	1.00	1.00	_____
CUSTOM FERTILIZE	ACRE	7.00	1.00	7.00	_____
NITROGEN	LB.	.46	30.00	13.80	_____
PHOSPHOROUS	LB.	.31	30.00	9.30	_____
POTASH	LB.	.34	30.00	10.20	_____
SULFUR	LB.	.19	10.00	1.90	_____
BORON	LB.	3.00	1.00	3.00	_____
ALFALFA SEED	LB.	5.50	.75	4.12	_____
WATER CHARGE	ACRE	51.00	.50	25.50	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
APPLICATION FEE	ACRE	.60	1.00	.60	_____
FIELD INSPECTION FEE	ACRE	1.00	1.00	1.00	_____
IRRIGATION REPAIR	ACRE	9.00	.50	4.50	_____
MACHINERY REPAIRS	ACRE	23.08	1.00	23.08	_____
MACHINE FUEL/LUBE	ACRE	29.39	1.00	29.39	_____
LABOR (TRAC/MACH)	ACRE	14.50	3.62	52.50	_____
OVERHEAD	ACRE	14.38	1.00	14.38	_____
INTEREST ON OP. CAP.	ACRE	6.17	1.00	6.17	_____

TOTAL VARIABLE COST				301.98	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	39.48	1.00	39.48	_____
MACHINE INTEREST*	ACRE	32.80	1.00	32.80	_____
MACHINE INSURANCE*	ACRE	1.96	1.00	1.96	_____
MACHINE TAXES*	ACRE	5.90	1.00	5.90	_____
LAND RENT	ACRE	135.00	.50	67.50	_____
MANAGEMENT FEE	ACRE	50.00	.50	25.00	_____

TOTAL FIXED COST				172.64	_____
TOTAL COST				474.62	_____

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

TABLE 9.2: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE FIRST YEAR AFTER ESTABLISHMENT YEAR 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.		
						\$	\$	\$	\$	\$	\$	\$	
APPLY HERBICIDE	110HP-WT, SADDLE TK W/44' BOOM	MAR	2006	.05	.06	1.25	.76	.87	.00	25.30	1.80	28.73	29.98
HAUL WATER	NURSE TRUCK	MAR	2006	.04	.04	1.24	.55	.64	.00	.00	.08	1.26	2.50
CULTIVATE/CORRUG	150HP-WT, 12R CULTIV./CORRUGA.	MAR	2006	.22	.24	5.80	4.84	3.54	.00	.00	.56	8.94	14.74
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	APR	2006	.06	.07	1.21	.69	.96	.00	.00	.10	1.75	2.96
HERBICIDE SPRAY	150HP-WT, 12R ROLLING CULT/TKS	APR	2006	.15	.18	6.74	3.94	2.68	.00	17.50	1.41	25.53	32.27
HAUL WATER	NURSE TRUCK	APR	2006	.04	.04	1.24	.55	.64	.00	.00	.07	1.25	2.49
IRRIGATE (5X)*	RILL IRRIGATION	SEA	2006	.00	2.50	5.28	9.00	36.25	51.00	5.25	5.08	106.58	111.85
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2006	.00	.00	.00	.00	.00	7.50	17.88	1.27	26.65	26.65
POLLINATION**	DOLLAR COST OF POLLINATION	NOV	2006	.00	.00	92.39	.00	.00	171.45	.00	.00	171.45	263.84
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2006	.00	.00	.00	.00	.00	.60	.00	.03	.63	.63
PRODUCTION FEE	SEED PRODUCING FEE	JUN	2006	.00	.00	.00	.00	.00	1.85	.00	.08	1.93	1.93
IN-SEASON SPRAY	CUSTOM AERIAL	JUL	2006	.00	.00	.00	.00	.00	7.50	10.08	.59	18.16	18.16
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2006	.00	1.00	.28	.00	14.50	.00	1.00	.52	16.02	16.29
IN-SEASON SPRAY	CUSTOM AERIAL	AUG	2006	.00	.00	.00	.00	.00	7.50	10.75	.46	18.71	18.71
CLEANUP SPRAY***	CUSTOM AERIAL (1.5X)	AUG	2006	.00	.00	.00	.00	.00	11.25	8.48	.49	20.22	20.22
SWATH	14' SWATHER	AUG	2006	.30	.33	16.29	4.82	4.83	.00	.00	.24	9.90	26.18
COMBINE	14' COMBINE	AUG	2006	.29	.31	31.31	12.21	4.56	.00	.00	.42	17.18	48.49
HAUL SEED	HAULING COST	AUG	2006	.00	.00	.00	.00	.00	3.36	.00	.08	3.44	3.44
RESIDUE MANAGEMT	150HP-WT, 13.4' OFFSET DISK	OCT	2006	.13	.14	4.23	3.07	1.99	.00	.00	.04	5.11	9.34
CORRUGATE	150HP-WT, 6 ROW CORRUGATOR	OCT	2006	.14	.16	3.59	2.17	2.28	.00	.00	.04	4.49	8.09
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	OCT	2006	.06	.07	1.21	.69	.96	.00	.00	.01	1.66	2.88
THIN FIELD	150HP-WT, 12 ROW CULTIVATOR	OCT	2006	.15	.17	3.91	3.30	2.45	.00	.00	.05	5.80	9.71
COMMISSION	ALFALFA SEED COMMISSION	NOV	2006	.00	.00	.00	.00	.00	4.24	.00	.00	4.24	4.24
BUILDINGS	MACHINE SHED AND SHOP	ANN	2006	.00	.00	5.72	.60	.00	.00	.00	.03	.63	6.35
MISC USE	SHOP TOOLS	ANN	2006	.00	.00	7.08	.00	.00	.00	.00	.00	.00	7.08
MISC USE	MANAGER'S PICKUP	ANN	2006	1.07	.00	7.61	7.05	.00	.00	.00	.35	7.40	15.01
MISC USE	LABOR'S PICKUP	ANN	2006	1.50	.00	10.70	9.91	.00	.00	.00	.50	10.41	21.11
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2006	.00	.00	.00	.00	.00	25.90	.00	.00	25.90	25.90
LAND COST	LAND RENT	ANN	2006	.00	.00	135.00	.00	.00	.00	.00	.00	.00	135.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2006	.00	.00	190.85	.00	.00	.00	.00	.00	.00	190.85
MANAGEMENT	MANAGEMENT COST	ANN	2006	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				4.20	5.32	582.90	64.16	77.15	292.15	96.23	14.27	543.96	1126.86

*AN AVERAGE OF FIVE IRRIGATIONS PER SEASONS.

**SEE APPENDIX II: POLLINATION COST CALCULATIONS.

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

TABLE 10.2: MATERIALS AND SERVICES USED BY OPERATION FOR **FIRST YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
APPLY HERBICIDE	MARCH	5 FL. OZ. RAPTOR @ \$4.30/FL. OZ. 12 FL. OZ. CROP OIL CONC. @ \$0.10/FL. OZ. 5 LB. SPRAY-GRADE AMM.-SULFATE @ \$0.52/LB
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.50/PINT
IRRIGATE (5X)	SEASON	IRRIGATION CHARGE @ \$51.00/ ACRE 3 APPLICATIONS OF PAM @ 0.5 LB. PER APPLICATION @ 3.50/LB.
PRE-BLOOM SPRAY (LYGUS)	MAY	CUSTOM AERIAL @ \$ 7.50 /ACRE *0.75 PINT OF DIMETHOATE @ \$5.50/PINT *3.84 FL. OZ. OF WARRIOR @ 2.54/FL. OZ. *FOLIAR FEED @ \$4.00/ACRE OR 1 PINT DIBROM (LYGUS) @\$ 11.75/PINT OR 4.3 FL. OZ. MUSTANG (SPOTTED APHID) @ \$2.50/FL. OZ. OR 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ.
CERTIFICATION RENEWAL FEE	JUNE	\$0.60 /ACRE
PROD. FEE (FIELD INSPECTIONS)	JUNE	\$1.85/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$171.45/ACRE
IN-SEASON SPRAY(1)	JULY - AUGUST	CUSTOM AERIAL @ \$ 7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ. OR *1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT.
ROGUE FIELD (BACKPACK)	JULY	ROGUING SPRAY @ \$1.00/ACRE
IN-SEASON SPRAY (2)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ. OR *4.3 FL. OZ. MUSTANG (SPOT. APHID) @ \$2,50/FL. OZ. OR 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ. OR 1.3 QT. THIONEX (PEA & SPOTTED APHID) @ \$7.75/QT.
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$ 7.50 /ACRE 1 PINT DIMETHOATE @ \$5.50/PINT 1.3 QT. THIONEX @ \$7.75/QT OR *1 PINT METHYL PARATHION @ \$5.65/PT
	OR IF SPOTTED APHID PRESENT	
	OR	
HAUL SEED	AUGUST	\$0.40/CWT.
ALFALFA SEED COMMISSION	DECEMBER	\$0.53/CWT OF CLEAN SEED PRODUCED
OVERHEAD	ANNUAL	5 % OF VARIABLE COST

*USED IN BUDGET.

TABLE 11.2: ITEMIZED COST PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE FIRST YEAR AFTER ESTABLISHMENT YEAR UNDER RILL IRRIGATION.

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

VARIABLE COSTS		\$		\$	
RAPTOR	OZ.	4.30	5.00	21.50	_____
CROP OIL CONCENTRATE	OZ.	.10	12.00	1.20	_____
AMMONIUM-SULFATE	LB.	.52	5.00	2.60	_____
PROWL	PINT	3.50	5.00	17.50	_____
DIMETHOATE	PINT	5.50	.75	4.12	_____
WARRIOR	OZ.	2.54	3.84	9.75	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
THIONEX	QT.	7.75	1.30	10.08	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
METHYL PARATHION	PINT	5.65	1.50	8.48	_____
MUSTANG	OZ.	2.50	4.30	10.75	_____
PAM	LB.	3.50	1.50	5.25	_____
CERTIFACATION RENEWAL	ACRE	.60	1.00	.60	_____
PRODUCTION FEE	ACRE	1.85	1.00	1.85	_____
HAULING COST	CWT.	.40	8.40	3.36	_____
CUSTOM AERIAL	ACRE	7.50	4.50	33.75	_____
SEED COMMISSION	CWT.	.53	8.00	4.24	_____
POLLINATION COST	ACRE	171.45	1.00	171.45	_____
WATER CHARGE	ACRE	51.00	1.00	51.00	_____
IRRIGATION REPAIR	ACRE	9.00	1.00	9.00	_____
MACHINERY REPAIRS	ACRE	21.11	1.00	21.11	_____
MACHINE FUEL/LUBE	ACRE	34.05	1.00	34.05	_____
LABOR (TRAC/MACH)	HOUR	14.50	5.32	77.15	_____
OVERHEAD	ACRE	25.90	1.00	25.90	_____
INTEREST ON OP. CAP.	ACRE	14.27	1.00	14.27	_____
TOTAL VARIABLE COST				543.96	_____

FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	61.95	1.00	61.95	_____
MACHINE INTEREST*	ACRE	42.51	1.00	42.51	_____
MACHINE INSURANCE*	ACRE	2.55	1.00	2.55	_____
MACHINE TAXES*	ACRE	7.65	1.00	7.65	_____
POLLINATION COST	ACRE	92.39	1.00	92.39	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
LAND RENT	ACRE	135.00	1.00	135.00	_____
AMORT EST. COST	ACRE	190.85	1.00	190.85	_____
TOTAL FIXED COST				582.90	_____

TOTAL COST				1126.86	_____

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

TABLE 9.3: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE SECOND YEAR AFTER ESTABLISHMENT YEAR 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	110HP-WT, SADDLE TK W/44' BOOM	FEB	2006	.05	.06	\$ 1.25	\$.76	\$.87	\$.00	\$ 14.74	\$ 1.23	\$ 17.60	\$ 18.85
HAUL WATER	NURSE TRUCK	FEB	2006	.04	.04	1.24	.55	.64	.00	.00	.09	1.27	2.51
SKEWTREAD	110HP-WT, 15' SKEWTREADER	MAR	2006	.10	.11	2.33	1.43	1.60	.00	.00	.20	3.22	5.55
HERBICIDE SPRAY	150HP-WT, 12R ROLL CULT/TANKS	APR	2006	.15	.18	6.74	3.94	2.68	.00	17.50	1.41	25.53	32.27
HAUL WATER	NURSE TRUCK	APR	2006	.04	.04	1.24	.55	.64	.00	.00	.07	1.25	2.49
LAYBY	150HP-WT, 11 ROW CORRUGATOR	APR	2006	.18	.20	4.57	2.77	2.90	.00	.00	.33	6.00	10.57
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	APR	2006	.06	.07	1.21	.69	.96	.00	.00	.10	1.75	2.96
IRRIGATE (4X)*	RILL IRRIGATION	SEA	2006	.00	2.00	5.28	9.00	29.00	51.00	5.25	4.71	98.96	104.24
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2006	.00	.00	.00	.00	.00	7.50	17.88	1.27	26.65	26.65
POLLINATION**	DOLLAR COST OF POLLINATION	MAY	2006	.00	.00	92.39	.00	.00	144.45	.00	.00	144.45	236.84
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2006	.00	.00	.00	.00	.00	.60	.00	.03	.63	.63
PRODUCTION FEE	SEED PRODUCING FEE	JUN	2006	.00	.00	.00	.00	.00	1.85	.00	.08	1.93	1.93
IN-SEASON SPRAY	CUSTOM AERIAL	JUL	2006	.00	.00	.00	.00	.00	7.50	10.08	.59	18.16	18.16
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2006	.00	1.00	.28	.00	14.50	.00	1.00	.52	16.02	16.29
IN-SEASON SPRAY	CUSTOM AERIAL	AUG	2006	.00	.00	.00	.00	.00	7.50	10.75	.46	18.71	18.71
CLEANUP SPRAY***	CUSTOM AERIAL (1.5X)	AUG	2006	.00	.00	.00	.00	.00	11.25	8.48	.49	20.22	20.22
SWATH	14' SWATHER	AUG	2006	.30	.33	16.29	4.82	4.83	.00	.00	.24	9.90	26.18
COMBINE	14' COMBINE	AUG	2006	.29	.31	31.31	12.21	4.56	.00	.00	.42	17.18	48.49
HAUL SEED	HAULING COST	AUG	2006	.00	.00	.00	.00	.00	3.36	.00	.08	3.44	3.44
RESIDUE MANAGEMT	150HP-WT, 13.4' OFFSET DISK	OCT	2006	.13	.14	4.23	3.07	1.99	.00	.00	.04	5.11	9.34
CORRUGATE	150HP-WT, 6 ROW CORRUGATOR	OCT	2006	.14	.16	3.59	2.17	2.28	.00	.00	.04	4.49	8.09
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	OCT	2006	.06	.07	1.21	.69	.96	.00	.00	.01	1.66	2.88
THIN FIELD	150HP-WT, 12 ROW CULTIVATOR	OCT	2006	.15	.17	3.91	3.30	2.45	.00	.00	.05	5.80	9.71
COMMISSION	ALFALFA SEED COMMISSION	NOV	2006	.00	.00	.00	.00	.00	4.24	.00	.00	4.24	4.24
BUILDINGS	MACHINE SHED AND SHOP	ANN	2006	.00	.00	5.72	.60	.00	.00	.00	.03	.63	6.35
MISC USE	SHOP TOOLS	ANN	2006	.00	.00	7.08	.00	.00	.00	.00	.00	.00	7.08
MISC USE	MANAGER'S PICKUP	ANN	2006	1.07	.00	7.61	7.05	.00	.00	.00	.35	7.40	15.01
MISC USE	LABOR'S PICKUP	ANN	2006	1.50	.00	10.70	9.91	.00	.00	.00	.50	10.41	21.11
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2006	.00	.00	.00	.00	.00	23.64	.00	.00	23.64	23.64
LAND COST	LAND RENT	ANN	2006	.00	.00	135.00	.00	.00	.00	.00	.00	.00	135.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2006	.00	.00	190.85	.00	.00	.00	.00	.00	.00	190.85
MANAGEMENT	MANAGEMENT COST	ANN	2006	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				4.26	4.89	584.00	63.52	70.85	262.88	85.67	13.32	496.23	1080.23

*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.

TABLE 10.3: MATERIALS AND SERVICES USED BY OPERATION FOR **SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	DEC.- FEB.	1 QT. DIURON @ \$7.00/QT. *0.67 LB. OF SENCOR @ \$22.00/LB.
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.50/PINT
IRRIGATE (4X)	SEASON	IRRIGATION CHARGE @ \$51.00/ ACRE 3 APPLICATIONS OF PAM @ 0.5 LB. PER APPLICATION @ 3.50/LB.
PRE-BLOOM SPRAY (LYGUS)	MAY	CUSTOM AERIAL @ \$ 7.50 /ACRE *0.75 PINT OF DIMETHOATE @ \$5.50/PINT
		*3.84 FL. OZ. OF WARRIOR @ \$2.54/FL. OZ. *FOLIAR FEED @ \$4.00/ACRE
		1 PINT DIBROM (LYGUS) @\$ 11.75/PINT
		4.3 FL. OZ.. MUSTANG (SPOTTED APHID) @ \$2,50/FL. OZ.
		2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ.
CERTIFICATION RENEWAL FEE	JUNE	\$0.60/ACRE
PROD. FEE (FIELD INSPECTIONS)	JUNE	\$1.85/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$144.45/ACRE
IN-SEASON SPRAY(1)	JULY - AUGUST	CUSTOM AERIAL @ \$7.50/ACRE 6 OZ. PIRIMOR (PEA APHID) @ \$3.38/OZ. *1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT.
ROGUE FIELD (BACKPACK)	JULY	ROGUING SPRAY @ \$1.00/ACRE
IN-SEASON SPRAY (2)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38/OZ. 8 OZ POUNCE (PEA & SPOT. APHID) @ \$0.81/OZ. *4.3 FL. OZ. MUSTANG (SPOT. APHID) @ \$2.50/FL. OZ. 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ. 1.3 QT. THIONEX (PEA & SPOTTED APHID) @ \$7.75/QT.
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 1 PINT DIMETHOATE @ \$5.50/PINT 1.3 QT. THIONEX @ \$7.75/QT.
	OR IF SPOTTED APHID PRESENT	*1 PINT METHYL PARATHION @ \$5.65/PINT
HAUL SEED	AUGUST	\$0.40/CWT.
ALFALFA SEED COMMISSION	DECEMBER	\$0.53/CWT OF CLEAN SEED PRODUCED
OVERHEAD	ANNUAL	5% OF VARIABLE COST

*USED IN BUDGET

TABLE 11.3: ITEMIZED COST PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE SECOND YEAR AFTER ESTABLISHMENT YEAR UNDER RILL IRRIGATION.

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

VARIABLE COSTS		\$		\$	
SENCOR	LB.	22.00	.67	14.74	_____
PROWL	PINT	3.50	5.00	17.50	_____
DIMETHOATE	PINT	5.50	.75	4.12	_____
WARRIOR	OZ.	2.54	3.84	9.75	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
THIONEX	QT.	7.75	1.30	10.08	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
MUSTANG	OZ.	2.50	4.30	10.75	_____
METHYL PARATHION	PINT	5.65	1.50	8.48	_____
PAM	LB.	3.50	1.50	5.25	_____
CERTIFICATION RENEWAL	ACRE	.60	1.00	.60	_____
PRODUCTION FEE	ACRE	1.85	1.00	1.85	_____
SEED COMMISSION	CWT.	.53	8.00	4.24	_____
POLLINATION COST	ACRE	144.45	1.00	144.45	_____
CUSTOM AERIAL	ACRE	7.50	4.50	33.75	_____
HAULING COST	CWT.	.40	8.40	3.36	_____
WATER CHARGE	ACRE	51.00	1.00	51.00	_____
IRRIGATION REPAIR	ACRE	9.00	1.00	9.00	_____
MACHINERY REPAIRS	ACRE	21.25	1.00	21.25	_____
MACHINE FUEL/LUBE	ACRE	33.26	1.00	33.26	_____
LABOR (TRAC/MACH)	ACRE	14.50	4.98	70.85	_____
OVERHEAD	ACRE	23.63	1.00	23.63	_____
INTEREST ON OP. CAP.	ACRE	13.32	1.00	13.32	_____

TOTAL VARIABLE COST				496.23	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	62.56	1.00	62.56	_____
MACHINE INTEREST*	ACRE	42.92	1.00	42.92	_____
MACHINE INSURANCE*	ACRE	2.56	1.00	2.56	_____
MACHINE TAXES*	ACRE	7.72	1.00	7.72	_____
POLLINATION COST	ACRE	92.39	1.00	92.39	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
LAND RENT	ACRE	135.00	1.00	135.00	_____
AMORT EST. COST	ACRE	190.85	1.00	190.85	_____

TOTAL FIXED COST				584.00	_____
TOTAL COST				1080.23	_____

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

TABLE 9.4: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE THIRD YEAR AFTER ESTABLISHMENT YEAR 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	110HP-WT, SADDLE TK W/44' BOOM	FEB	2006	.05	.06	1.25	.76	.87	.00	14.74	1.23	17.60	18.85
HAUL WATER	NURSE TRUCK	FEB	2006	.04	.04	1.24	.55	.64	.00	.00	.09	1.27	2.51
SKEWTREAD	110HP-WT, 15' SKEWTREADER	MAR	2006	.10	.11	2.33	1.43	1.60	.00	.00	.20	3.22	5.55
HERBICIDE SPRAY	150HP-WT, 12R ROLL CULT/TANKS	APR	2006	.15	.18	6.74	3.94	2.68	.00	17.50	1.41	25.53	32.27
HAUL WATER	NURSE TRUCK	APR	2006	.04	.04	1.24	.55	.64	.00	.00	.07	1.25	2.49
LAYBY	150HP-WT, 11 ROW CORRUGATOR	APR	2006	.18	.20	4.57	2.77	2.90	.00	.00	.33	6.00	10.57
HEADLAND	110HP-WT, HEADLAND CORRUGATOR	APR	2006	.06	.07	1.21	.69	.96	.00	.00	.10	1.75	2.96
IRRIGATE (4X)*	RILL IRRIGATION	SEA	2006	.00	2.00	5.28	9.00	29.00	51.00	5.25	4.71	98.96	104.24
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2006	.00	.00	.00	.00	.00	7.50	17.88	1.27	26.65	26.65
POLLINATION**	DOLLAR COST OF POLLINATION	MAY	2006	.00	.00	92.39	.00	.00	126.45	.00	.00	126.45	218.84
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2006	.00	.00	.00	.00	.00	.60	.00	.03	.63	.63
PRODUCTION FEE	SEED PRODUCING FEE	JUN	2006	.00	.00	.00	.00	.00	1.85	.00	.08	1.93	1.93
IN-SEASON SPRAY	CUSTOM AERIAL	JUL	2006	.00	.00	.00	.00	.00	7.50	10.08	.59	18.16	18.16
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2006	.00	1.00	.28	.00	14.50	.00	1.00	.52	16.02	16.29
IN-SEASON SPRAY	CUSTOM AERIAL	AUG	2006	.00	.00	.00	.00	.00	7.50	10.75	.46	18.71	18.71
CLEANUP SPRAY***	CUSTOM AERIAL (1.5X)	AUG	2006	.00	.00	.00	.00	.00	11.25	8.48	.49	20.22	20.22
SWATH	14' SWATHER	AUG	2006	.30	.33	16.29	4.82	4.83	.00	.00	.24	9.90	26.18
COMBINE	14' COMBINE	AUG	2006	.29	.31	31.31	12.21	4.56	.00	.00	.42	17.18	48.49
HAUL SEED	HAULING COST	AUG	2006	.00	.00	.00	.00	.00	3.36	.00	.08	3.44	3.44
SPRAY TO KILL	110HP-WT, SADDLE TK W/44' BOOM	OCT	2006	.05	.06	1.25	.76	.87	.00	11.00	.11	12.74	13.99
HAUL WATER	NURSE TRUCK	OCT	2006	.04	.04	1.24	.55	.64	.00	.00	.01	1.20	2.43
CHISEL PLOW (2X)	150HP-WT, 12' CHISEL PLOW	OCT	2006	.40	.44	10.97	8.98	6.38	.00	.00	.13	15.49	26.46
COMMISSION	ALFALFA SEED COMMISSION	NOV	2006	.00	.00	.00	.00	.00	4.24	.00	.00	4.24	4.24
BUILDINGS	MACHINE SHED AND SHOP	ANN	2006	.00	.00	5.72	.60	.00	.00	.00	.03	.63	6.35
MISC USE	SHOP TOOLS	ANN	2006	.00	.00	7.08	.00	.00	.00	.00	.00	.00	7.08
MISC USE	MANAGER'S PICKUP	ANN	2006	1.07	.00	7.61	7.05	.00	.00	.00	.35	7.40	15.01
MISC USE	LABOR'S PICKUP	ANN	2006	1.50	.00	10.70	9.91	.00	.00	.00	.50	10.41	21.11
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2006	.00	.00	.00	.00	.00	23.36	.00	.00	23.36	23.36
LAND COST	LAND RENT	ANN	2006	.00	.00	135.00	.00	.00	.00	.00	.00	.00	135.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2006	.00	.00	190.85	.00	.00	.00	.00	.00	.00	190.85
MANAGEMENT	MANAGEMENT COST	ANN	2006	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				4.27	4.90	584.66	64.57	71.05	244.60	96.67	13.42	490.31	1074.97

*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.

TABLE 10.4: MATERIALS AND SERVICES USED BY OPERATION FOR **THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER RILL IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	DEC. - FEB.	1 QT DIURON @ \$7.00/QT. *.67 LB. SENCOR @ \$22.00/LB.
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.50/PINT
IRRIGATE (4X)	SEASON	IRRIGATION CHARGE @ \$51.00/ ACRE 3 APPLICATIONS OF PAM @ 0.5 LB. PER APPLICATION @ 3.50/LB
PRE-BLOOM SPRAY (LYGUS)	MAY	CUSTOM AERIAL @ \$7.50//ACRE *.75 PINT OF DIMETHOATE @ \$5.50/PINT *3.84 FL. OZ. OF WARRIOR @ \$2.54/FL. OZ. *FOLIAR FEED @ \$4.00/ACRE
		OR 1 PINT DIBROM (LYGUS) @\$ 11.75/PINT
		OR 4.3 FL. OZ. MUSTANG (SPOTTED APHID) @ \$2.50/FL. OZ.
		OR 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ.
CERTIFICAT. RENEWAL FEE	JUNE	\$0.60/ACRE
PRODUCTION FEE	JUNE	\$1.85/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$48.45/ACRE
IN-SEASON SPRAY(1)	JULY - AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ
		OR *1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT.
ROGUE FIELD (BACKPACK)	JULY	ROGUING SPRAY @ \$1.00/ACRE
IN-SEASON SPRAY (2)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ. PIRIMOR (PEA APHID) @ \$3.38/OZ.
		OR 8 OZ. POUNCE (PEA& SPOT. APHID) @ \$0.81/OZ.
		OR *4.3 FL. OZ. MUSTANG (SPOT. APHID) @ \$2.50/FL. OZ.
		OR 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ
		OR 1.3 QT. THIONEX (PEA &SPOTTED APHID) @ \$7.75/QT.
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 1 PINT DIMETHOATE @ \$5.50/PINT
	OR IF SPOTTED APHID PRESENT	1.3 QT. THIONEX @ \$7.75/QT.
	OR	*1 PINT METHYL PARATHION @ \$5.65/PINT
HAUL SEED	AUGUST	\$0.40/CWT.
SPRAY TO KILL CROP	OCTOBER	1 QT. GLYPHOSATE @ \$6.50/QT. 1 QT. 2,4-D @ \$4.50/QT.
ALFALFA SEED COMMISSION	DECEMBER	\$0.53/CWT OF CLEAN SEED PRODUCED
OVERHEAD	ANNUAL	5% OF VARIABLE COST

*USED IN BUDGET.

TABLE 11.4: ITEMIZED COST PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE THIRD YEAR AFTER ESTABLISHMENT YEAR UNDER RILL IRRIGATION.

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

VARIABLE COSTS		\$		\$	
SENCOR	LB.	22.00	.67	14.74	_____
PROWL	PINT	3.50	5.00	17.50	_____
DIMETHOATE	PINT	5.50	.75	4.12	_____
WARRIOR	OZ.	2.54	3.84	9.75	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
THONEX	QT.	7.75	1.30	10.08	_____
MUSTANG	OZ.	2.50	4.30	10.75	_____
METHYL PARATHION	PINT	5.65	1.50	8.48	_____
GLYPHOSATE	QT.	6.50	1.00	6.50	_____
2,4-D	QT.	4.50	1.00	4.50	_____
PAM	LB.	3.50	1.50	5.25	_____
CERTIFICATION RENEWAL	ACRE	.60	1.00	.60	_____
PRODUCTION FEE	ACRE	1.85	1.00	1.85	_____
SEED COMMISSION	CWT.	.53	8.00	4.24	_____
POLLINATION COST	ACRE	126.45	1.00	126.45	_____
CUSTOM AERIAL	ACRE	7.50	4.50	33.75	_____
HAULING COST	CWT.	.40	8.40	3.36	_____
WATER CHARGE	ACRE	51.00	1.00	51.00	_____
IRRIGATION REPAIR	ACRE	9.00	1.00	9.00	_____
MACHINERY REPAIRS	ACRE	21.67	1.00	21.67	_____
MACHINE FUEL/LUBE	ACRE	33.90	1.00	33.90	_____
LABOR (TRAC/MACH)	HOUR	14.50	4.90	71.05	_____
OVERHEAD	ACRE	23.35	1.00	23.35	_____
INTEREST ON OP. CAP.	ACRE	13.42	1.00	13.42	_____

TOTAL VARIABLE COST				490.31	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	62.64	1.00	62.64	_____
MACHINE INTEREST*	ACRE	43.37	1.00	43.37	_____
MACHINE INSURANCE*	ACRE	2.60	1.00	2.60	_____
MACHINE TAXES*	ACRE	7.81	1.00	7.81	_____
POLLINATION COST	ACRE	92.39	1.00	92.39	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
LAND RENT	ACRE	135.00	1.00	135.00	_____
AMORT EST. COST	ACRE	190.85	1.00	190.85	_____

TOTAL FIXED COST				584.66	_____
TOTAL COST				1074.97	_____

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

TABLE 12: MACHINERY AND BUILDING COMPLEMENT FOR PRODUCING ALFALFA SEED UNDER RILL IRRIGATION.

MACHINE NAME	PURCHASE PRICE \$	YEARS OF USE	SALVAGE VALUE \$	ANNUAL REPAIR COST \$	ANNUAL HOURS OF USE	GALLONS OF FUEL PER HOUR
150HP-WT	117,400	15	16,000	3,075	700	4D, 6D
110HP-WT	67,284	15	9,000	1,620	500	3D
PICKUP, MANAGEMENT	26,000	5	8,000	1,000	800	2G
PICKUP, IRRIGATOR	8,000	5	2,000	500	400	2G
NURSE TRUCK & TANK	10,000	10	2000	300	50	3D
100HP SWATHER	68,756	10	10,200	1,575	200	3G
14' COMBINE	210,000	10	30,000	8,200	300	6D
4-18" MB PLOW	15,200	10	3,000	900	250	
12' CHISEL PLOW	7,400	15	1,400	400	150	
7' PACKER	3,100	8	800	150	250	
14' PACKER	7,500	8	1,500	800	250	
13.4' OFFSET DISC	17,700	8	3,500	1,200	250	
12R-CULTIVATOR	4,600	15	600	250	150	
12R-CULTIVATOR/ CORRUGATOR	5,400	15	500	300	150	
12R-ROLLING CULTIVATOR	22,700	15	2,000	900	150	
6 & 11R CORRUGATOR	4,300	15	300	85	150	
HEADLAND CORRUGATOR	3,000	5	300	150	250	
12' ROTOVATOR	12,000	10	4,500	1,000	150	
15' SKEWTREADER (USED)	1,000	8	100	100	30	
14' FLAIL SHREDDER	17,000	10	4,000	1,000	150	
6R-RESERVOIR TILLER	16,000	15	2,500	850	150	
12R-SM SEED PLANT W/CORRUGATOR	14,900	12	4,000	600	100	
44' SPRAY BOOM	3,100	10	500	150	100	
SADDLE TANK SPRAYER	3,300	10	700	500	175	
BACKPACK SPRAYER	85	10	0	0	50	
IRRIGATION TUBES	705	5	0	0	50 ACRES	
IRRIGATION DAMS	200	3	0	0	50 ACRES	
MACH SHED & SHOP	60,000	30	0	600	1000 ACRES	
SHOP TOOLS	55,000	15	0	0	1000 ACRES	

TABLE 13: MACHINERY AND BUILDING COSTS FOR PRODUCING ALFALFA SEED UNDER RILL IRRIGATION.

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	117,400.00	15	700	9.66	9.53	.57	1.72	.00	21.47	4.39	15.39*	19.78	41.25
110HP-WT	67,284.00	15	500	7.77	7.63	.46	1.37	.00	17.23	3.24	7.69	10.93	28.16
PICKUP, MANAGMT	26,000.00	5	800	4.50	2.13	.13	.38	.00	7.14	1.25	5.36	6.61	13.74
PICKUP, LABOR'S	8,000.00	5	400	3.00	1.25	.08	.23	.00	4.55	1.25	2.68	3.93	8.48
NURSE TRUCK/TANK	10,000.00	10	50	16.00	12.00	.72	2.16	.00	30.88	6.00	7.69	13.69	44.57
100 HP SWATHER	68,756.00	10	200	29.28	19.74	1.18	3.55	.00	53.75	7.87	8.04	15.91	69.67
14' COMBINE	210,000.00	10	300	60.00	40.00	2.40	7.20	.00	109.60	27.33	15.39	42.72	152.32
4-18" MB PLOW	15,200.00	10	250	4.88	3.64	.22	.66	.00	9.39	3.60	.00	3.60	12.99
12' CHISEL PLOW	7,400.00	15	150	2.67	2.93	.18	.53	.00	6.30	2.67	.00	2.67	8.97
7' PACKER	3,100.00	8	250	1.15	.78	.05	.14	.00	2.12	.60	.00	.60	2.72
14' PACKER	7,500.00	8	250	3.00	1.80	.11	.32	.00	5.23	3.20	.00	3.20	8.43
13.4' OFFST DISC	17,700.00	8	250	7.10	4.24	.25	.76	.00	12.36	4.80	.00	4.80	17.16
12R-CULTIVATOR	4,600.00	15	150	1.78	1.73	.10	.31	.00	3.93	1.67	.00	1.67	5.59
12R-CULT/CORRUG.	5,400.00	15	150	2.18	1.97	.12	.35	.00	4.62	2.00	.00	2.00	6.62
12R-ROLLING CULT	22,700.00	15	150	9.82	7.77	.47	1.40	.00	19.45	3.00	.00	3.00	22.45
6&11R CORRUGATOR	4,300.00	15	150	1.78	1.53	.09	.28	.00	3.68	.57	.00	.57	4.25
HEADLD CORRUGATR	3,000.00	5	250	2.16	.66	.04	.12	.00	2.98	.60	.00	.60	3.58
12' ROTOVATOR	12,000.00	10	150	5.00	5.50	.33	.99	.00	11.82	6.67	.00	6.67	18.49
15' SKEWTREADER	1,000.00	8	30	3.75	1.83	.11	.33	.00	6.02	3.33	.00	3.33	9.35
14' FLAIL SHRED.	17,000.00	10	150	8.67	7.00	.42	1.26	.00	17.35	6.67	.00	6.67	24.01
6R-RESERV TILLER	16,000.00	15	150	6.00	6.17	.37	1.11	.00	13.65	5.67	.00	5.67	19.31
12R-PLANT/CORRUG	14,900.00	12	100	9.08	9.45	.57	1.70	.00	20.80	6.00	.00	6.00	26.80
44' SPRAY BOOM	3,100.00	10	100	2.60	1.80	.11	.32	.00	4.83	1.50	.00	1.50	6.33
SADDLE TANK SPRY	3,300.00	10	175	1.49	1.14	.07	.21	.00	2.90	2.86	.00	2.86	5.76
BACKPACK SPRAYER	85.00	10	50	.17	.09	.01	.02	.00	.28	.00	.00	.00	.28
	\$								-----COST PER ACRE-----				
IRRIGATION TUBES	705.00	5	50	2.82	.71	.04	.13	.00	3.69	.00	.00	.00	3.69
IRRIGATION DAMS	200.00	3	50	1.33	.20	.01	.04	.00	1.58	.00	.00	.00	1.58
MACH SHED & SHOP	60,000.00	30	1000	2.00	3.00	.18	.54	.00	5.72	.60	.00	.60	6.32
SHOP TOOLS	55,000.00	15	1000	3.67	2.75	.17	.50	.00	7.08	.00	.00	.00	7.08

*SHOWN AT 6 GALLONS OF DIESEL PER HOUR. AT 4 GALLONS OF DIESEL PER HOUR THE FUEL AND LUBE COST IS \$10.26.

Table 14: Prices for Inputs Used to Produce Alfalfa Seed Under Rill Irrigation.

Input	Unit	Cost
Services:		
		\$
Irrigation Charge	Acre	51.00
Soil Test	Acre	1.00
Custom Fertilize	Acre	7.00
Custom Aerial	Acre	7.50
Application Fee	Acre	.60
Field Inspection Fee	Acre	1.00
Certification Renewal Fee	Acre	.60
Seed Production Fee	Acre	1.85
Alfalfa Seed Commission	Cwt.	.53
Materials:		
Alfalfa Seed	Lb.	5.50
Nitrogen (Actual)	Lb.	.46
Phosphorus (Actual)	Lb.	.31
Potash (Actual)	Lb.	.34
Sulfur (Actual)	Lb.	.19
Boron (Actual)	Lb.	3.00
Foliar Feed	Acre	4.00
Ammonium Sulfate (spray grade)	Lb.	.52
2,4-DB-Amine	Qt.	9.90
2,4-D	Qt.	4.50
Bromoxynil	Pint	9.00
Buctril	Pint	9.01
Crop Oil Concentrate	Qt. (Oz.)	3.13 (.10)
Dimethoate	Pint	5.50
Eptam	Pint	4.00
Glyphosate	Qt.	6.50
Methyl Parathion	Pint	5.65
Mustang	Oz.	2.50
PAM	Lb.	3.50
Thionex	Qt.	7.75
Treflan	Pint	3.13
Prowl	Pint	3.50
Warrior	Oz.	2.54
Select	Oz.	1.84
Sencor	Lb.	22.00
Raptor	Oz.	4.30
Roguing Spray	Acre	1.00
Gasoline	Gal.	2.33
Diesel	Gal.	2.23
Labor	Hour	14.50
Land Rent:		
Rill Irrigated	Acre	135.00

APPENDIX II

Detailed Budgets for Alfalfa Seed

Produced Under Center Pivot

Irrigation

(3-Year Production Period)

TABLE 15.1: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHMENT OF ALFALFA 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, 14' FLAIL SHREDDER	AUG	2005	.17	.18	6.47	3.55	2.66	.00	.00	.16	6.37	12.84
DISK & PACK (2X)	150HP-WT, 13.4' DISC W/14'PACK	AUG	2005	.25	.28	9.77	6.94	3.99	.00	.00	.27	11.21	20.97
IRRIGATE (3X)	CENTER PIVOT	AUG	2005	.00	.43	.00	10.00	6.24	25.50	12.50	1.36	55.59	55.59
DISK & PACK	150HP-WT, 13.4' DISC W/14'PACK	AUG	2005	.13	.14	4.88	3.47	1.99	.00	.00	.14	5.60	10.49
SOIL TEST	CUSTOM HIRE	AUG	2005	.00	.00	.00	.00	.00	1.00	.00	.03	1.03	1.03
PLOW & PACK	150HP-WT, 4BTM PLOW W/7' PACK.	AUG	2005	.29	.31	9.42	6.85	4.56	.00	.00	.29	11.69	21.12
FERTILIZE	CUSTOM HIRE	AUG	2005	.00	.00	.00	.00	.00	7.00	35.20	1.06	43.26	43.26
FERTILIZE	W/ABOVE	AUG	2005	.00	.00	.00	.00	.00	.00	3.00	.08	3.07	3.07
ROTOVAT./HERBIC.	150HP-WT, 12'ROTO. W/SADDLE TK	AUG	2005	.33	.44	12.06	9.77	6.44	.00	15.13	.78	32.12	44.19
HAUL WATER	NURSE TRUCK	AUG	2005	.04	.04	1.24	.55	.64	.00	.00	.03	1.22	2.45
PLANT	150HP-WT, 12R PLANTER	SEP	2005	.13	.16	5.64	3.44	2.32	.00	4.12	.16	10.05	15.68
HAUL SEED	LABOR'S PICKUP	SEP	2005	.02	.02	.09	.08	.32	.00	.00	.01	.40	.50
INSECT. SPRAY	CUSTOM AERIAL	SEP	2005	.00	.00	.00	.00	.00	7.50	10.08	.29	17.87	17.87
SPRAY (HERBIC.)	110HP-WT, SADDLE TK W/44' BOOM	SEP	2005	.05	.06	1.25	.76	.87	.00	24.13	.43	26.19	27.44
HAUL WATER	NURSE TRUCK	SEP	2005	.04	.04	1.24	.55	.64	.00	.00	.02	1.21	2.44
SPRAY (HERBIC.)	110HP-WT, SADDLE TK W/44' BOOM	OCT	2005	.05	.06	1.25	.76	.87	.00	34.20	.30	36.13	37.38
HAUL WATER	NURSE TRUCK	OCT	2005	.04	.04	1.24	.55	.64	.00	.00	.01	1.20	2.43
CERTIFICATION	APPLIC. & FIELD INSPECT. FEES	OCT	2005	.00	.00	.00	.00	.00	1.60	.00	.01	1.61	1.61
BUILDINGS	MACHINE SHED AND SHOP	ANN	2005	.50	.00	2.86	.30	.00	.00	.00	.02	.32	3.18
MISC USE	SHOP TOOLS	ANN	2005	.50	.00	5.91	3.33	.00	.00	.00	.17	3.50	9.41
MISC USE	MANAGER'S PICKUP	ANN	2005	.53	.00	3.81	3.52	.00	.00	.00	.18	3.70	7.51
MISC USE	LABOR'S PICKUP	ANN	2005	.75	.00	3.41	2.95	.00	.00	.00	.15	3.09	6.51
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2005	.00	.00	.00	.00	.00	13.82	.00	.00	13.82	13.82
LAND COST	LAND RENT	ANN	2005	.00	.00	125.00	.00	.00	.00	.00	.00	.00	125.00
MANAGEMENT	MANAGEMENT COST	ANN	2005	.00	.00	25.00	.00	.00	.00	.00	.00	.00	25.00
TOTAL PER ACRE				3.82	2.22	220.52	57.38	32.17	56.42	138.36	5.91	290.24	510.76

*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.

TABLE 16.1: 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% ANNUAL IRRIGATION CHARGE @ \$51.00/ACRE 50% ANNUAL POWER COST @ \$25.00/ACRE
SOIL TEST	AUGUST	CUSTOM HIRED @ \$ 1.00 /ACRE
FERTILIZE	AUGUST	CUSTOM FERTILIZE @ \$7.00 /ACRE 30 LB. OF NITROGEN @ \$0.46/LB 30 LB. PHOSPHORUS @ \$0.31/LB 30 LB. OF POTASH @ \$0.34/LB 10 LB. SULFUR @ \$0.19/LB 1 LB. BORON @ \$3.00/LB
ROTOTILL / HERBICIDE	AUGUST	1.0 PINT TREFLAN @ \$3.13/PINT 3.0 PINTS OF EPTAM @ \$4.00/PINT
PLANT	SEPTEMBER	0.75 LB. ALFAFA SEED @ \$5.50/LB.
INSECTICIDE (OPTIONAL)	SEPTEMBER	CUSTOM AERIAL @ \$ 7.50 /ACRE 1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT
HERBICIDE SPRAY (1 ST TIME)	SEPTEMBER	10 FL. OZ. SELECT @ \$1.84/OZ 1 QT. OF CROP OIL CONCENTRATE @ \$3.13/QT 5 LB. SPRAY-GRADE AMM.- SULFATE @ \$0.52/LB
HERBICIDE SPRAY (2 ND TIME)	OCTOBER	*3 QT. 2,4-DB AMINE @ \$9.90/QT. *0.5 PINT BROMOXYNIL @ \$9.00/PINT OR 5 FL. OZ. RAPTOR @ \$4.30/FL. OZ. 12 FL. OZ. OF CROP OIL CONC. @ \$0.10/ FL. OZ. 5 LB. SPRAY-GRADE AMM.- SULFATE @ \$0.52/LB
CERTIFICATION FEES	OCTOBER	APPLICATION FEE \$30/VARIETY/FIELD FIELD INSPECTION FEE \$1.00/ACRE
OVERHEAD	ANNUAL	5 % OF VARIABLE COST

*USED IN BUDGET

TABLE 17.1: ITEMIZED COST PER ACRE FOR ESTABLISHMENT OF ALFALFA FOLLOWING WHEAT UNDER CENTER PIVOT IRRIGATION.

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

VARIABLE COSTS		\$		\$	
SOIL TEST	ACRE	1.00	1.00	1.00	_____
ALFALFA SEED	LB.	5.50	.75	4.12	_____
NITROGEN	LB.	.46	30.00	13.80	_____
PHOSPHOROUS	LB.	.31	30.00	9.30	_____
POTASH	LB.	.34	30.00	10.20	_____
SULFUR	LB.	.19	10.00	1.90	_____
BORON	LB.	3.00	1.00	3.00	_____
TREFLAN	PINT	3.13	1.00	3.13	_____
EPTAM	PINT	4.00	3.00	12.00	_____
THIONEX	QT.	7.75	1.30	10.08	_____
SELECT	OZ.	1.84	10.00	18.40	_____
CROP OIL	QT.	3.13	1.00	3.13	_____
AMMONIUM-SULFATE	LB.	.52	5.00	2.60	_____
2,4-DB-AMINE	QT.	9.90	3.00	29.70	_____
BROMOXYNIL	PINT	9.00	.50	4.50	_____
CUSTOM FERTILIZATION	ACRE	7.00	1.00	7.00	_____
CUSTOM AERIAL	ACRE	7.50	1.00	7.50	_____
APPLICATION FEE	ACRE	.60	1.00	.60	_____
FIELD INSPECTION FEE	ACRE	1.00	1.00	1.00	_____
WATER CHARGE	ACRE	51.00	.50	25.50	_____
IRRIGATION REPAIR	ACRE	20.00	.50	10.00	_____
IRRIGATION POWER	ACRE	25.00	.50	12.50	_____
MACHINERY REPAIRS	ACRE	21.71	1.00	21.71	_____
MACHINE FUEL/LUBE	ACRE	25.67	1.00	25.67	_____
LABOR (TRAC/MACH)	HOUR	14.50	2.22	32.17	_____
OVERHEAD	ACRE	13.82	1.00	13.82	_____
INTEREST ON OP. CAP.	ACRE	5.91	1.00	5.91	_____

TOTAL VARIABLE COST				290.24	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	34.14	1.00	34.14	_____
MACHINE INTEREST*	ACRE	29.34	1.00	29.34	_____
MACHINE INSURANCE*	ACRE	1.76	1.00	1.76	_____
MACHINE TAXES*	ACRE	5.28	1.00	5.28	_____
MANAGEMENT FEE	ACRE	50.00	.50	25.00	_____
LAND RENT	ACRE	250.00	.50	125.00	_____

TOTAL FIXED COST				220.52	_____
TOTAL COST				510.76	_____

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

TABLE 15.2: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE FIRST YEAR AFTER ESTABLISHMENT YEAR 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.			
						\$	\$	\$	\$	\$	\$	\$	\$
CULTIVATE	150HP-WT, 12R CULTIV./CORRUGA.	MAR	2006	.22	.24	5.80	4.84	3.54	.00	.00	.56	8.94	14.74
RESERVIOR TILL	150HP-WT, 6R-RESERVIOR TILLER	MAR	2006	.17	.18	5.85	4.24	2.66	.00	.00	.46	7.36	13.22
HERBICIDE SPRAY	150HP-WT, 12R ROLLING CULT/TKS	APR	2006	.15	.18	6.74	3.94	2.68	.00	17.50	1.41	25.53	32.27
HAUL WATER	NURSE TRUCK	APR	2006	.04	.04	1.24	.55	.64	.00	.00	.07	1.25	2.49
IRRIGATE*	CENTER PIVOT	SEA	2006	.00	.85	.00	20.00	12.32	51.00	25.00	5.42	113.74	113.74
APPLY HERBICIDE	THROUGH CENTER PIVOT	MAY	2006	.00	.00	.00	.00	.00	4.50	18.02	1.13	23.65	23.65
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2006	.00	.00	.00	.00	.00	7.50	17.88	1.27	26.65	26.65
POLLINATION**	DOLLAR COST OF POLLINATION	MAY	2006	.00	.00	92.39	.00	.00	171.45	.00	.00	171.45	263.84
PRODUCTION FEE	SEED PRODUCING FEE	JUN	2006	.00	.00	.00	.00	.00	1.85	.00	.08	1.93	1.93
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2006	.00	.00	.00	.00	.00	.60	.00	.03	.63	.63
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2006	.00	1.00	.28	.00	14.50	.00	1.00	.52	16.02	16.29
IN-SEASON SPRAY	CUSTOM AERIAL	JUL	2006	.00	.00	.00	.00	.00	7.50	10.08	.59	18.16	18.16
IN-SEASON SPRAY	CUSTOM AERIAL	AUG	2006	.00	.00	.00	.00	.00	7.50	10.75	.46	18.71	18.71
CLEANUP SPRAY***	CUSTOM AERIAL (1.5X)	AUG	2006	.00	.00	.00	.00	.00	11.25	8.48	.49	20.22	20.22
SWATH	14' SWATHER	AUG	2006	.30	.33	16.29	4.82	4.83	.00	.00	.24	9.90	26.18
COMBINE	14' COMBINE	AUG	2006	.29	.31	31.31	12.21	4.56	.00	.00	.42	17.18	48.49
HAUL SEED	HAULING COST	AUG	2006	.00	.00	.00	.00	.00	3.36	.00	.08	3.44	3.44
RESIDUE MANAGMT	150HP-WT, 13.4' OFFSET DISK	OCT	2006	.13	.14	4.23	3.07	1.99	.00	.00	.04	5.11	9.34
THIN FIELD	150HP-WT, 12 ROW CULTIVATOR	OCT	2006	.15	.17	3.91	3.30	2.45	.00	.00	.05	5.80	9.71
COMMISSION	ALFALFA SEED COMMISSION	NOV	2006	.00	.00	.00	.00	.00	4.24	.00	.00	4.24	4.24
BUILDINGS	MACHINE SHED AND SHOP	ANN	2006	.00	.00	5.72	.60	.00	.00	.00	.03	.63	6.35
MISC USE	SHOP TOOLS	ANN	2006	.00	.00	7.08	.00	.00	.00	.00	.00	.00	7.08
MISC USE	MANAGER'S PICKUP	ANN	2006	1.07	.00	7.61	7.05	.00	.00	.00	.35	7.40	15.01
MISC USE	LABOR'S PICKUP	ANN	2006	1.50	.00	10.70	9.91	.00	.00	.00	.50	10.41	21.11
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2006	.00	.00	.00	.00	.00	25.92	.00	.00	25.92	25.92
LAND COST	LAND RENT	ANN	2006	.00	.00	250.00	.00	.00	.00	.00	.00	.00	150.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2006	.00	.00	205.38	.00	.00	.00	.00	.00	.00	205.38
MANAGEMENT	MANAGEMENT COST	ANN	2006	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				4.02	3.46	704.52	74.53	50.18	296.67	108.70	14.17	544.25	1249.77

*AN AVERAGE OF FIVE IRRIGATIONS PER SEASONS.

**SEE APPENDIX II: POLLINATION COST CALCULATIONS.

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

TABLE 16.2: MATERIALS AND SERVICES USED BY OPERATION FOR **FIRST YEAR OF ALFALFA SEED PRODUCTION UNDER PIVOT IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.50/PINT
IRRIGATE (5X)	SEASON	IRRIGATION CHARGE @ \$51.00/ACRE POWER CHARGE @ \$25.00 /ACRE
CHEMIGATE HERBICIDE	MAY	CHEMIGATOR RENTAL @ \$4.50/ACRE 2 PINTS BUCTRIL @ \$9.01/PINT
PRE-BLOOM SPRAY (LYGUS)	MAY	CUSTOM AERIAL @ \$7.50 /ACRE *0.75 PINT OF DIMETHOATE @ \$5.50/PINT *3.84 FL. OZ. OF WARRIOR @ \$2.54/FL.OZ. *FOLIAR FEED @ \$4.00/ACRE OR 1 PINT DIBROM (LYGUS) @ \$11.75/PINT OR 4.3 FL. OZ. (SPOTTED APHID) @ \$2.50/FL. OZ. OR 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ.
CERTIFICATION RENEWAL FEE	JUNE	\$0.60/ACRE
PROD. FEE (FIELD INSPECTIONS)	JUNE	\$1.85/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$171.45/ACRE
ROGUE FIELD (BACKPACK)	JULY	ROGUING SPRAY @ \$1.00/ACRE
IN-SEASON SPRAY(1)	JULY - AUG	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ OR *1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT.
IN-SEASON SPRAY (2)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ OR 8 OZ POUNCE (PEA& SPOT. APHID) @ \$0.81/OZ OR *4.3 FL. OZ. MUSTANG (SPOT. APHID) @ \$2.50/FL. OZ. OR 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ OR 1.3 QT. THIONEX (PEA & SPOTTED APHID) @ 7.75/QT.
CLEANUP SPRAY (1.5X)	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 1 PINT DIMETHOATE @ \$5.50/PINT OR IF SPOTTED APHID PRESENT 1.3 QT. THIONEX @ \$7.75/QT. OR *1 PINT METHYL PARATHION @ \$5.65/PINT
HAUL SEED	AUGUST	\$0.40/ CWT
ALFALFA SEED COMMISSION	DECEMBER	\$0.53/CWT OF CLEAN SEED PRODUCED
OVERHEAD	ANNUAL	5% OF VARIABLE COST

*USED IN BUDGET

TABLE 17.2: ITEMIZED COST PER ACRE FOR ALFALFA SEED PRODUCTION
FOR THE FIRST YEAR AFTER ESTABLISHMENT YEAR UNDER
CENTER PIVOT IRRIGATION.

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

VARIABLE COSTS		\$		\$	
PROWL	PINT	3.50	5.00	17.50	_____
BUCTRIL	PINT	9.01	2.00	18.02	_____
DIMETHOATE	PINT	5.50	.75	4.12	_____
WARRIOR	OZ.	2.54	3.84	9.75	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
THIONEX	QT.	7.75	1.30	10.08	_____
METHYL PARATHION	PINT	5.65	1.50	8.48	_____
MUSTANG	OZ.	2.50	4.30	10.75	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
CHEMIGATOR RENT	ACRE	4.50	1.00	4.50	_____
POLLINATION COST	ACRE	171.45	1.00	171.45	_____
PRODUCTION FEE	ACRE	1.85	1.00	1.85	_____
CERTIFICATE RENEWAL	ACRE	.60	1.00	.60	_____
HAULING COST	CWT.	.40	8.40	3.36	_____
CUSTOM AERIAL	ACRE	7.50	4.50	33.75	_____
SEED COMMISSION	CWT.	.53	8.00	4.24	_____
WATER CHARGE	ACRE	51.00	1.00	51.00	_____
IRRIGATION REPAIR	ACRE	20.00	1.00	20.00	_____
IRRIGATION POWER	ACRE	25.00	1.00	25.00	_____
MACHINERY REPAIRS	ACRE	21.00	1.00	21.00	_____
MACHINE FUEL/LUBE	ACRE	33.53	1.00	33.53	_____
LABOR (TRAC/MACH)	HOOR	14.50	3.46	50.18	_____
OVERHEAD	ACRE	25.92	1.00	25.92	_____
INTEREST ON OP. CAP.	ACRE	14.17	1.00	14.17	_____

TOTAL VARIABLE COST				544.25	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	56.35	1.00	56.35	_____
MACHINE INTEREST*	ACRE	40.64	1.00	40.64	_____
MACHINE INSURANCE*	ACRE	2.44	1.00	2.44	_____
MACHINE TAXES*	ACRE	7.32	1.00	7.32	_____
POLLINATION COST	ACRE	92.39	1.00	92.39	_____
AMORT EST. COST	ACRE	205.38	1.00	205.38	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
LAND RENT	ACRE	250.00	1.00	250.00	_____

TOTAL FIXED COST				704.52	_____
TOTAL COST				1248.77	_____

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

TABLE 15.3: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE SECOND YEAR AFTER ESTABLISHMENT YEAR 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.		
							\$	\$	\$	\$	\$	\$	\$
DORMANT WEED SPY	110HP-WT, 44' BOOM W/TANKS	FEB	2006	.04	.06	1.00	.61	.87	.00	14.74	1.22	17.44	18.44
HAUL WATER	NURSE TRUCK	FEB	2006	.04	.04	1.24	.55	.64	.00	.00	.09	1.27	2.51
SKEWTRREAD	110HP-WT, 15' SKEWTREADER	MAR	2006	.10	.11	2.33	1.43	1.60	.00	.00	.20	3.22	5.55
IRRIGATE*	CENTER PIVOT	SEA	2006	.00	.85	.00	20.00	12.32	51.00	25.00	5.42	113.74	113.74
APPLY HERBICIDE	THROUGH CENTER PIVOT	MAY	2006	.00	.00	.00	.00	.00	4.50	17.50	1.10	23.10	23.10
PRE-BLOOM SPRAY	CUSTOM AERIAL	MAY	2006	.00	.00	.00	.00	.00	7.50	17.88	1.27	26.65	26.65
POLLINATION**	DOLLAR COST OF POLLINATION	MAY	2006	.00	.00	92.39	.00	.00	144.45	.00	.00	144.45	236.84
PRODUCTION FEE	SEED PRODUCING FEE	JUN	2006	.00	.00	.00	.00	.00	1.85	.00	.08	1.93	1.93
CERTIFICATION	SEED CERTIFICATION FEE	JUN	2006	.00	.00	.00	.00	.00	.60	.00	.03	.63	.63
ROGUE FIELD	HAND LABOR, BACKPACK SPRAYER	JUL	2006	.00	1.00	.28	.00	14.50	.00	1.00	.52	16.02	16.29
IN-SEASON SPRAY	CUSTOM AERIAL	JUL	2006	.00	.00	.00	.00	.00	7.50	10.08	.59	18.16	18.16
IN-SEASON SPRAY	CUSTOM AERIAL	AUG	2006	.00	.00	.00	.00	.00	7.50	10.75	.46	18.71	18.71
CLEANUP SPRAY***	CUSTOM AERIAL (1.5X)	AUG	2006	.00	.00	.00	.00	.00	11.25	8.48	.49	20.22	20.22
SWATH	14' SWATHER	AUG	2006	.30	.33	16.29	4.82	4.83	.00	.00	.24	9.90	26.18
COMBINE	14' COMBINE	AUG	2006	.29	.31	31.31	12.21	4.56	.00	.00	.42	17.18	48.49
HAUL SEED	HAULING COST	AUG	2006	.00	.00	.00	.00	.00	3.36	.00	.08	3.44	3.44
RESIDUE MANAGMT	150HP-WT, 13.4' OFFSET DISK	OCT	2006	.13	.14	4.23	3.07	1.99	.00	.00	.04	5.11	9.34
THIN FIELD	150HP-WT, 12 ROW CULTIVATOR	OCT	2006	.15	.17	3.91	3.30	2.45	.00	.00	.05	5.80	9.71
COMMISSION	ALFALFA SEED COMMISSION	NOV	2006	.00	.00	.00	.00	.00	4.24	.00	.00	4.24	4.24
BUILDINGS	MACHINE SHED AND SHOP	ANN	2006	.00	.00	5.72	.60	.00	.00	.00	.03	.63	6.35
MISC USE	SHOP TOOLS	ANN	2006	.00	.00	7.08	.00	.00	.00	.00	.00	.00	7.08
MISC USE	MANAGER'S PICKUP	ANN	2006	1.07	.00	7.61	7.05	.00	.00	.00	.35	7.40	15.01
MISC USE	LABOR'S PICKUP	ANN	2006	1.50	.00	10.70	9.91	.00	.00	.00	.50	10.41	21.11
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	2006	.00	.00	.00	.00	.00	23.48	.00	.00	23.48	23.48
LAND COST	LAND RENT	ANN	2006	.00	.00	250.00	.00	.00	.00	.00	.00	.00	250.00
ESTABLISHMT COST	3-YR AMORTIZED ESTAB. COST	ANN	2006	.00	.00	205.38	.00	.00	.00	.00	.00	.00	205.38
MANAGEMENT	MANAGEMENT COST	ANN	2006	.00	.00	50.00	.00	.00	.00	.00	.00	.00	50.00
TOTAL PER ACRE				3.61	3.02	689.45	63.55	43.77	267.23	105.42	13.16	493.13	1182.58

*AN AVERAGE OF FIVE IRRIGATIONS PER SEASONS.

**SEE APPENDIX II: POLLINATION COST CALCULATIONS.

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

TABLE 16.3: MATERIALS AND SERVICES USED BY OPERATION FOR **SECOND YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	DEC. - FEB. OR	1 QT DIURON @ \$7.00/QT. *0.67 LB. OF SENCOR @ \$22.00/LB.
IRRIGATE	SEASON	IRRIGATION CHARGE @ \$51.00/ ACRE POWER CHARGE @ \$25.00/ACRE
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.50/PINT CHEMIGATOR RENTAL @ \$4.50/ACRE
PRE-BLOOM SPRAY (LYGUS)	MAY OR OR OR	CUSTOM AERIAL @ \$7.50 /ACRE *3.84 FL. OZ. OF WARRIOR @ \$2.54/FL. OZ. *FOLIAR FEED @ \$4.00/ACRE 1 PINT DIBROM (LYGUS) @\$ 11.75/PINT 4.3 FL. OZ. MUSTANG (SPOTTED APHID) @ \$2,50/FL. OZ. 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ.
CERTIFICATION RENEWAL FEE	JUNE	\$0.60/ACRE
PROD. FEE (FIELD INSPECTIONS)	JUNE	\$1.85/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$144.45/ACRE
ROGUE FIELD (BACKPACK)	JULY	ROGUING SPRAY @ \$1.00/ACRE
IN-SEASON SPRAY(1)	JULY - AUGUST OR	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ *1.3 QT. THIONEX (PEA & SPOTTED APHID) @ \$7.75/QT.
IN-SEASON SPRAY (2)	AUGUST OR OR OR OR	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ 8 OZ POUNCE (PEA& SPOT. APHID) @ \$0.81/OZ *4.3 FL. OZ. MUSTANG (SPOT. APHID) @ \$2.50/FL. OZ. 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ 1.3 QT. THIONEX (PEA & SPOTTED APHID) @ \$7.75/QT.
CLEANUP SPRAY (1.5X)	AUGUST OR IF SPOTTED APHID PRESENT OR	CUSTOM AERIAL @ \$7.50 /ACRE 1 PINT DIMETHOATE @ \$5.50/PINT 1.3 QT. THIONEX @ \$7.75/QT. *1 PINT METHYL PARATHION @ \$5.65/ ACRE
HAUL SEED	AUGUST	\$0.40/CWT
ALFALFA SEED COMMISSION	DECEMBER	\$0.53/CWT OF CLEAN SEED PRODUCED
OVERHEAD	ANNUAL	5% OF VARIABLE COST

*USED IN BUDGET

TABLE 17.3: ITEMIZED COST PER ACRE FOR ALFALFA SEED PRODUCTION
FOR THE SECOND YEAR AFTER ESTABLISHMENT YEAR UNDER
CENTER PIVOT IRRIGATION.

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

VARIABLE COSTS		\$		\$	
SENCOR	LB.	22.00	.67	14.74	_____
PROWL	PINT	3.50	5.00	17.50	_____
DIMETHOATE	PINT	5.50	.75	4.12	_____
WARRIOR	OZ.	2.54	3.84	9.75	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
THIONEX	QT.	7.75	1.30	10.08	_____
MUSTANG	OZ.	2.50	4.30	10.75	_____
METHYL PARATHION	PINT	5.65	1.50	8.48	_____
CHEMIGATOR RENT	ACRE	4.50	1.00	4.50	_____
CUSTOM AERIAL	ACRE	7.50	4.50	33.75	_____
HAULING COST	CWT.	.40	8.40	3.36	_____
POLLINATION COST	ACRE	144.45	1.00	144.45	_____
CERTIFICATE RENEWAL	ACRE	.60	1.00	.60	_____
PRODUCTION FEE	ACRE	1.85	1.00	1.85	_____
SEED COMMISSION	CWT.	.53	8.00	4.24	_____
WATER CHARGE	ACRE	51.00	1.00	51.00	_____
IRRIGATION REPAIR	ACRE	20.00	1.00	20.00	_____
IRRIGATION POWER	ACRE	25.00	1.00	25.00	_____
MACHINERY REPAIRS	ACRE	17.29	1.00	17.29	_____
MACHINE FUEL/LUBE	ACRE	26.26	1.00	26.26	_____
LABOR (TRAC/MACH)	HOUR	14.50	3.02	43.77	_____
OVERHEAD	ACRE	23.48	1.00	23.48	_____
INTEREST ON OP. CAP.	ACRE	13.16	1.00	13.16	_____
TOTAL VARIABLE COST				493.13	_____

FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	49.52	1.00	49.52	_____
MACHINE INTEREST*	ACRE	34.00	1.00	34.00	_____
MACHINE INSURANCE*	ACRE	2.04	1.00	2.02	_____
MACHINE TAXES*	ACRE	6.12	1.00	6.12	_____
POLLINATION COST	ACRE	92.39	1.00	92.39	_____
AMORT EST. COST	ACRE	205.38	1.00	205.38	_____
LAND RENT	ACRE	250.00	1.00	250.00	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
TOTAL FIXED COST				689.45	_____

TOTAL COST				1182.58	_____

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

TABLE 16.4. MATERIALS AND SERVICES USED BY OPERATION FOR **THIRD YEAR OF ALFALFA SEED PRODUCTION UNDER CENTER PIVOT IRRIGATION.**

OPERATION	MONTH	MATERIAL AND/OR SERVICE
DORMANT WEED SPRAY	DEC. - FEB. OR	1 QT DIURON @ \$7.00/QT. *0.67 LB. OF SENCOR @ \$22.00/LB.
IRRIGATE	SEASON	IRRIGATION CHARGE @ \$51.00/ ACRE POWER CHARGE @ \$25.00/ACRE
APPLY HERBICIDE	APRIL	5 PINTS OF PROWL @ \$3.50/PINT CHEMIGATOR RENTAL @ \$4.50/ACRE
PRE-BLOOM SPRAY (LYGUS)	MAY OR OR OR	CUSTOM AERIAL @ \$ 7.50/ACRE *0.75 PINT OF DIMETHOATE @ \$5.50/PINT *3.84 FL. OZ. OF WARRIOR @ \$2.54/FL. OZ. *FOLIAR FEED @ \$4.00/ACRE 1 PINT DIBROM (LYGUS) @\$ 11.75/PINT 4.3 FL. OZ. MUSTANG (SPOTTED APHID) @ \$2,50/FL. OZ. 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ.
CERTIFICATION RENEWAL FEE	JUNE	\$0.60 /ACRE
PROD. FEE (FIELD INSPECTIONS)	JUNE	\$1.85/ACRE
POLLINATION	SEASON	VARIABLE POLLINATION COSTS @ \$48.45/ACRE
ROGUE FIELD (BACKPACK)	JULY	ROGUING SPRAY @ \$1.00/ACRE
IN-SEASON SPRAY(1)	JULY - AUGUST OR	CUSTOM AERIAL @ \$7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ *1.3 QT. THIONEX (SPOTTED APHID) @ \$7.75/QT.
IN-SEASON SPRAY (2)	AUGUST OR OR OR OR	CUSTOM AERIAL @ \$ 7.50 /ACRE 6 OZ PIRIMOR (PEA APHID) @ \$3.38 / OZ 8 OZ POUNCE (PEA& SPOT. APHID) @ \$0.81/OZ *4.3 FL. OZ. MUSTANG (SPOT. APHID) @ \$2.50/FL. OZ. 2.75 FL. OZ. FULFILL (PEA APHID) @ \$6.25/FL. OZ 1.3 QT. THIONEX (PEA & SPOTTED APHID) @ \$7.75/QT.
CLEANUP SPRAY (1.5X) OR IF SPOTTED APHID PRESENT	AUGUST	CUSTOM AERIAL @ \$7.50 /ACRE 1 PINT DIMETHOATE @ \$5.50/PINT 1.3 QT. THIONEX @ \$7.75/QT. *1 PINT METHYL PARATHION @ \$5.65/PINT
HAUL SEED	AUGUST	\$0.40/CWT
SPRAY TO KILL CROP	OCTOBER	1 QT. GLYPHOSPHATE @ \$6.50/QT. 1 QT. OF 2,4-D @ \$4.50/QT.
ALFALFA SEED COMMISSION	DECEMBER	\$0.53/CWT OF CLEAN SEED PRODUCED
OVERHEAD	ANNUAL	5 % OF VARIABLE COST

*USED IN BUDGET

TABLE 17.4: ITEMIZED COST PER ACRE FOR ALFALFA SEED PRODUCTION FOR THE THIRD YEAR AFTER ESTABLISHMENT YEAR UNDER CENTER PIVOT IRRIGATION.

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

VARIABLE COSTS		\$		\$	
SENCOR	LB.	22.00	.67	14.74	_____
DIMETHOATE	PINT	5.50	.75	4.12	_____
WARRIOR	OZ.	2.54	3.84	9.75	_____
FOLIAR FEED	ACRE	4.00	1.00	4.00	_____
PROWL	PINT	3.50	5.00	17.50	_____
ROGUING SPRAY	ACRE	1.00	1.00	1.00	_____
THIONEX	QT.	7.75	1.30	10.08	_____
METHYL PARATHION	PINT	5.65	1.50	8.48	_____
MUSTANG	OZ.	2.50	4.30	10.75	_____
GLYPHOSATE	QT.	6.50	1.00	6.50	_____
2,4-D	QT.	4.50	1.00	4.50	_____
CHEMIGATOR RENT	ACRE	4.50	1.00	4.50	_____
CUSTOM AERIAL	ACRE	7.50	4.50	33.75	_____
HAULING COST	CWT.	.40	8.40	3.36	_____
POLLINATION COST	ACRE	126.45	1.00	126.45	_____
PRODUCTION FEE	ACRE	1.85	1.00	1.85	_____
CERTIFICATE RENEWAL	ACRE	.60	1.00	.60	_____
SEED COMMISSION	CWT.	.53	8.00	4.24	_____
WATER CHARGE	ACRE	51.00	1.00	51.00	_____
IRRIGATION REPAIR	ACRE	20.00	1.00	20.00	_____
IRRIGATION POWER	ACRE	25.00	1.00	25.00	_____
MACHINERY REPAIRS	ACRE	18.65	1.00	18.65	_____
MACHINE FUEL/LUBE	ACRE	28.82	1.00	28.82	_____
LABOR (TRAC/MACH)	HOOR	14.50	3.26	47.21	_____
OVERHEAD	ACRE	23.51	1.00	23.51	_____
INTEREST ON OP. CAP.	ACRE	13.31	1.00	13.31	_____

TOTAL VARIABLE COST				493.67	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	51.83	1.00	51.83	_____
MACHINE INTEREST*	ACRE	36.54	1.00	36.54	_____
MACHINE INSURANCE*	ACRE	2.20	1.00	2.20	_____
MACHINE TAXES*	ACRE	6.58	1.00	6.58	_____
POLLINATION COST	ACRE	92.39	1.00	92.39	_____
AMORT EST. COST	ACRE	205.38	1.00	205.38	_____
MANAGEMENT FEE	ACRE	50.00	1.00	50.00	_____
LAND RENT	ACRE	250.00	1.00	250.00	_____

TOTAL FIXED COST				694.92	_____
TOTAL COST				1188.59	_____

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

TABLE 18: MACHINERY AND BUILDING COMPLEMENT FOR PRODUCING ALFALFA SEED UNDER CENTER PIVOT IRRIGATION.

MACHINE NAME	PURCHASE PRICE \$	YEARS OF USE	SALVAGE VALUE \$	ANNUAL REPAIR COST \$	ANNUAL HOURS OF USE	GALLONS OF FUEL PER HOUR
150HP-WT	117,400	15	16,000	3,075	700	4D, 6D
110HP-WT	67,284	15	9,000	1,620	500	3D
PICKUP, MANAGEMENT	26,000	5	8,000	1,000	800	2G
PICKUP, IRRIGATOR	8,000	5	2,000	500	400	2G
NURSE TRUCK & TANK	10,000	10	2000	300	50	3D
100HP SWATHER	68,756	10	10,200	1,575	200	3G
14' COMBINE	210,000	10	30,000	8,200	300	6D
4-18" MB PLOW	15,200	10	3,000	900	250	
12' CHISEL PLOW	7,400	15	1,400	400	150	
7' PACKER	3,100	8	800	150	250	
14' PACKER	7,500	8	1,500	800	250	
13.4' OFFSET DISC	17,700	8	3,500	1,200	250	
12R-CULTIVATOR	4,600	15	600	250	150	
12R-CULTIVATOR/ CORRUGATOR	5,400	15	500	300	150	
12R-ROLLING CULTIVATOR	22,700	15	2,000	900	150	
6 & 11R CORRUGATOR	4,300	15	300	85	150	
HEADLAND CORRUGATOR	3,000	5	300	150	250	
12' ROTOVATOR	12,000	10	4,500	1,000	150	
15' SKEWTREADER (USED)	1,000	8	100	100	30	
14' FLAIL SHREDDER	17,000	10	4,000	1,000	150	
6R-RESERVOIR TILLER	16,000	15	2,500	850	150	
12R-SM SEED PLANT W/CORRUGATOR	14,900	12	4,000	600	100	
44' SPRAY BOOM	3,100	10	500	150	100	
SADDLE TANK SPRAYER	3,300	10	700	500	175	
BACKPACK SPRAYER	85	10	0	0	50	
IRRIGATION TUBES	705	5	0	0	50 ACRES	
IRRIGATION DAMS	200	3	0	0	50 ACRES	
MACH SHED & SHOP	60,000	30	0	600	1000 ACRES	
SHOP TOOLS	55,000	15	0	0	1000 ACRES	

TABLE 19: MACHINERY AND BUILDING COSTS FOR PRODUCING ALFALFA SEED UNDER CENTER PIVOT IRRIGATION.

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	117,400.00	15	700	9.66	9.53	.57	1.72	.00	21.47	4.39	15.39*	19.78	41.25
110HP-WT	67,284.00	15	500	7.77	7.63	.46	1.37	.00	17.23	3.24	7.69	10.93	28.16
PICKUP, MANAGMT	26,000.00	5	800	4.50	2.13	.13	.38	.00	7.14	1.25	5.36	6.61	13.74
PICKUP, LABOR'S	8,000.00	5	400	3.00	1.25	.08	.23	.00	4.55	1.25	2.68	3.93	8.48
NURSE TRUCK/TANK	10,000.00	10	50	16.00	12.00	.72	2.16	.00	30.88	6.00	7.69	13.69	44.57
100 HP SWATHER	68,756.00	10	200	29.28	19.74	1.18	3.55	.00	53.75	7.87	8.04	15.91	69.67
14' COMBINE	210,000.00	10	300	60.00	40.00	2.40	7.20	.00	109.60	27.33	15.39	42.72	152.32
4-18" MB PLOW	15,200.00	10	250	4.88	3.64	.22	.66	.00	9.39	3.60	.00	3.60	12.99
12' CHISEL PLOW	7,400.00	15	150	2.67	2.93	.18	.53	.00	6.30	2.67	.00	2.67	8.97
7' PACKER	3,100.00	8	250	1.15	.78	.05	.14	.00	2.12	.60	.00	.60	2.72
14' PACKER	7,500.00	8	250	3.00	1.80	.11	.32	.00	5.23	3.20	.00	3.20	8.43
13.4' OFFST DISC	17,700.00	8	250	7.10	4.24	.25	.76	.00	12.36	4.80	.00	4.80	17.16
12R-CULTIVATOR	4,600.00	15	150	1.78	1.73	.10	.31	.00	3.93	1.67	.00	1.67	5.59
12R-CULT/CORRUG.	5,400.00	15	150	2.18	1.97	.12	.35	.00	4.62	2.00	.00	2.00	6.62
12R-ROLLING CULT	22,700.00	15	150	9.82	7.77	.47	1.40	.00	19.45	3.00	.00	3.00	22.45
6&11R CORRUGATOR	4,300.00	15	150	1.78	1.53	.09	.28	.00	3.68	.57	.00	.57	4.25
HEADLD CORRUGATR	3,000.00	5	250	2.16	.66	.04	.12	.00	2.98	.60	.00	.60	3.58
12' ROTOVATOR	12,000.00	10	150	5.00	5.50	.33	.99	.00	11.82	6.67	.00	6.67	18.49
15' SKEWTREADER	1,000.00	8	30	3.75	1.83	.11	.33	.00	6.02	3.33	.00	3.33	9.35
14' FLAIL SHRED.	17,000.00	10	150	8.67	7.00	.42	1.26	.00	17.35	6.67	.00	6.67	24.01
6R-RESERV TILLER	16,000.00	15	150	6.00	6.17	.37	1.11	.00	13.65	5.67	.00	5.67	19.31
12R-PLANT/CORRUG	14,900.00	12	100	9.08	9.45	.57	1.70	.00	20.80	6.00	.00	6.00	26.80
44' SPRAY BOOM	3,100.00	10	100	2.60	1.80	.11	.32	.00	4.83	1.50	.00	1.50	6.33
SADDLE TANK SPRY	3,300.00	10	175	1.49	1.14	.07	.21	.00	2.90	2.86	.00	2.86	5.76
BACKPACK SPRAYER	85.00	10	50	.17	.09	.01	.02	.00	.28	.00	.00	.00	.28
	\$								-----COST PER ACRE-----				
IRRIGATION TUBES	705.00	5	50	2.82	.71	.04	.13	.00	3.69	.00	.00	.00	3.69
IRRIGATION DAMS	200.00	3	50	1.33	.20	.01	.04	.00	1.58	.00	.00	.00	1.58
MACH SHED & SHOP	60,000.00	30	1000	2.00	3.00	.18	.54	.00	5.72	.60	.00	.60	6.32
SHOP TOOLS	55,000.00	15	1000	3.67	2.75	.17	.50	.00	7.08	.00	.00	.00	7.08

*SHOWN AT 6 GALLONS OF DIESEL PER HOUR. AT 4 GALLONS OF DIESEL PER HOUR THE FUEL AND LUBE COST IS \$10.26.

Table 20: Prices for Inputs Used to Produce Alfalfa Seed Under Center Pivot Irrigation.

Input	Unit	Cost
Services:		\$
Irrigation Charge	Acre	51.00
Power Charge	Acre	25.00
Soil Test	Acre	1.00
Custom Fertilize	Acre	7.00
Custom Aerial	Acre	7.50
Chemigator Rental	Acre	4.50
Application Fee	Acre	.60
Field Inspection Fee	Acre	1.00
Certification Renewal Fee	Acre	.60
Seed Production Fee	Acre	1.85
Alfalfa Seed Commission	Cwt.	.53
Materials:		
Alfalfa Seed	Lb.	5.50
Nitrogen (Actual)	Lb.	.46
Phosphorus (Actual)	Lb.	.31
Potash (Actual)	Lb.	.34
Sulfur (Actual)	Lb.	.19
Boron (Actual)	Lb.	3.00
Foliar Feed	Acre	4.00
Ammonium Sulfate (spray grade)	Lb.	.52
2,4-DB-Amine	Qt.	9.90
2,4-D	Qt.	4.50
Bromoxynil	Pint	9.00
Buctril	Pint	9.01
Crop Oil Concentrate	Qt. (Oz.)	3.13 (.10)
Dimethoate	Pint	5.50
Eptam	Pint	4.00
Glyphosate	Qt.	6.50
Methyl Parathion	Pint	5.65
Mustang	Oz.	2.50
PAM	Lb.	3.50
Thionex	Qt.	7.75
Treflan	Pint	3.13
Prowl	Pint	3.50
Warrior	Oz.	2.54
Select	Oz.	1.84
Sencor	Lb.	22.00
Raptor	Oz.	4.30
Roguing Spray	Acre	1.00
Gasoline	Gal.	2.33
Diesel	Gal.	2.23
Labor	Hour	14.50
Land Rent:		
Center Pivot Irrigated	Acre	250.00

APPENDIX III

Pollination Cost Calculations

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. Bee larvae (from Canada) was estimated to be \$30 per gallon for 2006.
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 or destroyed depending on the price of Canadian bees in the current year. If the price of Canadian bees are \$50/gallon or above, the remaining bees are typically sold for 50% the current Canadian bee price. Since Canadian bee larvae are currently selling for approximately \$30 per gallon, it is assumed in this study that remaining bees at the end of year are destroyed.

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 \$250.00 per shelter with a 10-year life. One shelter will handle 2.0 acres.

10. Other costs:

- electricity, \$4.00/acre/year
- labor, 4 hr./acre/year
- materials, \$4.00/acre/year
- repairs, \$3.00/acre/year

Pollination Cost Per Acre

Average Annual <u>Investment Cost Per Acre:</u>	<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	5.00	.30	.90	11.20	11.20	11.20
Incubator trays (2.5/acre)	4.50	2.25	.14	.40	7.29	7.29	7.29
Laminated bee boards (3.5/acre)	29.75	14.88	.89	2.68	48.20	48.20	48.20
Punch out machine	1.50	1.50	.09	.27	3.36	3.36	3.36
Cell breaker	1.00	1.00	.06	.18	2.24	2.24	2.24
Shelter	12.50	6.25	.33	1.02	<u>20.10</u>	<u>20.10</u>	<u>20.10</u>
Subtotal					92.39	92.39	92.39

<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	\$90	\$120	\$120			
Interest on annual investment cost @ 10%				9.00	12.00	12.00
Bee larvae purchased				<u>90.00</u>	<u>60.00</u>	<u>42.00</u>
Subtotal				99.00	72.00	54.00

Pollination Cost Per Acre (continued)

	Prod. Year 1 <u>Cost</u>	Prod. Year 2 <u>Cost</u>	Prod. Year 3 <u>Cost</u>
<u>Annual operating cost per acre:</u>			
Electricity	4.00	4.00	4.00
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 (10% for 6 mo.)	<u>3.45</u>	<u>3.45</u>	<u>3.45</u>
Subtotal	72.45	72.45	72.45
Total cost per acre	<u>263.84</u>	<u>236.84</u>	<u>218.84</u>

APPENDIX IV

Excel Spreadsheets

The attached Excel workbook can be downloaded from the Internet at <http://www.farm-mgmt.wsu.edu/irr.htm> and clicking on "Publication Links" then on "Irrigated Crops." The spreadsheets in this workbook can easily be modified by the user to fit a particular situation. Cells with a blue background are protected cells. Cells with a yellow background are unprotected. If the user desires to change a protected cell, simply click on Tools/Protection and unprotect the spreadsheet (there is not a password) and make the changes. It is highly recommended that once the original workbook is downloaded that it is made "Read Only" by right clicking on the file name, clicking on "Properties," and then on "Read Only." This will prevent the original workbook from being overwritten.

Summary of Establishment and Production Costs and Returns Per Acre for Alfalfa Seed Produced for Three Years Under Rill Irrigation in the Columbia Basin.

Production/Acre (Lbs.) = **800** Price/Lb. = **\$1.50** Interest Rate* = **10.0%**

	Estab. Year	Year 1	Year 2	Year 3	Total Years 1 - 3
	\$	\$	\$	\$	\$
Gross Returns:		1,200.00	1,200.00	1,200.00	3,600.00
Variable Costs:					
Alfalfa Seed	4.12				
Soil Test	1.00				
Pollination Cost**		171.45	144.45	126.45	442.35
Application Fee	0.60				
Field Inspection Fee	1.00				
Certification Renewal Fee		0.60	0.60	0.60	1.80
Production Fee		1.85	1.85	1.85	5.55
Seed Commission		4.24	4.24	4.24	12.72
Chemicals	87.04	92.23	81.67	92.67	266.57
Fertilizers	38.20	4.00	4.00	4.00	12.00
Custom Fertilize	7.00				
Custom Aerial	7.50	33.75	33.75	33.75	101.25
Water Charge	25.50	51.00	51.00	51.00	153.00
Hauling Cost		3.36	3.36	3.36	10.08
Irrigation Repair	4.50	9.00	9.00	9.00	27.00
Machinery Repair	23.08	21.11	21.25	21.67	64.03
Machinery Fuel & Lube	29.39	34.05	33.26	33.90	101.21
Labor	52.50	77.15	70.85	71.05	219.05
Overhead	14.38	25.90	23.63	23.35	72.88
Interest	6.17	14.27	13.32	13.42	41.01
Amort. Variable Estab. Cost****		121.43	121.43	121.43	364.29
Total Variable Cost	301.98	665.39	617.66	611.74	1,894.79

Continued

Fixed Costs:					
Machinery Depreciation***	39.48	61.95	62.56	62.64	187.15
Machinery Interest***	32.80	42.51	42.92	43.37	128.80
Machinery Taxes***	1.96	2.55	2.56	2.60	7.71
Machinery Insurance***	5.90	7.65	7.72	7.81	23.18
Pollination Cost		92.39	92.39	92.39	277.17
Amortized Estab. Cost****		69.42	69.42	69.42	208.26
Land Rent	67.50	135.00	135.00	135.00	405.00
Management	25.00	50.00	50.00	50.00	150.00
Total Fixed Cost	172.64	461.47	462.57	463.23	1,387.27
Total Cost	474.62	1,126.86	1,080.23	1,074.97	3,282.07
Gross Returns - Variable Cost:					
Break-Even Price/Lb:		534.61	582.34	588.26	1,705.21
		0.83	0.77	0.76	0.79
Gross Returns - Total Cost:					
Break-Even Price/Lb:		73.14	119.77	125.03	317.93
		1.41	1.35	1.34	1.37

*Used to calculate amortized establishment costs.

**Includes interest costs. See Appendix III.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, shop tools, and irrigation tubes and dams.

****Establishment year costs amortized over the 3-year production period at the specified interest rate.

Summary of Establishment and Production Costs and Returns Per Acre for Alfalfa Seed Produced for Two Years Under Rill Irrigation in the Columbia Basin.

Production/Acre (Lbs.) = 800 Price/Lb. = \$1.50 Interest Rate = 10.0%

	Estab. Year	Year 1	Year 2	Total Years 1 - 2
	\$	\$	\$	\$
Gross Returns:		1,200.00	1,200.00	2,400.00
Variable Costs:				
Alfalfa Seed	4.12			
Soil Test	1.00			
Pollination Cost**		171.45	144.45	315.90
Application Fee	0.60			
Field Inspection Fee	1.00			
Certification Renewal Fee		0.60	0.60	1.20
Production Fee		1.85	1.85	3.70
Seed Commission		4.24	4.24	8.48
Chemicals	87.04	92.23	92.67	184.90
Fertilizers	38.20	4.00	4.00	8.00
Custom Fertilize	7.00			
Custom Aerial	7.50	33.75	33.75	67.50
Water Charge	25.50	51.00	51.00	102.00
Hauling Cost		3.36	3.36	6.72
Irrigation Repair	4.50	9.00	9.00	18.00
Machinery Repair	23.08	21.11	21.67	42.78
Machinery Fuel & Lube	29.39	34.05	33.90	67.95
Labor	52.50	77.15	71.05	148.20
Overhead	14.38	25.90	23.35	49.25
Interest	6.17	14.27	13.42	27.69
Amort. Variable Estab. Cost****		174.00	174.00	348.00
Total Variable Cost	301.98	717.96	682.31	1,400.27

Continued

Fixed Costs:				
Machinery Depreciation***	39.48	61.95	62.64	124.59
Machinery Interest***	32.80	42.51	43.37	85.88
Machinery Taxes***	1.96	2.55	2.60	5.15
Machinery Insurance***	5.90	7.65	7.81	15.46
Pollination Cost		92.39	92.39	184.78
Amortized Estab. Cost****		99.47	99.47	198.95
Land Rent	67.50	135.00	135.00	270.00
Management	25.00	50.00	50.00	100.00
Total Fixed Cost	172.64	491.52	493.28	984.81
Total Cost	474.62	1,209.48	1,175.59	2,385.07
Gross Returns - Variable Cost:				
Break-Even Price/Lb:		482.04	517.69	999.73
		0.90	0.85	0.88
Gross Returns - Total Cost:				
Break-Even Price/Lb:		(9.48)	24.41	14.93
		1.51	1.47	1.49

*Used to calculate amortized establishment costs.

**Includes interest costs. See Appendix III.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, shop tools, and irrigation tubes and dams.

****Establishment year costs amortized over the 3-year production period at the specified interest rate.

Summary of Establishment and Production Costs and Returns Per Acre for Alfalfa Seed Produced for Three Years Under Center Pivot Irrigation in the Columbia Basin.

Production/Acre (Lbs.) = **800** Price/Lb. = **\$1.50** Interest Rate* = **10.0%**

	Estab. Year	Year 1	Year 2	Year 3	Total Years 1 - 3
	\$	\$	\$	\$	\$
Gross Returns:		1,200.00	1,200.00	1,200.00	3,600.00
Variable Costs:					
Alfalfa Seed	4.12				
Soil Test	1.00				
Pollination Cost**		171.45	144.45	126.45	442.35
Application Fee	0.60				
Field Inspection Fee	1.00				
Certification Renewal Fee		0.60	0.60	0.60	1.80
Production Fee		1.85	1.85	1.85	5.55
Seed Commission		4.24	4.24	4.24	12.72
Chemicals	83.54	79.70	76.42	87.42	243.54
Fertilizers	38.20	4.00	4.00	4.00	12.00
Chemigator Rent		4.50	4.50	4.50	13.50
Custom Fertilize	7.00				
Custom Aerial	7.50	33.75	33.75	33.75	101.25
Water Charge	25.50	51.00	51.00	51.00	153.00
Hauling Cost		3.36	3.36	3.36	10.08
Irrigation Power	12.50	25.00	25.00	25.00	75.00
Irrigation Repair	10.00	20.00	20.00	20.00	60.00
Machinery Repair	21.71	21.00	17.29	18.65	56.94
Machinery Fuel & Lube	25.67	33.53	26.26	28.82	88.61
Labor	32.17	50.18	43.77	47.21	141.16
Overhead	13.82	25.92	23.48	23.51	72.91
Interest	5.91	14.17	13.16	13.31	40.64
Amort. Variable Estab. Cost****		116.71	116.71	116.71	350.13
Total Variable Cost	290.24	660.96	609.84	610.38	1,881.18

Continued

Fixed Costs:					
Machinery Depreciation***	34.14	56.35	49.52	51.83	157.70
Machinery Interest***	29.34	40.64	34.00	36.54	111.18
Machinery Taxes***	1.76	2.44	2.04	2.20	6.68
Machinery Insurance***	5.28	7.32	6.12	6.58	20.02
Pollination Cost		92.39	92.39	92.39	277.17
Amortized Estab. Cost****		88.67	88.67	88.67	266.02
Land Rent	125.00	250.00	250.00	250.00	750.00
Management	25.00	50.00	50.00	50.00	150.00
Total Fixed Cost	220.52	587.81	572.74	578.21	1,738.77
Total Cost	510.76	1,248.77	1,182.58	1,188.59	3,619.95
Gross Returns - Variable Cost:					
Break-Even Price/Lb:		0.83	0.76	0.76	0.78
Gross Returns - Total Cost:					
Break-Even Price/Lb:		(48.77)	17.42	11.41	(19.95)
		1.56	1.48	1.49	1.51

*Used to calculate amortized establishment costs.

**Includes interest costs. See Appendix III.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, shop tools, and irrigation tubes and dams.

****Establishment year costs amortized over the 3-year production period at the specified interest rate.

Summary of Establishment and Production Costs and Returns Per Acre for Alfalfa Seed Produced for Two Years Under Center Pivot Irrigation in the Columbia Basin.

Production/Acre (Lbs.) = **800** Price/Lb. = **\$1.50** Interest Rate = **10.0%**

	Estab. Year	Year 1	Year 2	Total Years 1 - 2
	\$	\$	\$	\$
Gross Returns:		1,200.00	1,200.00	2,400.00
Variable Costs:				
Alfalfa Seed	4.12			
Soil Test	1.00			
Pollination Cost**		171.45	144.45	315.90
Application Fee	0.60			
Field Inspection Fee	1.00			
Certification Renewal Fee		0.60	0.60	1.20
Production Fee		1.85	1.85	3.70
Seed Commission		4.24	4.24	8.48
Chemicals	83.54	79.70	87.42	167.12
Fertilizers	38.20	4.00	4.00	8.00
Chemigator Rent		4.50	4.50	9.00
Custom Fertilize	7.00			
Custom Aerial	7.50	33.75	33.75	67.50
Water Charge	25.50	51.00	51.00	102.00
Hauling Cost		3.36	3.36	6.72
Irrigation Power	12.50	25.00	25.00	50.00
Irrigation Repair	10.00	20.00	20.00	40.00
Machinery Repair	21.71	21.00	18.65	39.65
Machinery Fuel & Lube	25.67	33.53	28.82	62.35
Labor	32.17	50.18	47.21	97.39
Overhead	13.82	25.92	23.51	49.43
Interest	5.91	14.17	13.31	27.48
Amort. Variable Estab. Cost****		167.23	167.23	334.47
Total Variable Cost	290.24	711.48	678.90	1,390.39

Continued

Fixed Costs:				
Machinery Depreciation***	34.14	56.35	51.83	108.18
Machinery Interest***	29.34	40.64	36.54	77.18
Machinery Taxes***	1.76	2.44	2.20	4.64
Machinery Insurance***	5.28	7.32	6.58	13.90
Pollination Cost		92.39	92.39	184.78
Amortized Estab. Cost****		127.06	127.06	254.12
Land Rent	125.00	250.00	250.00	500.00
Management	25.00	50.00	50.00	100.00
Total Fixed Cost	220.52	626.20	616.60	1,242.80
Total Cost	510.76	1,337.69	1,295.51	2,633.19
Gross Returns - Variable Cost:				
Break-Even Price/Lb:		488.52	521.10	1,009.61
		0.89	0.85	0.87
Gross Returns - Total Cost:				
Break-Even Price/Lb:		(137.69)	(95.51)	(233.19)
		1.67	1.62	1.65

*Used to calculate amortized establishment costs.

**Includes interest costs. See Appendix III.

***Includes depreciation, interest, insurance and taxes for tractors, machinery, machine shed and shop, shop tools, and irrigation tubes and dams.

****Establishment year costs amortized over the 3-year production period at the specified interest rate.



WASHINGTON STATE UNIVERSITY



EXTENSION

College of Agricultural, Human, and Natural Resource Sciences

Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

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