

Farm Business
Management
Reports

EB1375

1996 Alfalfa Seed
Enterprise Budget,
Walla Walla County,
Washington

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Gayle S. Willett

**1996 ALFALFA SEED ENTERPRISE
BUDGET, WALLA WALLA COUNTY,
WASHINGTON**

**Cooperative Extension
and
Department of Agricultural Economics**

**College of Agriculture and Home Economics
Washington State University**

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NOTE

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

- Capital, labor, 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 a well-managed Walla Walla County alfalfa seed enterprise. To avoid drawing unwarranted conclusions for any particular farm or group of farms, you must examine closely the assumptions used. If they are not appropriate for your situation, adjust the costs and/or returns to fit.

1996 Alfalfa Seed Enterprise Budget Walla Walla County, Washington

by

Walter J. Gary and Gayle S. Willett*

INTRODUCTION

This publication presents projected revenues, costs, and returns for establishing and producing alfalfa seed in Walla Walla County of southeastern Washington. Producers, agricultural lenders, and others should find the budget information helpful when identifying enterprise strengths and weaknesses, adjusting production practices to increase profit, determining financing requirements, making marketing decisions, and resolving numerous other business management problems.

The enterprise data do not represent a particular farm. Instead, they represent costs and returns under the specific assumptions adopted for the study. A blank space is provided on the right-hand side of selected budget tables which may be used to estimate costs and returns for individual growers. If you need help, consult your local cooperative extension agent and field personnel from private firms for recommendations on field operations and operating inputs.

SOURCES OF INFORMATION

A committee of selected Touchet-area producers identified the field operations and machinery complement commonly used to produce alfalfa seed. These producers are considered to be representative of well-managed farms. The quantities and types of inputs, including seed, fertilizer, herbicides, and insecticides, are based on widely used practices. Local farm suppliers provided price information on materials and other services commonly used by producers. Machinery costs are based on current replacement prices and rates of annual use considered to be typical.

BUDGET ASSUMPTIONS

The following assumptions were used in developing the enterprise data:

1. The representative farm is located in the Touchet area of southeastern Washington and includes 600 acres with a rotation of alfalfa seed and winter wheat.
2. A 4-year rotation is used, consisting of one year alfalfa seed establishment, 2 years alfalfa seed production, and one year of winter wheat.
3. The crop is irrigated with a hand-line system drawing water from a nearby ditch.

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4. A private variety of seed is grown under a 3-year contract paying a gross price of \$1.18 per pound of clean seed.
5. Annual yields are 350 pounds clean seed per acre during the establishment year (fall planting) and 700 pounds clean seed (934 pounds, gross, with 25% clean-out) per acre for the full production years. However, yields vary over time. Care must be used in interpreting this budget. For example, note how yields have varied in this region since 1988.

Year	Average Yield per Acre (lbs. clean seed/acre)
1995	500
94	490
93	440
92	550
91	580
90	660
89	730
88	660

6. Pollination is done by leafcutter bees.
7. The farm is owned, managed, and operated by the same person(s).
8. Equipment costs are based on current replacement prices for new or used equipment.

While this assumption may overstate production costs currently experienced by producers who are using equipment purchased at earlier points in time and at generally lower prices, it indicates the enterprise's ability to replace depreciable assets. If prices for machinery and equipment continue to increase, depreciation claimed on earlier purchases understates the amount of capital currently required for replacement. When an enterprise is evaluated to determine its long-run viability, it is important to consider its ability to replace depreciable assets.

DISCUSSION OF BUDGET INFORMATION

Budget information is presented in several tables for both the establishment (Tables 1A-2A) and production years (Tables 1B-4B). A summary of the information appearing in these tables is follows.

Tables 1A and 1B. Schedule of Operations and Costs Per Acre

These tables outline the schedule of field operations and costs for the establishment and production years, respectively. Production costs are divided into two categories. The first is fixed costs which

include machinery ownership, land ownership, management, and once the crop is established, an amortized establishment cost. The second category, variable costs, is associated with operating machinery, hiring labor, and purchasing services and materials.

Machinery fixed costs include depreciation (= $\frac{\text{initial cost} - \text{salvage value}}{\text{hours of lifetime use}}$), interest on the investment,

property taxes, housing, and insurance. These costs are incurred whether or not a crop is grown and do not vary with the enterprise, given the ownership of a specific machinery complement. Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the per-hour fixed cost (see Table 5). Thus, machinery fixed costs are allocated to the alfalfa seed enterprise on the basis of hours of machine use. Irrigation system fixed costs are based on an investment in a new hand-line system of \$210,000 for the 600-acre farm. The system includes buried mainline, laterals, pump, and motor. The irrigation equipment is depreciated over 20 years. Fixed costs for the irrigation system are allocated to the seed enterprise on the basis of acre-inches of water applied to that crop. The net cost of establishment (= cost of establishment - receipts from partial first-year crop) is spread over two years at 9.5% interest to obtain the annual establishment cost appearing as a fixed cost in the production year budget.

Land fixed costs include property taxes and rent, with the latter based on a net rent concept. The net rent approach assumes the land cost experienced by the owner-operator is the rent given up by choosing to produce alfalfa seed rather than renting the land to another grower. If the land is rented out, the landowner will receive the rent (cash or crop-share) minus the land related costs that are the owner's responsibility. A cash rent arrangement, with the owner responsible for real estate taxes, irrigation district charges, and irrigation system fixed costs (depreciation, interest, property taxes, and insurance) is assumed. Thus, a production year net rent of \$62.92 per acre is calculated by subtracting real estate taxes (\$15), irrigation district charge (\$17), and irrigation system fixed costs (\$40.08) from the assumed cash rent (\$135).

As a result of investing capital in land, the farmer receives both current returns (losses) from crop production activities and appreciation (depreciation) in land value. However, the farmer continues to receive land value appreciation (depreciation) even if the land is rented out. Consequently, the appropriate land cost for growing the crop is only the foregone net rent. As used in this publication, the land cost is termed an opportunity cost to indicate that it is not an out-of-pocket expense, but rather a return that is foregone by the producer as a result of choosing to grow the crop. The producer may wish to substitute interest payments on loans used to buy the land or rent payments if the land is rented.

These tables also include management as a fixed cost. A management charge of 7% of gross receipts is used. This is representative of management fees charged by professional farm managers in Washington and is an estimation of the value of the operator's management skills.

Variable costs depend directly on the number of crop acres and type of enterprise. Variable costs include fuel, electricity, oil, repairs, fertilizer, chemicals, custom work, overhead (telephone, utilities, legal, accounting, dues, etc.), interest on operating capital, labor, and pollination. A cost is assigned to both operator and hired labor at the rate of \$10 per hour. Pollination costs are based on the use of leafcutter bees and the following assumptions:

Establishment Year Investment (\$ Per Acre):	
Purchase bees (4 gal. @ \$45)	= \$ 180.00
Bee boards (8 boards @ \$7)	= 56.00
Shelter (0.1 shelter/acre x \$4.00/ shelter ÷10 yrs life x 3 yrs. stand)	= <u>12.00</u>
Total Investment	= \$ 248.00
Production Year Costs (\$ Per Acre):	
Purchase bees (2 gal. @ \$45)	= 90.00
Clean & redrill bee boards in 3 years (8 boards x \$2.75 x ½ acre)	= <u>11.00</u>
Total Cost	= \$ 101.00

Tables 2A and 2B. Summary of Production Costs

A more detailed list of the costs appearing in the schedule of operations is presented in Table 2A (establishment year) and Table 2B (production year). This added detail includes the quantities and per-unit prices for most inputs.

Table 3B. Break-Even Selling Price Per Unit

This table shows the break-even selling price for different levels of seed production costs. The first break-even price is the price needed to cover total variable costs--those costs that occur only if the crop is produced another year. If the price received does not equal or exceed variable costs, the crop is uneconomical to produce even in the short run, for the added costs of production are greater than the added returns.

The second break-even price is the price required to cover total cash costs, except interest on land or machinery loans and/or land rent. If other cash costs exist on an individual's farm, these costs should be identified and included in the cash cost break-even calculation. Since a cash cost has been attributed to all labor, the operator may wish to subtract the costs for operator/family labor before calculating the price needed to cover cash costs.

The third break-even price is the price needed to cover total cash cost, plus depreciation on machinery and irrigation equipment. This price must be realized to stay in business over the long run.

The fourth break-even price is the price farmers must receive to recover total costs including cash costs, depreciation, and the opportunity costs for their management, labor, and investment in land, equipment, and buildings. Failure to receive this break-even price means that the owner-operator will not realize a return on his or her management, labor, and capital contributions equivalent to what could be earned in an alternative use. Realization of a price above the break-even level means that in addition to covering all costs, the operator will earn a premium for the risk assumed in producing the crop.

Table 4B. Summary of Revenues, Costs, and Returns Per Acre

Revenues, costs, and various measures of returns for the crop enterprise are summarized in this table. The first return measure is returns over variable costs, which is calculated by subtracting total variable costs from total revenues. An important use of returns over variable costs is selecting the most profitable crop mix. By selecting the crop(s) with the greatest return over variable costs, farm profits are maximized (or losses minimized). A second return measure, gross returns to land and management, is calculated by subtracting machinery fixed costs and establishment costs from returns over variable cost. The return realized on capital invested in land is another return measure. To calculate the return to land, all crop costs (including a management charge and real estate taxes), except the land rent, are subtracted from total revenues. The rate of return on the land investment is calculated by dividing the return to land by the land's estimated current market value.

Table 5. Machinery Complement

Table 5 identifies the machinery complement used for the cost estimates. It includes current purchase prices, annual hours of use, and per-hour fixed and variable costs. Fixed costs include depreciation and interest on investment, property taxes, housing, and insurance. These costs do not vary with the number of acres farmed. Variable costs include repair, fuel, and lubrication costs--costs that vary with the number of acres farmed. Additional detail on procedures for computing machinery costs is available in "The Cost of Owning and Operating Farm Machinery in the Pacific Northwest," PNW 346, Cooperative Extension, Washington State University, Pullman, WA.

Table 6. Prices for Selected Inputs

The prices used for fuel, chemicals, fertilizers, and other inputs are presented in Table 6.

Table 1A. Schedule of operations and costs per acre of alfalfa seed establishment (fall planted) following winter wheat, Walla Walla County, 1996.

Operation	Tooling	Month	Machine Time	Labor Time	Total Fixed Costs ¹	Variable Costs					Total Variable Costs	Total Cost	Comments
						Fuel, Lub. & Repairs	Mach. Labor @ \$10.00 Per Hour	Service	Materials	Interest @ 9½%			
			Hrs./A	Hrs./A	\$/A	\$/A	\$/A	\$/A	\$/A	\$/A	\$/A	\$/A	
Chop Stubble	120 HP-WT, Flail Chopper	Aug.	0.17	0.186	11.88	2.09	1.86	0.00	0.00	0.38	4.33	16.21	
Plow	120 HP-WT, 5 Btm.-MB Plow	Aug.	0.32	0.354	4.68	1.66	3.54	7.36	0.00	0.86	13.42	18.10	Rented WT
Cultipack (2X)	120 HP-WT, Cultipacker	Aug.	0.42	0.472	19.13	4.94	4.72	0.00	0.00	0.92	10.58	29.71	
Seed	120 HP-WT 12' Disk Drill	Aug.	0.25	0.275	1.86	3.18	2.75	5.75	20.00	3.01	34.69	36.55	Rented WT, 4 Lbs. Seed
Irrigate (5X)	Handline System, 30 Ac. In.	Aug.-April	0.00	3.120	50.10	39.90	31.20	17.00	0.00	2.68	90.78	140.88	
Weed Control	120 HP-WT, 100' Sprayer	Sept.	0.02	0.022	1.30	0.30	0.22	0.00	15.41	1.39	17.32	18.62	¼ Pt. Fusilade DX, 2 Pts. Crop Oil
Gopher Control	120 HP-WT Gopher Machine	Feb.	0.10	0.120	3.69	1.11	1.20	0.00	4.08	0.30	6.69	10.38	3 Lbs. Gopher Bait
Fertilize	120 HP-WT, 40' Spreader	March	0.06	0.065	3.01	1.01	6.50	0.00	13.10	0.98	21.59	24.60	100 Lbs. of 15-25-0-12 Fert.
Weed Control	120 HP-WT, 100' Sprayer	April	0.02	0.022	1.30	0.30	0.22	0.00	14.22	0.70	15.44	16.74	4 Pts. Prowl
Insect Control	120 HP-WT, 100' Sprayer	May	0.02	0.022	1.30	0.30	0.22	0.00	18.27	0.60	19.39	20.69	1½ Pts. Furadan, 1½ Pts. Cygon
Pollinate	Leafcutter Bees	June-July	0.00	1.000	0.00	0.00	10.00	248.00	0.00	8.17	266.17	266.17	Establishment Yr. Investment = \$248 (p. 4)
Rogue Weeds	Hand Labor	June	0.00	0.000	0.00	0.00	3.50	0.00	0.00	0.09	3.59	3.59	
Harrow	120 HP-WT, 50' Harrow	July	0.04	0.045	1.91	0.48	0.45	0.00	0.00	0.02	0.95	2.86	
Insect Control	120 HP-WT, 100' Sprayer	July	0.02	0.022	1.30	0.30	0.22	0.00	16.84	0.28	17.64	18.94	6 oz. Pirimor
Insect Control	120 HP-WT, 100' Sprayer	July	0.02	0.022	1.30	0.30	0.22	0.00	18.95	0.30	19.77	21.07	2 Pts. Comite
Insect Control	100 HP-WT, 100' Sprayer	Aug.	0.02	0.022	1.30	0.30	0.22	0.00	9.13	0.08	9.73	11.03	1 Pt. Dibrom
Weed Control	120 HP-WT, 100' Sprayer	Sept.	0.02	0.022	1.30	0.30	0.22	0.00	11.58	0.00	12.10	13.40	1½ Pts. Buctril
Defoliate	120 HP-WT, 100' Sprayer	Sept.	0.02	0.022	1.30	0.30	0.22	0.00	22.61	0.00	23.13	24.43	2 Pts. Diquat, 2 Pts. Activator
Harvest	HS Combine, 20', Owned (½ acre)	Sept.	0.15	0.165	6.71	5.40	1.65	0.00	0.00	0.00	7.05	13.76	
	HS Combine, 20', Rented (½ acre)	Sept.	0.15	0.165	0.00	1.01	1.65	18.97	0.00	0.00	21.63	21.63	Rented Combine
Haul Seed	Truck, 16'	Sept.	0.33	0.400	5.37	2.73	4.00	0.00	0.00	0.00	6.73	12.10	
Clean & Bag Seed		Oct.	0.00	0.000	0.00	0.00	0.00	49.00	0.00	0.00	49.00	49.00	
Seed Commission Fee		Oct.	0.00	0.000	0.00	0.00	0.00	1.75	0.00	0.00	1.75	1.75	
Screenings Disposal Fee		Oct.	0.00	0.000	0.00	0.00	0.00	1.15	0.00	0.00	1.15	1.15	
Pickup	¼ Ton	Annual	0.42	0.460	5.85	3.07	4.60	0.00	0.00	0.36	8.03	13.88	
	½ Ton	Annual	0.20	0.220	0.99	2.29	2.20	0.00	0.00	0.21	4.70	5.70	
Burn Residue		Annual	0.00	0.020	0.00	0.00	0.20	0.79	0.22	0.00	1.21	1.21	
Overhead	Util., Legal, Acct., Dues, etc.	Annual	0.00	0.000	0.00	0.00	0.00	20.00	0.00	0.00	20.00	20.00	
Land Taxes		Annual	0.00	0.000	15.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	
Land Rent	Net Rent	Annual	0.00	0.000	52.90 ²	0.00	0.00	0.00	0.00	0.00	0.00	52.90	
Management		Annual	0.00	0.000	28.91 ³	0.00	0.00	0.00	0.00	0.00	0.00	28.91	
Total Per Acre		-	-	7.24	222.39	71.27	81.78	369.77	164.41	21.33	708.56	930.95	

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¹Includes depreciation, interest (9½%), property taxes, housing, and insurance on machinery.

²Net rent = \$135 cash rent - \$15.00 real estate taxes - \$17.00 irrigation district fee - \$50.10 fixed costs on irrigation system.

³Management = 7% x value of production (350 lbs. seed x \$1.18).

Table 2A. Summary of production costs per acre for alfalfa seed, establishment year, following winter wheat, Walla Walla County, 1996.

Item	Quantity	\$/Unit	Cost	Your Farm
Variable Costs:				
Seed	4 Lbs.	5.00/Lb.	\$20.00	
Fusilade DX	¼ Pt.	137.75/Gal.	12.91	
Crop Oil	2 Pts.	9.98/Gal.	2.50	
Gopher Bait	3 Lbs.	1.36/Lb.	4.08	
Fertilizer (15-25-0-12)	100 Lbs.	0.131/Lb.	13.10	
Furadan	1½ Pts.	59.95/Gal.	11.22	
Cygon	1½ Pts.	37.52/Gal.	7.04	
Pirimor	6 Oz.	44.90/Lb.	16.84	
Comite	2 Pts.	75.80/Gal.	18.95	
Dibrom	1 Pt.	73.01/Gal.	9.13	
Buctril	1½ Pts.	61.75/Gal.	11.58	
Diquat	2 Pts.	73.63/Gal.	18.41	
Activator M-90	2 Pts.	16.82/Gal.	4.21	
Prowl	4 Pts.	28.45/Gal.	14.22	
Fuel, Lubr. & Repairs	Ac.	-	71.27	
Machinery Rent	Ac.	-	32.08	
Irrigation District Fee	Ac.	-	17.00	
Leafcutter Bees/Boards/Shelters	Ac.	-	248.00	
Labor	Ac.	-	81.78	
Clean & Bag Seed	350 Lbs.	0.14/Lb.	49.00	
Seed Commission	350 Lbs.	½¢/Lb.	1.75	
Screening Disposal	115 Lbs.	1¢/Lb.	1.15	
Burn Permit	Ac.	\$20/yr. + 75¢/Ac.	0.79	
Propane	Ac.	-	0.22	
Overhead	Ac.	-	20.00	
Interest	Ac.	9½%	21.33	
Total Variable Cost			708.56	
Fixed Costs:				
Machinery (Depr., Int., P. Taxes, Housing & Insurance)	Ac.	-	125.58	
Land Taxes	Ac.	-	15.00	
Net Land Rent	Ac.	-	52.90	
Management	Ac.	-	28.91	
Total Fixed Cost			222.39	
TOTAL COSTS			930.95	
Less: Partial Crop (350 lbs. seed @ \$1.18/lb.)			413.00	
Net Establishment Cost			517.95	

Table 1B. Schedule of operations and costs per acre for alfalfa seed, production year, Walla Walla County, 1996.

Operation	Tooling	Month	Machine Time Hrs./A	Labor Time Hrs./A	Total Fixed Costs ¹ \$/A	Variable Costs					Total Variable Costs \$/A	Total Cost \$/A	Comments
						Fuel, Lub. & Repairs \$/A	Mach. Labor @ \$10.00 Per Hour \$/A	Service \$/A	Materials \$/A	Interest @ 9½% \$/A			
Irrigate (2X)	Handline System, 24 Ac. In.	Nov.-March	0.00	1.250	40.08	31.92	12.50	17.00	0.00	4.86	66.28	106.36	
Weed Control	120 HP-WT, 100' Sprayer	Dec.	0.02	0.022	1.30	0.30	0.22	0.00	32.12	2.33	34.97	36.27	2 Pts. Paraquat, ¾ Lb. Simbar
Gopher Control	120 HP-WT, Gopher Machine	Febr.	0.10	0.120	3.69	1.11	1.20	0.00	4.08	0.30	6.69	10.38	3 Lbs. Gopher Bait
Harrow	120 HP-WT, 50' Harrow	Febr.	0.04	0.045	1.91	0.48	0.45	0.00	0.00	0.05	0.98	2.89	
Weed Control	120 HP-WT, 100' Sprayer	April	0.02	0.022	1.30	0.30	0.22	0.00	14.23	0.58	15.33	16.63	2 Qts. Prowl
Insect Control	120 HP-WT, 100' Sprayer	May	0.02	0.022	1.30	0.30	0.22	0.00	18.27	0.60	19.39	20.69	1½ Pts. Furadan, 1½ Pts. Cygon
Pollinate	Leafcutter Bees	June-July	0.00	1.000	0.00	0.00	10.00	11.00	90.00	3.52	114.52	114.52	Clean & Redrill Boards, 2 Gal. Bees
Rogue Weeds	Hand Labor	June	0.00	0.000	0.00	0.00	3.50	0.00	0.00	0.09	3.59	3.59	
Insect Control	120 HP-WT, 100' Sprayer	July	0.02	0.022	1.30	0.30	0.22	0.00	16.84	0.28	17.64	18.94	6 oz. Pirimor
Insect Control	120 HP-WT, 100' Sprayer	July	0.02	0.022	1.30	0.30	0.22	0.00	18.95	0.30	19.77	21.07	2 Pts. Comite
Insect Control	120 HP-WT, 100' Sprayer	Aug.	0.02	0.022	1.30	0.30	0.22	0.00	9.13	0.08	9.73	11.03	1 Pt. Dibrom
Defoliate	120 HP-WT, 100' Sprayer	Sept.	0.02	0.022	1.30	0.30	0.22	0.00	22.61	0.00	23.13	24.43	2 Pts. Diquat, 2 Pts. Activator
Harvest	HS Combine, Owned (½ Ac.)	Sept.	0.15	0.165	6.71	5.40	1.65	0.00	0.00	0.00	7.05	13.76	
	HS Combine, Rented (½ Ac.)	Sept.	0.15	0.165	0.00	1.01	1.65	18.97	0.00	0.00	21.63	21.63	Rented Combine
Haul Seed	Truck, 16'	Sept.	0.33	0.400	5.37	2.73	4.00	0.00	0.00	0.00	6.73	12.10	
Clean & Bag Seed		Oct.	0.00	0.000	0.00	0.00	0.00	98.00	0.00	0.00	98.00	98.00	
Seed Commission Fee		Oct.	0.00	0.000	0.00	0.00	0.00	3.50	0.00	0.00	3.50	3.50	
Screenings Disposal Fee		Oct.	0.00	0.000	0.00	0.00	0.00	2.34	0.00	0.00	2.34	2.34	
Burn Residue		Annual	0.00	0.020	0.00	0.00	0.20	0.79	0.22	0.00	1.21	1.21	
Pickup	¾ Ton	Annual	0.42	0.460	5.85	3.07	4.60	0.00	0.00	0.36	8.03	13.88	
Pickup	½ Ton	Annual	0.20	0.220	0.99	2.29	2.20	0.00	0.00	0.21	4.70	5.70	
Overhead	Util., Legal, Acct., Dues, etc.	Annual	0.00	0.000	0.00	0.00	0.00	20.00	0.00	0.00	20.00	20.00	
Land Taxes		Annual	0.00	0.000	15.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	
Land Rent	Net Rent	Annual	0.00	0.000	62.92 ²	0.00	0.00	0.00	0.00	0.00	0.00	62.92	
Management		Annual	0.00	0.000	57.82 ³	0.00	0.00	0.00	0.00	0.00	0.00	57.82	
Establishment Cost	Amortized Estab. Cost	Annual	0.00	0.000	296.44 ⁴	0.00	0.00	0.00	0.00	0.00	0.00	296.44	
Total Per Acre	--	--	--	3.989	505.88	50.11	43.49	171.60	226.45	13.56	505.21	1,011.09	

¹Includes depreciation, interest (9½%), property taxes, housing, and insurance on machinery.

²Net rent = \$135 cash rent - \$15.00 real estate taxes - \$17.00 irrigation district fee - \$40.08 fixed costs on irrigation system.

³Management = 7% x value of production (700 lbs. seed x \$1.18).

⁴Net establishment cost (\$517.95, Table 2A) amortized over 2 years at 9½% interest.

Table 2B. Summary of production costs per acre for alfalfa seed, production year, Walla Walla County, 1996.

Item	Quantity	\$/Unit	Cost	Your Farm
Variable Costs:				
Paraquat	2 Pts.	\$36.90/Gal.	\$ 9.23	
Sinbar	¾ Lb.	30.52/Lb.	22.89	
Gopher Bait	3 Lbs.	1.36/Lb.	4.08	
Prowl	2 Qts..	28.45/Gal.	14.22	
Furadan	1½ Pts.	59.95/Gal.	11.23	
Cygon	1½ Pts.	37.52/Gal.	7.04	
Bees	2 Gal.	45.00/Gal.	90.00	
Clean & Redrill Bee Boards	4 Boards	2.75/Board	11.00	
Pirimor	6 Oz.	44.90/Lb.	16.84	
Comite	2 Pts.	75.80/Gal.	18.95	
Dibrom	1 Pt .	73.01/Gal.	9.13	
Diquat	2 Pts.	73.63/Gal.	18.41	
Activator M-90	2 Pts.	16.82/Gal.	4.21	
Fuel, Lubr. & Repairs	Ac.	-	50.11	
Machinery Rent (Combine)	½ Ac.	-	18.97	
Irrigation District Fee	Ac.	-	17.00	
Labor	Ac.	-	43.49	
Clean & Bag Seed	700 Lbs.	0.14/Lb.	98.00	
Seed Commission	700 Lbs.	½¢/Lb.	3.50	
Screenings Disposal Fee	234 Lbs.	1¢/Lb.	2.34	
Burn Permit	Ac.	\$20/Yr. + 75¢/AC.	0.79	
Propane	Ac.	-	0.22	
Overhead	Ac.	-	20.00	
Interest	Ac.	9½%	13.56	
Total Variable Cost			505.21	
Fixed Costs:				
Machinery (Depr., Int., P. Taxes, Housing & Insurance)	Ac.	-	73.70	
Land Taxes	Ac.	-	15.00	
Net Land Rent	Ac.	-	62.92	
Management	Ac.	-	57.82	
Establishment Cost	Ac.	2 yrs. @ 9½%	296.44	
Total Fixed Cost			505.88	
TOTAL COSTS			1,011.09	

Table 3B. Break-even selling price per pound alfalfa seed, Walla Walla County, 1996.

	Clean Seed Yield (Lbs./Acre)							
	700		500		1,000		Your Farm	
	\$/Ac.	\$/Lb.	\$/Ac.	\$/Lb.	\$/Ac.	\$/Lb.	\$/Ac.	\$/Lb.
1. Total Variable Costs ¹	505.21	0.72	475.54	0.95	549.61	0.55		
Plus: Equip. Taxes & Insurance	8.06		8.06		8.06			
Land Taxes	15.00		15.00		15.00			
2. Total Cash Cost	528.27	0.75	498.60	1.00	572.67	0.57		
Plus: Equip. Depreciation	33.06		33.06		33.06			
3. Total Cash Cost & Depreciation	561.33	0.81	531.66	1.06	605.73	0.61		
Plus: Equip. Interest	30.42		30.42		30.42			
Machinery Housing	2.16		2.16		2.16			
Land Rent	62.92		62.92		62.92			
Management	57.82		41.30		82.60			
Establishment	296.44		296.44		296.44			
4. Total Cost	1,011.09	1.44	964.90	1.93	1,080.27	1.08		

¹The only variable costs assumed to vary with yield are seed cleaning and bagging, seed commission, and screenings disposal.

Table 4B: Summary of revenue, costs, and returns per acre for alfalfa seed, 700 pounds clean seed yield per acre, Walla Walla County, 1996.

Item	Amount	Your Farm
		--\$/Acre--
Gross Revenue (700 lbs. seed x \$1.18 per lb.)	826.00	_____
Less Total Variable Costs	505.21	_____
1. Returns Over Variable Costs	320.79	_____
Less: Machinery Fixed Costs	73.70	_____
Establishment	296.44	_____
2. Gross Returns to Land and Management	-49.35	_____
Less Management	57.82	_____
3. Gross Returns to Land	-107.17	_____
Less Land Taxes	15.00	_____
4. Net Returns to Land	-122.17	_____
5. Rate of Return on Market Value of Land (-\$122.17 ÷ \$1,200 Market Value Land x 100)	-10.2%	_____

Table 5: Machinery complement, purchase price, annual use, and hourly costs, alfalfa seed enterprise, Walla Walla County, 1996.

Item	Purchase Price	Years to Trade	Annual Hours	Fixed Costs			Variable Costs			Total Costs Per Hour	
				Depreciation	Interest @ 9½%	Taxes, Housing and Insurance	Total Fixed Cost	Repair	Fuel and Lubricants		Total Variable Costs
	\$						- \$ Per Hour -				
120HP Wheel Tractor	85,000	15	325	14.04	14.84	4.06	32.94	4.97	5.14	10.11	43.05
120 HP Wheel Tractor, Rented	-	-	200				Rental Fee per Hour = 23.00	-	5.14	5.14	28.14
100' Sprayer, PTO	14,000	15	54	15.62	13.50	2.84	31.96	2.00	0.00	2.00	33.96
15' Flail Chopper, Used	10,000	15	35	17.86	14.41	5.01	37.28	2.23	0.00	2.23	39.51
5 Btm. MB Plow	10,000	15	85	7.09	6.13	1.29	14.51	5.22	0.00	5.22	19.73
12' Cultipacker	8,000	15	85	5.67	4.90	1.03	11.60	1.38	0.00	1.38	12.98
12' Disk Drill	5,000	15	90	3.35	2.89	1.34	7.58	3.76	0.00	3.76	11.34
Gopher Machine	1,500	15	35	1.90	1.64	0.41	3.95	0.98	0.00	0.98	4.93
40' Fert. Spreader, Used	7,000	15	50	8.71	7.10	1.49	17.30	6.98	0.00	6.98	24.28
50' Tinetooth Harrow, Used	6,000	15	50	7.23	6.25	1.32	14.80	1.60	0.00	1.60	16.40
20' HS Combine, Used	50,000	15	150	21.25	16.52	6.96	44.73	29.77	6.84	36.61	81.34
20' HS Combine, Rented	-	-	150				Rental Fee Per Hour = 115.00	-	6.84	6.84	121.84
Truck, 16', Used	20,000	10	175	6.41	4.55	5.32	16.28	5.00	3.26	8.26	24.54
Pickup, 3/4 Ton	17,000	5	250	5.11	4.85	3.98	13.94	4.69	2.62	7.31	21.25
Pickup, ½ Ton, Used	4,500	10	200	2.06	1.59	1.30	4.95	8.40	3.02	11.43	16.38
							- \$ Per Acre-Inch-				
Irrigation System	210,000	20	Buried Mainline/ Pipe/Pump/Motor	0.78	0.74	0.15	1.67	0.28	1.05	1.33	3.00

Sources: The machinery costs appearing in the table were generated by a microcomputer program, MACHCOST, developed by L. Stodick and R. Smathers, Department of Agricultural Economics and Rural Sociology, University of Idaho, Moscow, ID. The same cost calculation procedures also appear in G. Willett, R. Smathers, "The Costs of Owning and Operating Farm Machinery in the Pacific Northwest," PNW 346, Cooperative Extension, Washington State University, Pullman, WA.

Table 6. Prices of selected inputs, Walla Walla County, 1996.

Item	Unit	Price
Fuel:		
Diesel	Gal.	\$0.85
Gasoline	Gal.	1.14
Fertilizer:		
15-25-0-12	Lb.	0.131
Chemicals:		
Fusilade DX	Gal.	137.75
Crop Oil	Gal.	9.98
Buctril	Gal.	61.75
Cygon	Gal.	37.52
Furadan	Gal.	59.95
Paraquat	Gal.	36.90
Comite	Gal.	75.80
Sinbar	Lb.	30.52
Prowl	Gal.	28.45
Pirimor	Lb.	44.90
Dibrom	Gal.	73.01
Diquat	Gal.	73.63
Activator M-90	Gal.	16.82
Gopher Bait	Lb.	1.36
Alfalfa Seed	Lb.	5.00
Labor	Hr.	10.00
Interest	%	9.50

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