
Estimated Costs of Crop Production in Iowa - 2019

Ag Decision Maker

File A1-20

The estimated costs of corn, corn silage, soybeans, alfalfa, and pasture maintenance in this report are based on data from several sources. They include the annual Iowa Farm Business Association record summaries, production and costs data from the Departments of Economics, Agricultural and Biosystems Engineering, and Agronomy at Iowa State University, and a survey of selected agricultural cooperatives and other input suppliers around the state.

These cost estimates are representative of average costs for farms in Iowa. Very large or small farms may have lower or higher fixed costs per acre.

Due to differences in soil potentials, quantity of inputs used, and other factors, production costs will vary from farm to farm. Price shifts for inputs can change production costs in both the short and long run. The data reflect average cost of purchased inputs and a return to land and labor resources, but do not provide a margin for profit or a return to management. They reflect production costs only, and do not include costs of storage.

Labor has been treated as a fixed cost because most labor on Iowa farms is supplied by the operator, family, or permanent hired labor. However, when deciding among alternative crops, labor should be considered a variable cost. The wage rate used here is \$14.25 per hour. The hours assumed per crop are presented in the budgets. The hours per crop acre include not only the field work but also time for maintenance, travel, and other activities related to crop production. The land charge is based on rent equivalent. Owned land may require a greater or lesser cash outlay.

In the short run, cash income must be sufficient to pay cash costs, including seed, fertilizer, chemicals, insurance, cash rent, and hired labor, as well as machinery fuel and repairs, and interest on operating capital. In the long run, income should be sufficient to pay all costs of production

for resources to be used in their most profitable alternative.

Starting in 2019, reference yields for corn and soybean budgets reflect 30-year trend yields and will be updated annually. Corn yields reflect rotation effects. Fertilizer rates have been adjusted to reflect current data on removal and application rates. Crop insurance costs reflect revenue crop protection at 80 percent coverage for a typical farm in Central Iowa

Machinery costs reflect both new and used equipment. The machine operations assumed are based on the 2000 Crop Production Practices Survey conducted by the Iowa Agricultural Statistics Service and Iowa State University Extension and Outreach publication PM 696, [Estimating the Field Capacity of Farm Machines](https://store.extension.iastate.edu/product/4032), <https://store.extension.iastate.edu/product/4032>. The Estimated Machinery Costs table can be used to budget other tillage and harvesting systems.

Estimates represent typical costs and are only intended to be guidelines. Actual costs will vary considerably and can be entered in the column for "Your Estimates." Electronic spreadsheets for developing crop production budgets are available on the [Ag Decision Maker](http://www.extension.iastate.edu/agdm) website, www.extension.iastate.edu/agdm.

Budgets for alfalfa hay establishment with an oat companion crop and by direct seeding are included in this publication. Annual production costs for established alfalfa or alfalfa-grass hay as well as a budget for maintaining grass pastures are included.

Two low-till budgets, one for corn and one for soybeans, are included. The major differences between the low-till and conventional budgets are the preharvest machinery, labor, herbicide, and seeding costs. The soybean budgets are for herbicide tolerant varieties. A strip-till budget is also included.

FM 1712 Revised January 2019

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Corn Following Corn

	164		182		200		Your Estimate
	bu. per acre		bu. per acre		bu. per acre		
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$23.30	\$21.20	\$23.30	\$21.20	\$23.30	\$21.20	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$3.20 per 1000 k.	25,000	\$79.90	30,000	\$95.80	35,000	\$111.80	\$ _____
Nitrogen @ \$0.38 per lb.	186	70.68	186	70.68	186	70.68	_____
Phosphate @ \$0.42 per lb.	62	26.04	68	28.56	75	31.50	_____
Potash @ \$0.31 per lb.	49	15.19	55	17.05	60	18.60	_____
Lime (yearly cost)		5.71		5.71		5.71	_____
Herbicide		48.36		48.36		48.36	_____
Insecticide		15.16		15.16		15.16	_____
Crop insurance		8.50		9.50		10.30	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		11.99		12.88		13.77	_____
Total		\$290.53		\$313.70		\$336.88	\$ _____
Harvest Machinery							
Combine	\$13.10	\$6.70	\$13.10	\$6.70	\$13.10	\$6.70	\$ _____
Grain cart	6.30	3.00	6.30	3.00	6.30	3.00	_____
Haul	7.16	6.19	7.94	6.87	8.73	7.55	_____
Dry (LP Gas @ \$1.38/gal.)	8.20	27.16	9.10	30.14	10.00	33.12	_____
Handle (auger)	2.89	3.17	3.21	3.52	3.53	3.86	_____
Total	\$37.65	\$46.22	\$39.65	\$50.22	\$41.66	\$54.23	\$ _____
Labor							
2.80 hours @ \$14.25	\$39.90		\$39.90		\$39.90		\$ _____
Land							
Cash rent equivalent	\$185.00		\$223.00		\$258.00		\$ _____
Total fixed, variable							
Per acre	\$285.85	\$357.95	\$325.85	\$385.13	\$362.86	\$412.32	Yield:
Per bushel	\$1.74	\$2.18	\$1.79	\$2.12	\$1.81	\$2.06	bu./acre _____
Total cost per acre	\$643.80		\$710.98		\$775.17		\$ _____
Total cost per bushel	\$3.93		\$3.91		\$3.88		\$ _____

^{1/}Chisel plow, tandem disk, apply N, field cultivate, plant, and spray. See the Estimated Machinery Costs table.

Corn Following Soybeans

	178 bu. per acre		198 bu. per acre		218 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$19.70	\$17.30	\$19.70	\$17.30	\$19.70	\$17.30	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$3.20 per 1000 k.	25,000	\$79.90	30,000	\$95.80	35,000	\$111.80	\$ _____
Nitrogen @ \$0.38 per lb.	131	49.78	131	49.78	131	49.78	_____
Phosphate @ \$0.42 per lb.	67	28.14	74	31.08	82	34.44	_____
Potash @ \$0.31 per lb.	53	16.43	59	18.29	65	20.15	_____
Lime (yearly cost)		5.71		5.71		5.71	_____
Herbicide		48.36		48.36		48.36	_____
Crop insurance		8.50		9.50		10.30	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		10.52		11.43		12.35	_____
Total		\$256.35		\$279.96		\$303.90	\$ _____
Harvest Machinery							
Combine	\$13.10	\$6.70	\$13.10	\$6.70	\$13.10	\$6.70	\$ _____
Grain cart	6.30	3.00	6.30	3.00	6.30	3.00	_____
Haul	7.77	6.72	8.64	7.47	9.52	8.23	_____
Dry (LP Gas @ \$1.38/gal.)	8.90	29.48	9.90	32.79	10.90	36.10	_____
Handle (auger)	3.14	3.44	3.49	3.83	3.84	4.21	_____
Total	\$39.21	\$49.33	\$41.43	\$53.79	\$43.66	\$58.24	\$ _____
Labor							
2.55 hours @ \$14.25	\$36.34		\$36.34		\$36.34		\$ _____
Land							
Cash rent equivalent	\$185.00		\$223.00		\$258.00		\$ _____
Total fixed, variable							
Per acre	\$280.24	\$322.98	\$320.47	\$351.04	\$357.70	\$379.44	Yield:
Per bushel	\$1.57	\$1.81	\$1.62	\$1.77	\$1.64	\$1.74	bu./acre _____
Total cost per acre	\$603.23		\$671.51		\$737.13		\$ _____
Total cost per bushel	\$3.39		\$3.39		\$3.38		\$ _____

^{1/} Apply N, tandem disk, field cultivate, plant, and spray. See the Estimated Machinery Costs table.

Corn Silage Following Corn

	21		24		26		Your Estimate
	tons per acre		tons per acre		tons per acre		
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$23.30	\$21.20	\$23.30	\$21.20	\$23.30	\$21.20	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$3.20 per 1000 k.	28,750	\$91.80	34,500	\$110.20	40,250	\$128.60	\$ _____
Nitrogen @ \$0.38 per lb.	150	57.00	150	57.00	150	57.00	_____
Phosphate @ \$0.42 per lb.	74	31.08	84	35.28	91	38.22	_____
Potash @ \$0.31 per lb.	168	52.08	192	59.52	208	64.48	_____
Lime (yearly cost)		5.71		5.71		5.71	_____
Herbicide		48.36		48.36		48.36	_____
Insecticide		15.16		15.16		15.16	_____
Crop insurance		8.50		9.50		10.30	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		13.60		14.88		16.00	_____
Total		\$332.29		\$365.61		\$394.83	\$ _____
Harvest Machinery							
Silage harvester	\$49.60	\$30.90	\$49.60	\$30.90	\$49.60	\$30.90	\$ _____
Haul	28.21	26.53	32.24	30.32	34.93	32.85	_____
Store silage (unloader)	8.91	2.74	10.19	3.13	11.03	3.39	_____
Total	\$86.73	\$60.17	\$92.03	\$64.35	\$95.57	\$67.14	\$ _____
Labor							
4.95 hours @ \$14.25	\$70.54		\$70.54		\$70.54		\$ _____
Land							
Cash rent equivalent	\$185.00		\$223.00		\$258.00		\$ _____
Total fixed, variable							
Per acre	\$365.56	\$413.66	\$408.87	\$451.16	\$447.40	\$483.18	Yield:
Per ton	\$17.41	\$19.70	\$17.04	\$18.80	\$17.21	\$18.58	bu./acre _____
Total cost per acre	\$779.22		\$860.03		\$930.58		\$ _____
Total cost per ton	\$37.11		\$35.83		\$35.79		\$ _____

^{1/} Chisel plow, tandem disk, apply N, field cultivate, plant, and spray. See the Estimated Machinery Costs table.

Herbicide Tolerant Soybeans Following Corn

	50 bu. per acre		56 bu. per acre		62 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
Preharvest Machinery ^{1/}	\$21.20	\$18.80	\$21.20	\$18.80	\$21.20	\$18.80	\$ _____
Seed, Chemical, etc.	Units		Units		Units		
Seed @ \$50.80 per 140 k.	140	\$50.80	140	\$50.80	140	\$50.80	\$ _____
Phosphate @ \$0.42 per lb.	40	16.80	45	18.90	50	21.00	_____
Potash @ \$0.31 per lb.	75	23.25	84	26.04	93	28.83	_____
Lime (yearly cost)		5.71		5.71		5.71	_____
Herbicide ^{2/}		55.57		55.57		55.57	_____
Crop insurance		7.80		8.80		9.80	_____
Miscellaneous		9.00		10.00		11.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		7.51		7.78		8.06	_____
Total		\$176.44		\$183.61		\$190.77	\$ _____
Harvest Machinery							
Combine	\$8.40	\$4.10	\$8.40	\$4.10	\$8.40	\$4.10	\$ _____
Grain cart	6.30	3.00	6.30	3.00	6.30	3.00	_____
Haul	2.18	1.89	2.44	2.11	2.71	2.34	_____
Handle (auger)	0.88	0.97	0.99	1.08	1.09	1.20	_____
Total	\$17.76	\$9.95	\$18.13	\$10.30	\$18.50	\$10.64	\$ _____
Labor							
2.20 hours @ \$14.25	\$31.35		\$31.35		\$31.35		\$ _____
Land							
Cash rent equivalent	\$185.00		\$223.00		\$258.00		\$ _____
Total fixed, variable							
Per acre	\$255.31	\$205.19	\$293.68	\$212.70	\$329.05	\$220.21	Yield:
Per bushel	\$5.11	\$4.10	\$5.24	\$3.80	\$5.31	\$3.55	bu./acre _____
Total cost per acre	\$460.51		\$506.38		\$549.26		\$ _____
Total cost per bushel	\$9.21		\$9.04		\$8.86		\$ _____

^{1/} Chisel plow, tandem disk, field cultivate, plant, and two sprays. See the Estimated Machinery Costs table.

^{2/} Estimates do not include any insecticide or fungicide costs.

Strip Tillage Corn and Soybeans

	<u>Corn Following Soybeans</u>			<u>Herbicide Tolerant Soybeans Following Corn</u>		
	198 bu. per acre		Your Estimate	56 bu. per acre		Your Estimate
	Fixed	Variable		Fixed	Variable	
Preharvest Machinery ^{1/}	\$11.10	\$9.90	\$ _____	\$13.40	\$11.60	\$ _____
Seed, Chemical, etc.	Units			Units		
Seed @ \$3.20 per 1000 k.	30,000	\$95.84	\$ _____			
Seed @ \$50.80 per 140 k.				160	\$58.10	\$ _____
Nitrogen @ \$0.38 per lb.	131	\$49.78	_____			
Phosphate @ \$0.42 per lb.	74	31.08	_____	45	18.90	_____
Potash @ \$0.31 per lb.	59	18.29	_____	84	26.04	_____
Lime (yearly cost)		5.71	_____		5.71	_____
Herbicide ^{2/}		48.43	_____		45.13	_____
Crop insurance		9.50	_____		8.80	_____
Miscellaneous		10.00	_____		10.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		11.14	_____		7.37	_____
Total		\$279.77	\$ _____		\$180.05	\$ _____
Harvest Machinery						
Combine	\$13.10	\$6.70	\$ _____	\$8.40	\$4.10	\$ _____
Grain cart	6.30	3.00	_____	6.30	3.00	_____
Haul	8.64	7.47	_____	2.44	2.11	_____
Dry (LP Gas @ \$1.38/gal.)	9.90	32.79	_____			
Handle (auger)	3.49	3.83	_____	0.99	1.08	_____
Total	\$41.43	\$53.79	\$ _____	\$18.13	\$10.30	\$ _____
Labor						
2.25 hours @ \$14.25	\$32.06		\$ _____			
1.70 hours @ \$14.25				\$24.23		\$ _____
Land						
Cash rent equivalent	\$223.00		\$ _____	\$223.00		\$ _____
Total fixed, variable						
Per acre	\$307.60	\$343.46	Yield: _____	\$278.76	\$201.95	Yield: _____
Per bushel	\$1.55	\$1.73	bu./acre _____	\$4.98	\$3.61	bu./acre _____
Total cost per acre	\$651.06		\$ _____	\$480.71		\$ _____
Total cost per bushel	\$3.29		\$ _____	\$8.58		\$ _____

^{1/} Strip till, plant, and spray for corn. No-till drill, two sprays for soybeans. See the Estimated Machinery Costs table.

^{2/} Estimates do not include any insecticide or fungicide costs.

Non-Herbicide Tolerant Soybeans Following Corn

	<u>Soybeans Following Corn</u>			<u>Drilled Soybeans Following Corn</u>		
	56 bu. per acre		Your Estimate	56 bu. per acre		Your Estimate
	Fixed	Variable		Fixed	Variable	
Preharvest Machinery ^{1/}	\$21.70	\$19.10	\$ _____	\$18.50	\$15.70	\$ _____
Seed, Chemical, etc.	Units			Units		
Seed @ \$36.60 per 140 k.	130	\$34.00	_____	150	\$39.20	\$ _____
Phosphate @ \$0.42 per lb.	45	18.90	_____	45	18.90	_____
Potash @ \$0.31 per lb.	84	26.04	_____	84	26.04	_____
Lime (yearly cost)		5.71	_____		5.71	_____
Herbicide ^{2/}		73.50	_____		45.13	_____
Crop insurance		8.80	_____		8.80	_____
Miscellaneous		10.00	_____		10.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		7.84	_____		6.78	_____
Total		\$184.79	\$ _____		\$160.56	\$ _____
Harvest Machinery						
Combine	\$8.40	\$4.10	\$ _____	\$8.40	\$4.10	\$ _____
Grain cart	6.30	3.00	_____	6.30	3.00	_____
Haul	2.44	2.11	_____	2.44	2.11	_____
Handle (auger)	0.99	1.08	_____	0.99	1.08	_____
Total	\$18.13	\$10.30	\$ _____	\$18.13	\$10.30	\$ _____
Labor						
2.40 hours @ \$14.25	\$34.20		\$ _____			
1.72 hours @ \$14.25				\$24.51		\$ _____
Land						
Cash rent equivalent	\$223.00		\$ _____	\$223.00		\$ _____
Total fixed, variable						
Per acre	\$297.03	\$214.19	Yield: _____	\$284.14	\$186.56	Yield: _____
Per bushel	\$5.30	\$3.82	bu./acre _____	\$5.07	\$3.33	bu./acre _____
Total cost per acre	\$511.22		\$ _____	\$470.70		\$ _____
Total cost per bushel	\$9.13		\$ _____	\$8.41		\$ _____

^{1/}Chisel plow, tandem disk, field cultivate, plant, cultivate, and spray.

Tandem disk, field cultivate, drill, and spray for drilled soybeans. See the Estimated Machinery Costs table.

^{2/}Estimates do not include any insecticide or fungicide costs.

Low-till Corn and Soybeans

	<u>Corn Following Soybeans</u>			<u>Herbicide Tolerant Drilled Soybeans Following Corn</u>		
	198 bu. per acre		Your Estimate	56 bu. per acre		Your Estimate
	Fixed	Variable		Fixed	Variable	
Preharvest Machinery ^{1/}	\$15.10	\$13.90	\$ _____	\$13.50	\$11.40	\$ _____
Seed, Chemical, etc.	Units			Units		
Seed @ \$3.20 per 1000 k.	30,000	\$95.84	\$ _____			
Seed @ \$50.80 per 140 k.				160	\$58.10	\$ _____
Nitrogen @ \$0.38 per lb.	131	49.78	_____			
Phosphate @ \$0.42 per lb.	74	31.08	_____	45	18.90	_____
Potash @ \$0.31 per lb.	59	18.29	_____	84	26.04	_____
Lime (yearly cost)		5.71	_____		5.71	_____
Herbicide ^{2/}		48.43	_____		45.13	_____
Crop insurance		9.50	_____		8.80	_____
Miscellaneous		10.00	_____		10.00	_____
Interest on preharvest variable costs (8 months @ 6.0%)		11.30	_____		7.36	_____
Total		\$279.93	\$ _____		\$180.05	\$ _____
Harvest Machinery						
Combine	\$13.10	\$6.70	\$ _____	\$8.40	\$4.10	\$ _____
Grain cart	6.30	3.00	_____	6.30	3.00	_____
Haul	8.64	7.47	_____	2.44	2.11	_____
Dry (LP Gas @ \$1.38/gal.)	9.90	32.79	_____			
Handle (auger)	3.49	3.83	_____	0.99	1.08	_____
Total	\$41.43	\$53.79	\$ _____	\$18.13	\$10.30	\$ _____
Labor						
2.25 hours @ \$14.25	\$32.06		\$ _____			
1.70 hours @ \$14.25				\$24.23		\$ _____
Land						
Cash rent equivalent	\$223.00		\$ _____	\$223.00		\$ _____
Total fixed, variable						
Per acre	\$311.60	\$347.62	Yield: _____	\$278.86	\$201.74	Yield: _____
Per bushel	\$1.57	\$1.76	bu./acre _____	\$4.98	\$3.60	bu./acre _____
Total cost per acre	\$659.22		\$ _____	\$480.60		\$ _____
Total cost per bushel	\$3.33		\$ _____	\$8.58		\$ _____

^{1/} Apply N, cultivate, plant, and spray for corn. Disk, drill, and spray for soybeans. See the Estimated Machinery Costs table.

^{2/} Estimates do not include any insecticide or fungicide costs.

Oats and Hay Production - Seeding Year Costs

Establishment Costs	Alfalfa-Grass Seeded with Oat Companion Crop ^{1/}		Alfalfa Seeded with Herbicide ^{2/}		Your Estimate
	Fixed	Variable	Fixed	Variable	
Preharvest Machinery					
Spray herbicide			\$2.20	\$2.00	\$ _____
Tandem disk (2 times)	\$9.20	\$6.80	9.20	6.80	_____
Spread fertilizer	2.00	1.60	2.00	1.60	_____
Harrow	2.10	1.50	2.10	1.50	_____
Seed (drill)	4.50	4.00	4.50	4.00	_____
Total preharvest machinery	\$17.80	\$13.90	\$20.00	\$15.90	\$ _____
Seed ^{3/}					
Oats	2 bu.	\$18.50			\$ _____
Alfalfa	8 lb.	30.48	15 lb.	\$57.15	_____
Bromegrass	6 lb.	18.66			_____
Orchardgrass	3 lb.	9.48			_____
Total seed cost		\$77.12		\$57.15	\$ _____
Herbicide				\$18.20	\$ _____
Lime (total cost for hay lifetime)		\$20.00		20.00	_____
Labor @ \$14.25	1 hr.	\$14.25	1 hr.	\$14.25	\$ _____
Total establishment costs		\$32.05		\$111.02	\$ _____
Annual Costs	Fixed	Variable	Fixed	Variable	
One-Third of Established Costs (for establishment year)	\$10.68	\$37.01	\$11.42	\$37.08	\$ _____
Fertilizer					
Nitrogen	60 lb.	\$22.53			\$ _____
Phosphorus	45 lb.	18.69	35 lb.	\$14.54	_____
Potash	130 lb.	40.26	125 lb.	38.72	_____
Total fertilizer		\$81.48		\$53.25	\$ _____
Insurance, oats		\$2.50			\$ _____
Labor @ \$14.25	4 hr.	\$57.00	3 hr.	\$42.75	\$ _____
Land Cash rent equivalent	\$118.00		\$118.00		\$ _____
Harvest Machinery					
Oats: combine and haul grain rake, bale, and haul straw	\$10.99	\$6.12			\$ _____
Alfalfa: mower-conditioner, rake, bale, and haul hay	12.28	9.28			_____
	18.67	14.37	\$38.27	\$30.17	_____
Total harvest cost	\$41.94	\$29.76	\$38.27	\$30.17	\$ _____
Total fixed and variable costs	\$227.62	\$150.75	\$210.43	\$120.50	\$ _____
Total cost per acre		\$378.37		\$330.94	\$ _____

^{1/} Assumes 80 bushels oat yield, one ton straw yield, and one ton per acre alfalfa yield from one cutting.

^{2/} Assumes two and a half tons per acre from two alfalfa cuttings with herbicide-assisted seeding.

^{3/} Omit oats from August seedings. Higher priced seed varieties or different seed mixtures could vary these costs by 1.2 to 2.0 times.

Annual Production Costs for Established Alfalfa or Alfalfa-Grass Hay

	Hay Production Level				Your Estimate
	4 tons per acre ^{1/}		6 tons per acre		
	Fixed	Variable	Fixed	Variable	
One-third of establishment costs					
Machinery, seed, lime, labor and herbicide ^{2/}	\$10.68	\$37.01	\$11.42	\$37.08	\$ _____
Annual fertilizer ^{3/}					
0-13-50 lbs/ton removed plus spreading and insurance	\$2.00	\$87.05	\$4.00	\$131.37	\$ _____
Harvesting Costs: Large Round Bales ^{4/}					
Mower-conditioner, rake, baling, and hauling	\$57.87	\$45.97	\$78.40	\$63.20	\$ _____
Labor costs: 1.33 hr./cutting @ \$14.25 per hour	\$57.00		\$76.00		\$ _____
Land					
Cash rent equivalent	\$118.00		\$157.00		\$ _____
Total fixed, variable cost using large round bales per acre	\$245.55	\$170.02	\$326.82	\$231.65	\$ _____
Fixed, variable cost per ton	\$61.39	\$42.50	\$54.47	\$38.61	\$ _____
Total cost per acre	\$415.57		\$558.47		\$ _____
Total cost per ton	\$103.89		\$93.08		\$ _____
Harvesting Costs: Small Square Bales ^{4/}					
Mower-conditioner, rake, baling, haul, and stack	\$55.41	\$43.81	\$75.26	\$60.46	\$ _____
Labor costs: 2 hr./cutting @ \$14.25 per hour	\$85.50		\$114.00		\$ _____
Land					
Cash rent equivalent	\$118.00		\$157.00		\$ _____
Total fixed, variable cost using small square bales per acre	\$271.59	\$167.86	\$361.68	\$228.91	\$ _____
Fixed, variable cost per ton	\$67.90	\$41.97	\$60.28	\$38.15	\$ _____
Total cost per acre	\$439.45		\$590.59		\$ _____
Total cost per ton	\$109.86		\$98.43		\$ _____

^{1/} For harvest as silage, use machine cost estimates from the Estimated Machinery Costs table.

^{2/} Assumes alfalfa-grass seeded with oat companion crop. If alfalfa seeded with preplant herbicide, then use other costs (see previous page).

^{3/} For 6-ton yield goal, a split application of fertilizer is assumed.

^{4/} Harvest cost estimates assume 3 cuttings for 4 tons and 4 cuttings for 6 tons.

Maintaining Grass Pastures - Annual Cost per Acre

	<u>Improved Grass</u> ^{2/}		<u>Improved Grass-Legume</u> ^{3/}		Your Estimate
	Fixed	Variable	Fixed	Variable	
Machinery Costs					
Spreading fertilizer	\$2.00	\$1.60	\$2.00	\$1.60	\$ _____
Spraying herbicide	2.20	2.00			_____
Clipping weeds	6.60	4.20	6.60	4.20	_____
Total machinery cost	\$10.80	\$7.80	\$8.60	\$5.80	\$ _____
Fertilizer and Herbicide ^{1/}					
Nitrogen @ \$0.38 per lb.	80 lb.	\$30.40			\$ _____
Phosphate @ \$0.42 per lb.	30 lb.	12.60	30 lb.	\$12.60	_____
Potash @ \$0.31 per lb.			40 lb.	12.40	_____
Herbicide		15.37			_____
Total fertilizer and herbicide		\$58.37		\$25.00	\$ _____
Labor					
Growing practices .5 hours @ \$14.25	\$7.13		\$7.13		\$ _____
Fence maintenance 1 hours @ \$14.25	14.25		14.25		_____
Total labor	\$21.38		\$21.38		\$ _____
Land					
Cash rent equivalent	\$50.00		\$75.00		\$ _____
Total annual cost	\$82.18	\$66.17	\$104.98	\$30.80	\$ _____
Total annual cost per acre	\$148.35		\$135.78		\$ _____

^{1/} These are average rates and may vary with soil test and the level of management on a particular field. Different herbicide alternatives could vary this cost.

^{2/} Improved grass pastures assume a dominance of cool season grasses such as smooth bromegrass, orchardgrass, tall fescue, or reed canarygrass.

^{3/} Improved grass-legume pasture assumed one-third of the forage is made up of red clover, birdsfoot trefoil, or alfalfa.

Estimated Machinery Costs

The following cost estimates are for on-farm use, excluding labor. Depreciation is based on current replacement cost; interest is based on average market rates. Fixed costs will be greater for newer machinery. If annual machine use is greater than that assumed, fixed costs per acre will be lower, and vice versa. Hauling costs are based on a round trip of one mile. Remember these are estimates and they should not take the place of accurate record-keeping. **Diesel fuel is estimated to cost \$2.48 per gallon, delivered to the farm in bulk.**

Operation	Hours of Use Assumed per Year	Fixed Cost per Acre (depreciation, interest, insurance, housing)	Variable Cost per Acre (fuel, oil, repairs)
Subsoiling (V-ripper)	120	\$6.30	\$7.50
Moldboard plow	120	9.10	9.50
Chisel plow	120	3.60	3.90
Chop stalks	120	4.90	4.80
Tandem disk	120	4.60	3.40
Offset disk	120	3.90	3.20
Peg tooth harrow	60	2.10	1.50
Sprayer/disk	120	3.70	2.90
Field cultivator	120	2.70	2.70
Disk/Field cultivator	120	2.70	2.60
Strip tiller	120	3.00	3.10
Bulk fertilizer spreader	60	2.00	1.60
NH3 applicator	120	4.30	4.40
Chisel plow, NH3 applic.	120	6.10	6.80
Grain drill	100	4.50	4.00
Broadcast seeder	100	2.90	1.70
Planter	100	5.90	4.80
No-till planter	100	7.50	6.30
No-till drill	100	9.00	7.60
Rotary hoe	60	1.90	1.10
Cultivator	120	2.70	2.30
Sprayer	150	2.20	2.00
Combine corn	180	13.10	6.70
Combine soybeans	120	8.40	4.10
Combine small grain	120	7.50	3.10
Haul grain (on farm)	600	0.044 /bu.	0.038 /bu.
Grain cart	200	6.30	3.00
Store grain (auger)		0.0176 /bu.	0.0193 /bu.
Silage harvester	200	49.60	30.90
Haul silage	140	1.34 /ton	1.26 /ton
Store silage (unloader)		0.42 /ton	0.13 /ton
Rotary mower	120	6.60	4.20
Mower-conditioner	120	5.50	4.30
Rake	120	3.10	2.00
Small square baler	120	7.10 /cutting	4.20 /cutting
Round baler	120	8.20	5.20
Large square baler	120	8.70	6.20
Windrower	200	3.00	2.10
Forage chopper	200	18.00	13.50
Haul small square bales	120	2.08 /ton	3.08 /ton
Haul large round bales	120	1.87 /ton	2.87 /ton

Estimated Crop Production Costs in Iowa, 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^{1/}
Corn Following Corn										
Machinery	\$124.25	\$152.73	\$147.37	\$147.37	\$155.29	\$144.99	\$129.92	\$119.83	\$132.80	\$134.38
Seed, chemicals, etc.	290.78	341.92	376.81	372.43	340.27	357.80	330.55	287.19	279.81	313.70
Labor	31.35	33.06	33.35	34.91	37.05	37.05	37.05	36.40	39.20	39.90
Land	195.00	215.00	258.00	276.00	287.00	273.00	266.00	230.00	219.00	223.00
Total cost per acre	641.37	742.70	815.53	830.70	819.61	812.83	763.52	673.41	670.80	710.98
Assumed yield	165 bu.	165 bu.	165 bu.	165 bu.	165 bu.	165 bu.	165 bu.	165 bu.	165 bu.	182 bu.
Total cost per bushel	\$3.89	\$4.50	\$4.94	\$5.03	\$4.97	\$4.93	\$4.63	\$4.08	\$4.07	\$3.91
Corn Following Soybeans										
Machinery	\$122.42	\$151.54	\$144.22	\$144.22	\$152.28	\$142.18	\$126.74	\$116.56	\$130.47	\$132.22
Seed, chemicals, etc.	266.48	300.13	329.14	324.61	298.80	311.84	292.47	251.48	241.86	279.96
Labor	28.60	30.16	30.42	31.85	33.80	33.80	33.80	33.15	35.70	36.34
Land	195.00	215.00	258.00	276.00	287.00	273.00	266.00	230.00	219.00	223.00
Total cost per acre	612.50	696.83	761.78	776.68	771.88	760.81	719.01	631.18	627.03	671.51
Assumed yield	180 bu.	180 bu.	180 bu.	180 bu.	180 bu.	180 bu.	180 bu.	180 bu.	180 bu.	198 bu.
Total cost per bushel	\$3.40	\$3.87	\$4.23	\$4.31	\$4.29	\$4.23	\$3.99	\$3.51	\$3.48	\$3.39
Soybeans Following Corn ^{2/}										
Machinery	\$57.70	\$72.70	\$80.70	\$80.70	\$84.70	\$79.17	\$75.43	\$67.40	\$68.67	\$68.43
Seed, chemicals, etc.	154.00	156.52	180.89	163.44	155.65	166.38	162.63	157.11	154.41	183.61
Labor	26.95	28.42	26.33	27.56	29.25	29.25	29.25	28.60	30.80	31.35
Land	195.00	215.00	258.00	276.00	287.00	273.00	266.00	230.00	219.00	223.00
Total cost per acre	433.65	472.64	545.91	547.71	556.60	547.80	533.30	483.11	472.89	506.38
Assumed yield	50 bu.	50 bu.	50 bu.	50 bu.	50 bu.	50 bu.	50 bu.	50 bu.	50 bu.	56 bu.
Total cost per bushel	\$8.67	\$9.45	\$10.92	\$10.95	\$11.13	\$10.96	\$10.67	\$9.66	\$9.46	\$9.04
Alfalfa Hay, annual production, 6 ton per acre, large round bales										
One-third of est. costs	\$54.28	\$52.75	\$52.48	\$54.25	\$58.17	\$60.62	\$57.93	\$60.03	\$51.43	\$48.50
Annual fertilizer	170.24	199.82	227.92	200.94	164.14	166.88	148.21	109.05	121.48	135.37
Harvest machinery	107.00	159.60	174.50	174.50	179.60	167.60	159.20	140.80	144.40	141.60
Labor	58.67	61.87	62.40	65.33	69.33	69.33	69.33	69.33	74.67	76.00
Land	113.00	124.00	150.00	161.00	167.00	167.00	170.00	165.00	157.00	157.00
Total cost per acre	503.19	598.04	667.30	656.02	638.24	631.43	604.67	544.22	548.97	558.47
Assumed yield	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton
Total cost per ton	\$83.86	\$99.67	\$111.22	\$109.34	\$106.37	\$105.24	\$100.78	\$90.70	\$91.49	\$93.08

^{1/} Starting in 2019, reference yields for corn and soybean budgets reflect 30-year trend yields.

^{2/} Soybean estimates are for herbicide tolerant varieties.

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