

# Estimated Costs of Crop Production in Iowa – 2002

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 Economics, Agricultural and Biosystems Engineering, and Agronomy Departments at Iowa State University and a survey of selected agricultural cooperatives and other input suppliers around the state.

These costs estimates are representative of average costs for medium and large farms in central Iowa and elsewhere in the state where yields and cultural practices are similar. Smaller farms may have 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 of inputs can change production costs in both the short and long run. The attached 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, since 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 \$8.00 per hour. The hours assumed per crop are presented in the budgets. The hours per crop acre includes 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.

Corn yields reflect rotation benefits. Fertilizer rates have been adjusted to reflect current data on removal rates. Crop insurance costs reflect the mix of multiple peril, revenue, and hail insurance, and also noninsured acres.

Machinery costs reflect both new and used equipment. The machine operations assumed are based on the 1998 Crop Production Practices Survey conducted by the Iowa Agricultural Statistics Service. Further information on this survey can be obtained by contacting the authors.

Estimates represent typical costs and are only intended to be guidelines. Actual costs will vary considerably. This is the reason for the column for “Your Estimates.” Variable input prices can change significantly over time.

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 as well. Additional pasture establishment budgets are published in Iowa State University Extension publication AG-96, *Estimated Costs of Pasture and Hay Production*.

Two no-till budgets, one for corn and one for soybeans, are included due to the increasing demand for this information. The major differences between the no-till and conventional budgets are the preharvest machinery, labor, herbicide, and seeding costs. Budgets for genetically modified (GM) soybeans are also included. One budget is based on conventional tillage practices and one on no-till, drilled soybeans. Cost differences occur similarly to those stated above for the two no-till budgets.

The Estimated Machinery Costs table can be used to budget other tillage and harvesting systems.

## Corn following Corn

	100 bu. per acre		120 bu. per acre		145 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
<b>Preharvest Machinery 1/</b>	\$18.66	\$7.53	\$18.66	\$7.53	\$18.66	\$7.53	\$ _____
<b>Seed, Chemical, etc.</b>	<b>Units</b>		<b>Units</b>		<b>Units</b>		
Seed @ \$1.00 per 1000 k.	22,000	\$22.00	26,000	\$26.00	30,000	\$30.00	\$ _____
Nitrogen @\$0.21 per lb.	120	25.20	140	29.40	170	35.70	_____
Phosphate @\$0.25 per lb.	40	10.00	45	11.25	55	13.75	_____
Potash @\$0.13 per lb.	30	3.90	35	4.55	45	5.85	_____
Lime (yearly cost)		6.00		6.00		6.00	_____
Herbicide		31.00		31.00		31.00	_____
Insecticide		14.00		14.00		14.00	_____
Crop Insurance		6.00		6.00		6.00	_____
Miscellaneous		6.00		7.00		8.00	_____
Interest on preharvest variable costs (8 months @ 7.5%)		6.58		7.14		7.89	_____
<b>Total</b>		\$130.68		\$142.34		\$158.19	\$ _____
<b>Harvest Machinery</b>							
Combine	\$12.47	\$8.36	\$12.47	\$8.36	\$12.47	\$8.36	\$ _____
Haul	2.00	1.00	2.40	1.20	2.90	1.45	_____
Dry (LP Gas @ \$0.85/gal.)	4.00	14.17	4.80	17.00	5.80	20.54	_____
Handle	1.20	0.50	1.55	0.65	1.85	0.80	_____
<b>Total</b>	\$19.67	\$24.03	\$21.22	\$27.21	\$23.02	\$31.15	\$ _____
<b>Labor</b>							
2.85 hours @ \$8	\$22.80		\$22.80		\$22.80		\$ _____
<b>Land</b>							
Cash rent equivalent	\$105.00		\$125.00		\$145.00		\$ _____
<b>Total fixed, variable</b>							
Per acre	\$166.13	\$162.24	\$187.68	\$177.08	\$209.48	\$196.87	Yield:
Per bushel	\$1.66	\$1.62	\$1.56	\$1.48	\$1.44	\$1.36	bu./acre
<b>Total cost per acre</b>	\$328.37		\$364.76		\$406.35		\$ _____
<b>Total cost per bushel</b>	\$3.28		\$3.04		\$2.80		\$ _____

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

## Corn following Soybeans

	115 bu. per acre		135 bu. per acre		160 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
<b>Preharvest Machinery 1/</b>	\$15.43	\$6.00	\$15.43	\$6.00	\$15.43	\$6.00	\$ _____
<b>Seed, Chemical, etc.</b>	<b>Units</b>		<b>Units</b>		<b>Units</b>		
Seed @ \$1.00 per 1000 k.	22,000	\$22.00	26,000	\$26.00	30,000	\$30.00	\$ _____
Nitrogen @\$0.21 per lb.	100	21.00	120	25.20	140	29.40	_____
Phosphate @\$0.25 per lb.	45	11.25	50	12.50	60	15.00	_____
Potash @\$0.13 per lb.	35	4.55	40	5.20	50	6.50	_____
Lime (yearly cost)		6.00		6.00		6.00	_____
Herbicide		31.00		31.00		31.00	_____
Crop Insurance		6.00		6.00		6.00	_____
Miscellaneous		6.00		7.00		8.00	_____
Interest on preharvest variable costs (8 months @ 7.5%)		5.69		6.25		6.90	_____
<b>Total</b>		\$113.49		\$125.15		\$138.80	\$ _____
<b>Harvest Machinery</b>							
Combine	\$12.47	\$8.36	\$12.47	\$8.36	\$12.47	\$8.36	\$ _____
Haul	2.30	1.15	2.70	1.35	3.20	1.60	_____
Dry (LP Gas @ \$0.85/gal.)	4.60	16.29	5.40	19.13	6.40	22.67	_____
Handle	1.25	0.55	1.70	0.75	1.95	0.85	_____
<b>Total</b>	\$20.62	\$26.35	\$22.27	\$29.59	\$24.02	\$33.48	\$ _____
<b>Labor</b>							
2.6 hours @ \$8	\$20.80		\$20.80		\$20.80		\$ _____
<b>Land</b>							
Cash rent equivalent	\$105.00		\$125.00		\$145.00		\$ _____
<b>Total fixed, variable</b>							
Per acre	\$161.85	\$145.84	\$183.50	\$160.73	\$205.25	\$178.27	Yield:
Per bushel	\$1.41	\$1.27	\$1.36	\$1.19	\$1.28	\$1.11	bu./acre
<b>Total cost per acre</b>	\$307.69		\$344.23		\$383.52		\$ _____
<b>Total cost per bushel</b>	\$2.68		\$2.55		\$2.40		\$ _____

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

## Corn Silage following Corn

	13 tons per acre		16 tons per acre		21 tons per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
<b>Preharvest Machinery 1/</b>	\$18.66	\$7.53	\$18.66	\$7.53	\$18.66	\$7.53	\$ _____
<b>Seed, Chemical, etc.</b>	<b>Units</b>		<b>Units</b>		<b>Units</b>		
Seed @ \$1.00 per 1000 k.	23,000	\$23.00	27,000	\$27.00	31,000	\$31.00	\$ _____
Nitrogen @\$0.21 per lb.	120	25.20	140	29.40	170	35.70	_____
Phosphate @\$0.25 per lb.	50	12.50	65	16.25	75	18.75	_____
Potash @\$0.13 per lb.	110	14.30	140	18.20	165	21.45	_____
Lime (yearly cost)		8.00		8.00		8.00	_____
Herbicide		31.00		31.00		31.00	_____
Insecticide		14.00		14.00		14.00	_____
Crop Insurance		6.00		6.00		6.00	_____
Miscellaneous		6.00		7.00		8.00	_____
Interest on preharvest variable costs (8 months @ 7.5%)		7.38		8.22		9.07	_____
<b>Total</b>		\$147.38		\$165.07		\$182.97	\$ _____
<b>Harvest Machinery</b>							
Silage Harvester	\$18.75	\$12.05	\$18.75	\$12.05	\$18.75	\$12.05	\$ _____
Haul	8.84	5.20	10.88	6.40	14.28	8.40	_____
Blower	6.63	2.21	8.16	2.72	10.71	3.57	_____
<b>Total</b>	\$34.22	\$19.46	\$37.79	\$21.17	\$43.74	\$24.02	\$ _____
<b>Labor</b>							
5.0 hours @ \$8	\$40.00		\$40.00		\$40.00		\$ _____
<b>Land</b>							
Cash rent equivalent	\$105.00		\$125.00		\$145.00		\$ _____
<b>Total fixed, variable</b>							
Per acre	\$197.88	\$174.37	\$221.45	\$193.77	\$247.40	\$214.52	Yield:
Per ton	\$15.22	\$13.41	\$13.84	\$12.11	\$11.78	\$10.22	tons/acre
<b>Total cost per acre</b>	\$372.25		\$415.22		\$461.92		\$ _____
<b>Total cost per ton</b>	\$28.63		\$25.95		\$22.00		\$ _____

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

## Non-Genetically Modified Soybeans following Corn

	40 bu. per acre		45 bu. per acre		50 bu. per acre		Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable	
<b>Preharvest Machinery 1/</b>	\$15.97	\$6.19	\$15.97	\$6.19	\$15.97	\$6.19	\$ _____
<b>Seed, Chemical, etc.</b>							
Seed @ \$15.00 per 50 lb.	1.2	\$18.00	1.2	\$18.00	1.2	\$18.00	\$ _____
Phosphate @\$0.25 per lb.	30	7.50	35	8.75	40	10.00	_____
Potash @\$0.13 per lb.	60	7.80	70	9.10	75	9.75	_____
Lime (yearly cost)		6.00		6.00		6.00	_____
Herbicide		31.00		31.00		31.00	_____
Crop Insurance		3.15		3.15		3.15	_____
Miscellaneous		6.00		7.00		8.00	_____
Interest on preharvest variable costs (8 months @ 7.5%)		4.28		4.46		4.60	_____
<b>Total</b>		\$83.73		\$87.46		\$90.50	\$ _____
<b>Harvest Machinery</b>							
Combine	\$11.65	\$5.43	\$11.65	\$5.43	\$11.65	\$5.43	\$ _____
Haul	0.80	0.40	0.90	0.45	1.00	0.50	_____
Handle	0.45	0.20	0.55	0.25	0.65	0.30	_____
<b>Total</b>	\$12.90	\$6.03	\$13.10	\$6.13	\$13.30	\$6.23	\$ _____
<b>Labor</b>							
2.45 hours @ \$8	\$19.60		\$19.60		\$19.60		\$ _____
<b>Land</b>							
Cash rent equivalent	\$105.00		\$125.00		\$145.00		\$ _____
<b>Total fixed, variable</b>							
Per acre	\$153.47	\$95.95	\$173.67	\$99.78	\$193.87	\$102.92	Yield:
Per bushel	\$3.84	\$2.40	\$3.86	\$2.22	\$3.88	\$2.06	bu./acre
<b>Total cost per acre</b>	\$249.42		\$273.45		\$296.79		\$ _____
<b>Total cost per bushel</b>	\$6.24		\$6.08		\$5.94		\$ _____

1/Chisel plow, tandem disk, field cultivate, plant, cultivate, and spray. See the Estimated Machinery Costs table.

## Genetically Modified Soybeans

	<u>Soybeans Following Corn, Till</u>			<u>Drilled Soybeans Following Corn, No-Till</u>		
	45 bu. per acre		Your Estimate	45 bu. per acre		Your Estimate
	Fixed	Variable		Fixed	Variable	
<b>Preharvest Machinery 1/</b>	\$14.13	\$5.26	\$ _____	\$10.38	\$3.47	\$ _____
<b>Seed, Chemical, etc.</b>						
Seed @ \$21 per 50 lb.	1.2	\$25.20	\$ _____	1.4	\$29.40	\$ _____
Phosphate @\$0.25 per lb.	35	8.75	_____	35	8.75	_____
Potash @\$0.13 per lb.	70	9.10	_____	70	9.10	_____
Lime (yearly cost)		6.00	_____		6.00	_____
Herbicide		23.00	_____		26.00	_____
Crop Insurance		3.15	_____		3.15	_____
Miscellaneous		7.00	_____		7.00	_____
Interest on preharvest variable costs (8 months @ 7.5%)		4.37	_____		4.64	_____
<b>Total</b>		\$86.57	\$ _____		\$94.04	\$ _____
<b>Harvest Machinery</b>						
Combine	\$11.65	\$5.43	\$ _____	\$11.65	\$5.43	\$ _____
Haul	0.90	0.45	_____	0.90	0.45	_____
Handle	0.55	0.25	_____	0.55	0.25	_____
<b>Total</b>	\$13.10	\$6.13	\$ _____	\$13.10	\$6.13	\$ _____
<b>Labor</b>						
2.25 hours @ \$8	\$18.00		\$ _____			
1.75 hours @ \$8				\$14.00		\$ _____
<b>Land</b>						
Cash rent equivalent	\$125.00		\$ _____	\$125.00		\$ _____
<b>Total fixed, variable</b>						
Per acre	\$170.23	\$97.96	Yield:	\$162.48	\$103.64	Yield:
Per bushel	\$3.78	\$2.18	bu./acre	\$3.61	\$2.30	bu./acre
<b>Total cost per acre</b>		\$268.19	\$ _____		\$266.12	\$ _____
<b>Total cost per bushel</b>		\$5.96	\$ _____		\$5.91	\$ _____

1/Chisel plow, tandem disk, field cultivate, plant, and spray for traditionally tilled soybeans.

Drill and spray for no-till, drilled soybeans. See the Estimated Machinery Costs table.

## No-Till Corn and Soybeans

	<u>Corn Following Soybeans</u>			<u>Drilled Soybeans Following Corn</u>		
	135 bu. per acre		Your Estimate	45 bu. per acre		Your Estimate
	Fixed	Variable		Fixed	Variable	
<b>Preharvest Machinery 1/</b>	\$11.26	\$4.55	\$ _____	\$10.38	\$3.47	\$ _____
<b>Seed, Chemical, etc.</b>						
Seed @ \$1.00 per 1000 k.	26,000	\$26.00	\$ _____			
Seed @ \$15.00 per 50 lb.				1.4	\$21.00	\$ _____
Nitrogen @ \$0.21 per lb.	120	25.20	_____			_____
Phosphate @ \$0.25 per lb.	50	12.50	_____	35	8.75	_____
Potash @ \$0.13 per lb.	40	5.20	_____	70	9.10	_____
Lime (yearly cost)		6.00	_____		6.00	_____
Herbicide		32.00	_____		35.00	_____
Crop Insurance		6.00	_____		3.15	_____
Miscellaneous		7.00	_____		7.00	_____
Interest on preharvest variable costs (8 months @ 7.5%)		6.22	_____		4.67	_____
<b>Total</b>		\$126.12	\$ _____		\$94.67	\$ _____
<b>Harvest Machinery</b>						
Combine	\$12.47	\$8.36	\$ _____	\$11.65	\$5.43	\$ _____
Haul	2.70	1.35	_____	0.90	0.45	_____
Dry (LP Gas @ \$0.85/gal.)	5.40	19.13	_____			_____
Handle	1.70	0.75	_____	0.55	0.25	_____
<b>Total</b>	\$22.27	\$29.59	\$ _____	\$13.10	\$6.13	\$ _____
<b>Labor</b>						
2.3 hours @ \$8	\$18.40		\$ _____			
1.75 hours @ \$8				\$14.00		\$ _____
<b>Land</b>						
Cash rent equivalent	\$125.00		\$ _____	\$125.00		\$ _____
<b>Total fixed, variable</b>						
Per acre	\$176.93	\$160.26	Yield:	\$162.48	\$104.27	Yield:
Per bushel	\$1.31	\$1.19	bu./acre	\$3.61	\$2.32	bu./acre
<b>Total cost per acre</b>	\$337.19		\$ _____	\$266.75		\$ _____
<b>Total cost per bushel</b>	\$2.50		\$ _____	\$5.93		\$ _____

1/ Apply N, plant, cultivate, and spray for corn. Drill and spray for soybeans. See the Estimated Machinery Costs table.

## Oats and Hay production--Seeding year costs.

	Alfalfa-Grass Seeded with Oat Companion Crop *		Alfalfa Seeded with Herbicide **		Your Estimate	Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable
<b>Preharvest Machinery</b>						
Spray herbicide			\$1.10	\$0.53	_____	_____
Tandem disk (2 times)	\$5.00	\$2.14	5.00	2.14	_____	_____
Spread fertilizer	2.00	0.66	2.00	0.66	_____	_____
Harrow	1.00	0.40	1.00	0.40	_____	_____
Seed (drill)	6.22	1.54	6.22	1.54	_____	_____
<b>Total Preharvest Machinery</b>	<b>\$14.22</b>	<b>\$4.74</b>	<b>\$15.32</b>	<b>\$5.27</b>	_____	_____
<b>Seed ***</b>						
Oats	2 bu.	\$10.00			_____	_____
Alfalfa	8 lb.	24.00	15 lb.	45.00	_____	_____
Bromegrass	6 lb.	6.00			_____	_____
Orchardgrass	3 lb.	3.75			_____	_____
<b>Total Seed Cost</b>		<b>\$43.75</b>		<b>\$45.00</b>	_____	_____
Herbicide				11.50	_____	_____
Lime (total cost for hay lifetime)		25.00		25.00	_____	_____
Labor @ \$8	1 hr.	\$8.00	1 hr.	\$8.00	_____	_____
<b>Total Establishment Costs</b>	<b>\$22.22</b>	<b>\$73.49</b>	<b>\$23.32</b>	<b>\$86.77</b>	_____	_____
<hr/>						
<b>One-Third of Est. Costs</b> (for establishment year)	<b>\$7.41</b>	<b>\$24.50</b>	<b>\$7.77</b>	<b>\$28.92</b>	_____	_____
<b>Fertilizer</b>						
Nitrogen	60 lb.	\$12.60			_____	_____
Phosphorus	45 lb.	11.25	35 lb.	\$12.50	_____	_____
Potash	130 lb.	16.90	125 lb.	13.00	_____	_____
<b>Total Fertilizer</b>		<b>\$40.75</b>		<b>\$25.50</b>	_____	_____
<b>Labor @ \$8</b>	3 hr.	\$24.00	3 hr.	\$24.00	_____	_____
<b>Land</b> Cash rent equivalent		\$70.00		\$70.00	_____	_____
<b>Harvest Machinery</b>						
Oats: combine		\$12.99	\$5.73		_____	_____
rake, bale, and haul straw		\$10.01	\$7.12		_____	_____
Alfalfa: mower-conditioner, rake, bale, and haul hay		\$10.74	\$7.83	\$23.49	\$17.73	_____
<b>Total Harvest Cost</b>		<b>\$33.74</b>	<b>\$20.68</b>	<b>\$23.49</b>	<b>\$17.73</b>	_____
		<b>Fixed</b>	<b>Variable</b>	<b>Fixed</b>	<b>Variable</b>	
<b>Total Costs</b>		<b>\$135.15</b>	<b>\$85.93</b>	<b>\$125.26</b>	<b>\$72.15</b>	_____

\* Assumes 80 bushels oat yield, one ton straw yield and one ton per acre alfalfa yield from one cutting.

\*\* Assumes two and a half tons per acre from two alfalfa cuttings with a herbicide-assisted seeding.

\*\*\* 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

	Present Hay Production Level				Your Estimate	
	4 tons per acre *		6 tons per acre *		Fixed	Variable
	Fixed	Variable	Fixed	Variable		
One-third of establishment costs Machinery, seed, lime, and herbicide **	\$7.41	\$24.50	\$7.41	\$24.50	_____	_____
Annual fertilizer *** 0-13-50/ton removed plus spreading	\$2.00	\$39.66	\$4.00	\$59.82	_____	_____
<b>Harvesting Costs: Large Round Bales ****</b>						
Mower-conditioner, rake, baling, and hauling	\$36.23	\$27.62	\$50.98	\$39.58	_____	_____
Labor Costs: 1.33 hr./cutting @ \$8 per hour	\$32.00		\$42.67		_____	
Land Cash rent equivalent	\$70.00		\$80.00		_____	
Total Cost Using Large Round Bales	\$147.64	\$91.78	\$185.05	\$123.90	_____	_____
Cost per Ton	\$36.91	\$22.94	\$30.84	\$20.65	_____	_____
Total Cost per Acre	\$239.42		\$308.95		_____	
Total Cost per Ton	\$59.85		\$51.49		_____	
<b>Harvesting Costs: Small Square Bales ****</b>						
Mower-conditioner, rake, baling, and hauling	\$50.58	\$33.81	\$72.50	\$48.86	_____	_____
Labor Costs: 1.8 hr./cutting @ \$8 per hour	\$43.20		\$57.60		_____	
Land Cash rent equivalent	\$70.00		\$80.00		_____	
Total Cost Using Small Square Bales	\$173.19	\$97.97	\$221.51	\$133.18	_____	_____
Cost per Ton	\$43.30	\$24.49	\$36.92	\$22.20	_____	_____
Total Cost per Acre	\$271.15		\$354.68		_____	
Total Cost per Ton	\$67.79		\$59.11		_____	

\* For harvest as silage use machine cost estimates from Table 7.

\*\* Assumes alfalfa-grass seeded with oat companion crop. If alfalfa seeded with preplant herbicide then use other costs (see previous page).

\*\*\* For 6-ton yield goal, a split application of fertilizer is assumed.

\*\*\*\* Harvest cost estimates assume 3 cuttings for 4 tons and 4 cuttings for 6 tons.

<b>Maintaining grass pastures--Annual cost per acre.</b>
--

	Improved Grass **		Improved Grass-Legume ***		Your Estimate	Your Estimate
	Fixed	Variable	Fixed	Variable	Fixed	Variable
<b>Machinery Costs</b>						
Spreading fertilizer	\$2.00	\$0.66	\$2.00	\$0.66	_____	_____
Spraying herbicide	1.10	0.53			_____	_____
Clipping weeds	4.00	1.92	4.00	1.92	_____	_____
Total Machinery Cost	\$7.10	\$3.11	\$6.00	\$2.58	_____	_____
<b>Fertilizer and Herbicide*</b>						
Nitrogen @\$0.21 per lb.	80 lb.	\$16.80			_____	_____
Phosphate @\$0.25 per lb.	30 lb.	7.50	30 lb.	\$7.50	_____	_____
Potash @\$0.13 per lb.			40 lb.	5.20	_____	_____
Herbicide		4.25			_____	_____
Total Fertilizer and Herbicide		\$28.55		\$12.70	_____	_____
<b>Labor</b>						
Growing practices .5 hr. @ \$8		\$4.00		\$4.00	_____	_____
Fence maintenance 1 hr. @ \$8		8.00		8.00	_____	_____
Total Labor		\$12.00		\$12.00	_____	_____
<b>Land Charge</b>						
Cash rent equivalent		\$40.00		\$46.00	_____	_____
<b>Total Annual Cost per Acre</b>	<b>\$59.10</b>	<b>\$31.66</b>	<b>\$64.00</b>	<b>\$15.28</b>	_____	_____

\* 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.

\*\* Improved grass pastures assume a dominance of cool season grasses such as smooth bromegrass, orchardgrass, tall fescue, or reed canarygrass.

\*\*\* 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 \$0.90 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)
Moldboard plow	100	\$7.15	\$4.01
Chisel plow	80	3.23	1.53
Chop stalks	80	4.35	2.25
Tandem disk	100	2.50	1.07
Offset disk	80	4.52	1.86
Peg tooth harrow	40	1.00	0.40
Sprayer/disk	100	2.75	1.19
Field cultivator	40	2.61	0.71
Bulk fertilizer spreader	30	2.00	0.66
NH3 applicator	60	2.69	1.34
Chisel plow, NH3 applic.	80	3.88	2.46
Grain drill	40	6.91	1.54
Broadcast seeder	40	3.11	1.47
Planter	60	4.69	1.42
No-till planter	60	5.63	1.75
No-till drill	60	9.28	2.94
Rotary hoe	50	0.93	0.40
Cultivator	80	1.84	0.93
Sprayer	50	1.10	0.53
Combine corn	170	12.47	8.36
Combine beans	80	11.65	5.43
Combine small grain	60	12.99	5.73
Haul grain (on farm)	150	0.02 /bu.	0.01 /bu.
Corn picker	120	16.15	8.98
Silage harvester	200	18.75	12.05
Haul silage	140	0.68 /ton	0.40 /ton
Mower-sickle	120	4.00	1.92
Mower-conditioner	120	4.32	2.26
Rake	100	2.42	1.45
Square baler (inc. twine)	100	0.17 /bale	0.13 /bale
Round baler (inc. twine)	120	2.41 /bale	2.74 /bale
Stacker	120	3.59	2.83
Windrower	100	3.92	2.00
Haul hay & straw	80	0.79 /ton	0.47 /ton
Forage chopper	200	11.24	7.32
Forage blower	50	\$0.51 /ton	\$0.17 /ton

## Estimated Crop Production Costs in Iowa, 1996-2002

	1996*	1997*	1998**	1999**	2000**	2001**	2002**
<b>Corn following corn</b>							
Machinery	\$67.39	\$66.61	\$64.08	\$66.74	\$68.22	\$79.96	\$74.62
Seed, Chemicals, etc.	133.84	138.34	140.40	137.00	137.05	143.49	142.34
Labor	23.80	23.80	23.80	23.80	22.09	22.80	22.80
Land	110.00	120.00	125.00	125.00	120.00	120.00	125.00
Total Cost Per Acre	335.03	348.75	353.28	352.54	347.36	366.25	364.76
Assumed Yield	120 bu	120 bu	120 bu	120 bu	120 bu	120 bu	120 bu
Total Cost Per Bushel	\$2.79	\$2.91	\$2.94	\$2.94	\$2.89	\$3.05	\$3.04
<b>Corn following Soybeans</b>							
Machinery	\$66.55	\$65.63	\$63.56	\$66.26	\$67.35	\$78.98	\$73.29
Seed, Chemicals, etc.	119.17	123.08	123.73	120.96	120.85	126.21	125.15
Labor	21.00	21.00	21.00	21.00	20.15	20.80	20.80
Land	110.00	120.00	125.00	125.00	120.00	120.00	125.00
Total Cost Per Acre	316.72	329.71	333.28	333.22	328.34	345.99	344.23
Assumed Yield	135 bu	135 bu	135 bu	135 bu	135 bu	135 bu	135 bu
Total Cost Per Bushel	\$2.35	\$2.44	\$2.47	\$2.47	\$2.43	\$2.56	\$2.55
<b>Soybeans following Corn</b>							
Machinery	\$40.85	\$39.78	\$36.90	\$39.25	\$42.36	\$42.84	\$41.39
Seed, Chemicals, etc.	83.95	86.30	91.99	90.39	89.44	88.95	87.46
Labor	18.20	18.20	15.75	15.75	18.99	19.60	19.60
Land	110.00	120.00	125.00	125.00	120.00	120.00	125.00
Total Cost Per Acre	253.00	264.28	269.64	270.39	270.79	271.39	273.45
Assumed Yield	45 bu	45 bu	45 bu	45 bu	45 bu	45 bu	45 bu
Total Cost Per Bushel	\$5.62	\$5.87	\$5.99	\$6.01	\$6.02	\$6.03	\$6.08
<b>Alfalfa Hay, annual production, 6 ton per acre, large round bales</b>							
One-Third of Est. Costs	\$31.76	\$32.68	\$33.04	\$32.62	\$33.33	\$33.63	\$31.90
Annual Fertilizer	66.71	67.04	68.06	68.40	67.86	68.52	63.82
Harvest Machinery	74.92	88.56	80.96	89.50	93.58	93.20	90.56
Labor	37.33	37.33	37.33	37.33	41.33	42.67	42.67
Land	74.00	80.00	85.00	85.00	80.00	80.00	80.00
Total Cost Per Acre	284.73	305.61	304.39	312.85	316.10	318.02	308.95
Assumed Yield	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton	6 ton
Total Cost Per Ton	\$47.45	\$50.94	\$50.73	\$52.14	\$52.68	\$53.00	\$51.49

\* 1996 and 1997 fertilizer prices reflect the use of 55% anhydrous and 45% other nitrogen forms.

\*\* 1998-2002 fertilizer prices reflect the use of 50% anhydrous and 50% other nitrogen forms.

[B]

File: Economics 1-8

Prepared by Mike Duffy, extension economist, and Darnell Smith, extension associate.

### ... and justice for all

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Many materials can be made available in alternative formats for ADA clients. To file a complaint of discrimination, write USDA, Office of Civil

Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Stanley R. Johnson, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.