



ROW CROP R-SHEC TOOL MACHINERY COSTS & PRICES

Updated: May 30, 2024

A) Machinery Cost List

This list of machinery and associated 2023 per acre costs is used in the R-SHEC Tool on the **'Machinery'** tab, specifically for calculating the change in machinery costs due to adoption of one or more soil health practices. These machinery costs include overhead (depreciation, interest, insurance, housing, and repair charges), fuel and lubrication charges, and labor costs for both the tractor and the implement it is pulling. **The machinery lists are grouped into three categories: Tillage and Planting, Fertilizer, and Harvest.** Nearly all machinery costs shown below are from the University of Illinois Farmdoc website. The fertilizer application machinery costs are from the Iowa State Custom Rate Survey as they were not available from the University of Illinois. We chose the University of Illinois as a source for machinery costs because their dataset appeared to be the most comprehensive. Because these costs are from the Midwest, they are most appropriate for use in that region. However, AFT has used these machinery costs for farms outside the Midwest -- using national prices or costs to avoid biasing the results in cases where the farmer's prices may not be representative of typical prices. **Users should evaluate the costs shown for relevancy in their area and make adjustments as needed,** being careful to document all changes.

NOTE: If a user needs to add their own equipment and per acre cost, you can add to this list in the R-SHEC Tool as needed in the clearly identified cells with instructions, but we encourage using published prices as those include depreciation, labor, fuel, interest, storage, insurance, etc. Most farmers will undervalue their per acre machinery costs.

Tillage and Planting Machinery Costs, 2019, 2021 & 2023 ¹						
Item	Source	Tractor HP	2019 Costs (\$/Acre)	2021 Costs (\$/Acre)	2023 Costs (\$/Acre)	
Air seeder, 28 ft.	Univ. Illinois	285	\$20.30	\$21.50	\$39.90	
Air seeder, 36 ft.	Univ. Illinois	285	\$18.00	\$19.30	\$37.90	
Air seeder, 44 ft.	Univ. Illinois	310	\$16.80	\$18.10	\$33.80	
Broadcast seeding, 20 ft.**	Univ. Illinois	85	\$8.90	\$9.10	\$10.60	
Chisel Plow, 12 ft*	Univ. Illinois	140	\$17.10	\$18.50	\$21.55	
Chisel Plow, 15 ft*	Univ. Illinois	155	\$14.50	\$15.69	\$18.28	
Chisel Plow, 21 ft	Univ. Illinois	205	\$16.00	\$15.70	\$21.30	
Chisel Plow, 23 ft	Univ. Illinois	225	\$17.40	\$15.70	\$21.20	
Chisel Plow, 27 ft.	Univ. Illinois	260	\$15.90	\$15.80	\$21.40	
Chisel Plow, 30 ft.	Univ. Illinois	285	\$15.10	\$14.90	\$20.30	
Chisel Plow, 35 ft.	Univ. Illinois	310	\$12.70	\$13.60	\$18.40	
Chisel Plow, 40 ft.	Univ. Illinois	390	\$11.90	\$12.20	\$16.10	
Chisel Plow, 44 ft.	Univ. Illinois	440	\$12.20	\$13.00	\$17.40	
Chisel Plow, 47 ft.	Univ. Illinois	440	\$12.10	\$12.50	\$16.60	
Chisel Plow, 55 ft.	Univ. Illinois	490	\$10.70	\$11.60	\$15.40	
Chisel Plow, 61 ft.	Univ. Illinois	570	\$11.00	\$11.50	\$15.30	
Conventional planter, 12-row	Univ. Illinois	175	\$16.20	\$18.10	\$25.40	
Conventional planter, 16-row	Univ. Illinois	205	\$14.40	\$17.20	\$21.40	
Conventional planter, 24-row	Univ. Illinois	240	\$13.70	\$15.70	\$19.40	
Conventional planter, 32-row	Univ. Illinois	260	\$16.40	\$18.90	\$23.40	
Conventional planter, 36-row	Univ. Illinois	310	\$16.30	\$18.40	\$22.50	
Conventional planter, 6-row	Univ. Illinois	120	\$16.50	\$19.70	\$25.50	
Conventional planter, 8-row	Univ. Illinois	140	\$15.80	\$17.60	\$22.00	
Field cultivator, 29 ft. 6 in.**	Univ. Illinois	240	\$9.50	\$12.50	\$14.56	
Field cultivator, 31 ft. 6 in,	Univ. Illinois	240	\$10.60	\$11.90	\$14.10	
Field cultivator, 35 ft. 6 in.	Univ. Illinois	285	\$9.80	\$12.20	\$15.50	

Field cultivator, 40 ft. 6 in.**	Univ. Illinois	310	\$10.90	\$12.80	\$14.91
Field cultivator, 44 ft. 6 in.	Univ. Illinois	310	\$10.20	\$11.80	\$15.70
Field cultivator, 48 ft. 6 in.	Univ. Illinois	390	\$9.90	\$11.10	\$14.60
Field cultivator, 52 ft. 6 in.	Univ. Illinois	390	\$9.40	\$10.40	\$13.70
Field cultivator, 56 ft. 6 in.	Univ. Illinois	440	\$9.00	\$10.30	\$13.20
Field cultivator, 60 ft. 6 in.	Univ. Illinois	490	\$8.20	\$9.60	\$12.70
Field cultivator, 64 ft. 6 in.	Univ. Illinois	590	\$7.90	\$10.00	\$13.10
Field Sprayer, 90 ft.	Univ. Illinois	95	\$3.90	\$4.60	\$5.80
Grain drill, 13 ft.	Univ. Illinois	110	\$16.60	\$19.30	\$27.10
Grain drill, 25 ft.	Univ. Illinois	140	\$14.50	\$15.40	\$20.20
Grain drill, 30 ft.	Univ. Illinois	175	\$14.40	\$15.40	\$19.90
Grain drill, 35 ft.	Univ. Illinois	225	\$15.50	\$16.20	\$20.70
Moldboard plow, 10 bottom	Univ. Illinois	285	\$39.20	\$40.00	\$52.40
Moldboard plow, 6 bottom	Univ. Illinois	175	\$35.00	\$38.50	\$52.60
Moldboard plow, 7 bottom	Univ. Illinois	205	\$39.80	\$40.30	\$53.00
Moldboard plow, 9 bottom	Univ. Illinois	260	\$40.30	\$41.80	\$54.70
Mulch finisher (disk, chisel, and drag), 21 ft 9" **	Univ. Illinois	225	\$17.60	\$18.90	\$22.01
Mulch finisher (disk, chisel, and drag), 24 ft 9"	Univ. Illinois	240	\$16.60	\$17.90	\$23.70
Mulch finisher (disk, chisel, and drag), 27 ft 9"	Univ. Illinois	260	\$15.80	\$18.70	\$24.70
Mulch finisher (disk, chisel, and drag), 30 ft 9"	Univ. Illinois	285	\$16.50	\$18.20	\$24.10
Mulch finisher (disk, chisel, and drag), 33 ft 9"	Univ. Illinois	285	\$15.50	\$17.10	\$22.50
Mulch finisher (disk, chisel, and drag), 38 ft 3"	Univ. Illinois	310	\$15.40	\$15.40	\$22.00
Mulch finisher (disk, chisel, and drag), 44 ft 3"	Univ. Illinois	390	\$14.20	\$15.70	\$20.60
Mulch finisher (disk, chisel, and drag), 50 ft 3"	Univ. Illinois	490	\$13.40	\$15.20	\$19.80
Mulch finisher (disk, chisel, and drag), 56 ft 3"	Univ. Illinois	590	\$12.60	\$14.50	\$18.80
Mulch tiller (disk, chisel shanks), 11 ft. 3 in.	Univ. Illinois	140	\$20.50	\$22.50	\$31.30
Mulch tiller (disk, chisel shanks), 13 ft. 9 in.	Univ. Illinois	175	\$20.40	\$21.00	\$29.30
Mulch tiller (disk, chisel shanks), 16 ft. 3 in.	Univ. Illinois	205	\$21.40	\$21.60	\$29.00
Mulch tiller (disk, chisel shanks), 18 ft. 9 in.	Univ. Illinois	240	\$24.50	\$22.30	\$30.00
Mulch tiller (disk, chisel shanks), 21 ft 3 in.	Univ. Illinois	260	\$22.90	\$22.70	\$30.30
No-till drill, 10 ft	Univ. Illinois	110	\$33.80	\$35.90	\$47.40
No-till drill, 15 ft	Univ. Illinois	140	\$25.80	\$27.20	\$36.00
No-till drill, 20 ft.	Univ. Illinois	175	\$24.90	\$26.60	\$34.70
No-till planter (30" rows), 12-row	Univ. Illinois	175	\$17.80	\$19.50	\$27.00
No-till planter (30" rows), 16-row	Univ. Illinois	225	\$17.20	\$19.00	\$23.30
No-till planter (30" rows), 24-row	Univ. Illinois	260	\$15.50	\$18.00	\$21.20
No-till planter (30" rows), 8-row	Univ. Illinois	140	\$17.00	\$19.00	\$22.60
Offset disk, 10 ft.	Univ. Illinois	120	\$20.00	\$21.70	\$30.10
Offset disk, 14 ft.	Univ. Illinois	155	\$16.00	\$17.50	\$24.20
Offset disk, 16 ft.	Univ. Illinois	205	\$14.70	\$18.80	\$25.30
Self-propelled sprayer (High-crop ready), 100 ft boom	Univ. Illinois	85	\$5.00	\$5.70	\$6.70
Self-propelled sprayer (High-crop ready), 80 ft boom	Univ. Illinois	85	\$4.40	\$5.20	\$5.70
Self-propelled sprayer (High-crop ready), 90 ft boom	Univ. Illinois	85	\$5.30	\$6.40	\$7.30
Self-propelled sprayer , 120 ft boom	Univ. Illinois	85	\$4.40	\$4.50	\$5.80
Split-row planter (soybean acres only), 12-row split	Univ. Illinois	205	\$14.30	\$17.10	\$21.60
Split-row planter (soybean acres only), 16-row split	Univ. Illinois	225	\$12.50	\$14.90	\$18.70
Strip Till, 12-row	Univ. Illinois	285	\$19.30	\$19.60	\$27.50
Strip Till, 16-row	Univ. Illinois	440	\$16.70	\$17.30	\$25.90
Strip Till, 24-row	Univ. Illinois	640	\$11.30	\$14.20	\$16.54

Tandem disk, 23 ft. 7 in.	Univ. Illinois	175	\$12.70	\$14.20	\$19.30
Tandem disk, 26 ft. 5 in.	Univ. Illinois	205	\$12.50	\$15.00	\$19.70
Tandem disk, 29 ft. 3 in.	Univ. Illinois	225	\$13.40	\$14.30	\$18.80
Tandem disk, 33 ft. 7 in.	Univ. Illinois	240	\$12.60	\$13.70	\$17.80
Tandem disk, 40 ft. 8 in.	Univ. Illinois	285	NA	\$14.40	\$18.90
Tandem disk, 44 ft. 11 in.	Univ. Illinois	310	NA	\$14.80	\$19.50
Vertical tillage, rolling basket, 21 ft 9 in.**	Univ. Illinois	190	NA	\$11.90	\$13.86
Vertical tillage, rolling basket, 25 ft 5 in	Univ. Illinois	260	NA	\$14.00	\$18.90
Vertical tillage, rolling basket, 30 ft 3 in	Univ. Illinois	285	NA	\$13.20	\$17.60
Vertical tillage, rolling basket, 33 ft 10 in	Univ. Illinois	390	NA	\$12.80	\$17.00
Vertical tillage, rolling basket, 43 ft 6 in	Univ. Illinois	440	NA	\$11.80	\$15.90
Vertical tillage, rolling basket, 49 ft 6 in	Univ. Illinois	590	NA	\$12.40	\$16.50
V-Ripper (shanks only), 10 ft. 6 in.**	Univ. Illinois	175	\$17.30	\$22.00	\$25.63
V-Ripper (shanks only), 14 ft. 7 in.**	Univ. Illinois	240	\$20.40	\$21.40	\$24.93
V-Ripper (shanks only), 15 ft**	Univ. Illinois	260	\$24.40	\$25.50	\$29.70
V-Ripper (shanks only), 18 ft. 4 in.**	Univ. Illinois	310	\$22.50	\$23.40	\$27.26
V-Ripper (shanks only), 21 ft. 8 in.**	Univ. Illinois	440	\$19.20	\$21.10	\$24.58

Fertilizer & Chemical Application Machinery Costs, 2019, 2021 & 2023 ^{1,2,3}						
Item	Source	Tractor HP	2019 Costs (\$/Acre)	2021 Costs (\$/Acre)	2023 Costs (\$/Acre)	
Anhydrous ammonia applicator, 27 ft. 6 in.	Univ. Illinois	140	\$17.60	\$18.80	\$26.30	
Anhydrous ammonia applicator, 37 ft. 6 in.	Univ. Illinois	240	\$17.20	\$17.90	\$24.60	
Anhydrous ammonia applicator, 47 ft. 6 in.	Univ. Illinois	290	\$16.50	\$17.10	\$21.10	
Anhydrous ammonia applicator, 52 ft. 6 in. **	Univ. Illinois	370	\$15.30	\$16.40	\$19.10	
Anhydrous ammonia applicator, 62 ft. 6 in.	Univ. Illinois	470	\$14.00	\$14.90	\$18.50	
Fertilizer Application, Anhydrous, injecting, with tool bar	Iowa State Univ.		\$12.50	\$13.40	\$14.75	
Fertilizer Application, Anhydrous, injecting, without tool bar	Iowa State Univ.		\$11.40	\$11.95	\$12.50	
Fertilizer application, dry bulk, applied	Iowa State Univ.		\$5.80	\$6.15	\$6.75	
Fertilizer application, liquid, side dressing	Iowa State Univ.		\$11.35	\$11.35	\$13.00	
Fertilizer application, liquid, spraying	Iowa State Univ.		\$7.30	\$6.80	\$8.00	
Manure Application, liquid, drag line (\$/gal)	Iowa State Univ. ³		NA	\$0.01	\$0.01	
Manure Application, liquid, injected (\$/gal)	Iowa State Univ. ³		NA	\$0.01	\$0.02	
Manure Application, loading and spreading solid manure (\$/hr)	Iowa State Univ. ³		NA	\$141.65	\$110.00	
Self-propelled sprayer (High-crop ready), 80 ft boom	Univ. Illinois	85	\$4.40	\$5.20	\$5.70	
Self-propelled sprayer (High-crop ready), 90 ft boom	Univ. Illinois	85	\$5.30	\$6.40	\$7.30	
Self-propelled sprayer (High-crop ready), 100 ft boom	Univ. Illinois	85	\$5.00	\$5.70	\$6.70	
Self-propelled sprayer, 120 ft boom	Univ. Illinois	85	\$4.40	\$4.50	\$5.80	

Harvest Machinery Costs, 2023 ⁴

Item	Source	Tractor HP	2023 Costs (\$/Acre)
Baler, Rounds 1000lb	Univ. Illinois		\$39.70
Baler, Small	Univ. Illinois		\$43.70
Baler, Squares 1000lb	Univ. Illinois		\$37.60
Combine corn grain 8-row (30") head	Univ. Illinois	330	\$55.30
Combine corn grain 12-row (30") head	Univ. Illinois	470	\$50.70
Combine corn grain 16-row (30") head	Univ. Illinois	540	\$44.40
Combine 30' grain platform (330 hp)	Univ. Illinois	330	\$47.90
Combine 35' grain platform (470 hp)	Univ. Illinois	470	\$44.00
Combine 35' grain platform (540 hp)	Univ. Illinois	540	\$42.70
Corn Silage, Pull-type	Univ. Illinois		\$148.20
Corn Silage, Self-propelled	Univ. Illinois	530	\$173.90
Forage Harvester Pull-type (first cut)	Univ. Illinois		\$48.20
Forage Harvester Pull-type (remaining cuts)	Univ. Illinois		\$39.40
Forage Harvester Self-propelled (first cut)	Univ. Illinois		\$40.60
Forage Harvester Self-propelled (remaining cuts)	Univ. Illinois		\$33.10
Mower & Conditioner, Pull-type	Univ. Illinois		\$26.20
Mower & Conditioner, Self-propelled	Univ. Illinois		\$35.30
Mower, Rotary	Univ. Illinois		\$22.00
Mower, Sickle Bar	Univ. Illinois		\$34.00
Rake, Side Delivery	Univ. Illinois		\$13.70
Rake, Wheeled	Univ. Illinois		\$9.60
Tedder	Univ. Illinois		\$12.50

Machinery Costs Reference List

¹ University of Illinois at Urbana-Champaign Department of Ag and Consumer Economics. (September 2019, 2021, 2023). *Farm Business Management Machinery Cost Estimates: Field Operations*. Retrieved on May 21, 2024, from <https://farmdoc.illinois.edu/management#handbook>

² Iowa State University Extension and Outreach. (March 2019, 2021, 2023). *Ag Decision Maker: 2023 Iowa Farm Custom Rate Survey (File A3-10)*. Retrieved on May 21, 2024, from <https://www.extension.iastate.edu/agdm/crops/html/a3-10.html>

³ Liquid manure application costs were converted from \$/1000 gallons to \$/gallon.

⁴ University of Illinois at Urbana-Champaign Department of Ag and Consumer Economics. (Sept 2023). *Farm Business Management Machinery Cost Estimates: Forage Field Operations*. Retrieved on March 28, 2024 from <https://farmdoc.illinois.edu/handbook/forage-operations>

* 2021 & 2023 costs for the missing machinery were calculated by applying the Prices Paid Index to 2019 published costs because the 2021 & 2023 University of Illinois publication did not include machinery cost estimates for this equipment.

** 2023 prices for the missing machinery were calculated by applying the Prices Paid Index to 2021 published costs because the 2023 University of Illinois publication did not include machinery cost estimates for this size.

B) Prices List

Below lists the prices used throughout the row crop R-SHEC Tool, found on the 'Prices' tab in the tool. The prices and costs appearing below are used to calculate costs and savings as data is entered in the tool. **Users should evaluate the prices for relevancy in their area and adjust as needed using the 'Study Area Overview' tab in the tool using the farmer-provided prices tables.** Changes to values on the 'Prices' tab will automatically update the costs or savings throughout the R-SHEC Tool.

Labor Rate - Farm Manager	
Year	\$/hr
2023	\$29.23
U.S. Bureau of Labor Statistics. (May 2023). <i>45-1011 First-Line Supervisors of Farming, Fishing, and Forestry Workers: Occupational Employment and Wage Statistics</i> . Retrieved May 10, 2024 from https://www.bls.gov/oes/current/oes_nat.htm#45-0000	

Crop Prices, National Averages ^{1,2}							
Note: Using the 5-year rolling average price column. The year-by-year prices are for reference only AND are not adjusted to 2023 values. The 5-year rolling average uses adjusted 2019-2023 values using the Prices Received Index.							
Crop	Unit	2019 Price (\$/Unit)	2020 Price (\$/Unit)	2021 Price (\$/Unit)	2022 Price (\$/Unit)	2023 Price (\$/Unit)	5-yr Average Crop Price (\$/Unit)
Barley	Bushels	\$4.69	\$4.75	\$5.31	\$7.40	\$7.50	\$6.56
Canola	Bushels	\$7.40	\$9.20	\$16.45	\$14.90	\$12.50	\$13.32
Corn Grain	Bushels	\$3.56	\$4.53	\$6.00	\$6.54	\$4.80	\$5.65
Corn Silage*	Tons	\$32.04	\$40.77	\$54.00	\$58.86	\$55.23	\$53.25
Ensilage (green chop)**	Tons	\$54.00	\$52.80	\$61.20	\$70.80	\$66.80	\$68.42
Flaxseed	Bushels	\$9.15	\$11.10	\$25.90	\$17.50	\$12.80	\$16.92
Forage (haylage)	Tons	\$135.00	\$132.00	\$153.00	\$177.00	\$167.00	\$171.06
Grain Sorghum (milo)	Bushels	\$3.34	\$5.04	\$5.94	\$6.38	\$4.84	\$5.69
Hay, alfalfa	Tons	\$179.00	\$171.00	\$216.00	\$273.00	\$232.00	\$237.97
Hay, all other	Tons	\$135.00	\$132.00	\$153.00	\$177.00	\$167.00	\$171.06
Millet (proso)	Bushels	\$5.54	\$11.20	\$8.77	\$8.96	\$4.15	\$8.85
Mustard seed	Bushels	\$13.30	\$13.35	\$15.60	\$21.05	\$28.95	\$20.24
Oats	Bushels	\$2.82	\$2.77	\$4.55	\$4.57	\$3.70	\$4.08
Rapeseed	Bushels	\$10.10	\$11.30	\$9.35	\$10.75	\$10.00	\$11.74
Rye	Bushels	\$6.01	\$5.35	\$6.76	\$7.17	\$6.90	\$7.23
Safflower	Bushels	\$7.56	\$8.21	\$9.69	\$12.65	\$13.68	\$11.42
Soybeans	Bushels	\$8.57	\$10.80	\$13.30	\$14.20	\$12.70	\$13.26
Sugarbeets***	Tons	\$38.30	\$50.50	\$53.00	\$65.20	\$4.20	\$59.62
Sunflower	Bushels	\$5.85	\$6.39	\$9.87	\$8.34	\$5.94	\$8.17
Triticale (grain)****	Bushels					\$4.20	\$4.20
Winter wheat	Bushels	\$4.53	\$4.98	\$6.99	\$8.58	\$6.95	\$7.06

¹ USDA NASS. (2022,2023,2024). *Crop Values: [2021,2022,2023] Summary*. Retrieved on February 6, 2024 from <https://usda.library.cornell.edu/concern/publications/k35694332>

² Manitoba Agricultural Services Corporation. (2023). *Crop Dollar Values for 2023*. Retrieved on April 16, 2024 from https://www.masc.mb.ca/masc.nsf/factsheet_2023_crop_prices.pdf. (Source for triticale as grain price.)

*Corn Silage price is nine times Corn Grain price based on guidance from Michigan State University Extension. Retrieved on May 9, 2022 from <https://www.canr.msu.edu/news/pricing-standing-corn-silage>

**Ensilage price is 40% of hay, all other (dry) price, assuming 40% dry matter, based on guidance from Cornell University Extension, Bill Verbeten, NW New York Dairy, Livestock & Field Crops. *Converting Hay Prices to Haylage Values*. Retrieved on May 6, 2024 from <https://nwnyteam.cce.cornell.edu/submission.php?id=343>

***Sugarbeets 2023 prices unavailable so used the Price Received Index to estimate.

**** Triticale grain price from Manitoba Canada divided by 1.35 to convert to U.S. dollars based on the IRS reported average 2023 currency exchange rate for Canada from <https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates>

Note: Adjusted canola, grain sorghum (milo), mustard seed, rapeseed, safflower, & sunflower prices per counterweight to per bushel based on lbs/bu by crop as reported in various sources: <https://www.rayglen.com/crop-bushel-weights/> (canola - 50 lbs/bu, sorghum - 56 lbs/bu, mustard - 50 lbs/bu, sunflower - 30 lbs/bu); <https://www.smallfarmcanada.ca/resources/standard-weights-per-bushel-for-agricultural-commodities> (rapeseed - 50 lbs/bu); <https://www.ndsu.edu/agriculture/extension/publications/safflower-production> (safflower - 38 lbs/bu)

Organic Crop Prices, National Averages¹

Note: Using the 3-year rolling average price column. The year-to-year prices are for reference only AND we present the actual and adjusted values. The 3-year rolling average uses the adjusted 2023 values.

Crop	Unit	2016 Natl. Avg. Price (\$/unit)	2016 Natl. Avg. Price (2023 \$/unit) *	2019 Natl. Avg. Price (\$/unit)	2019 Natl. Avg. Price (2023 \$/unit) *	2021 Natl. Avg. Price (\$/unit)	2021 Natl. Avg. Price (2023 \$/unit) *	3-yr Average Organic Crop Price (2023 \$/unit)
Barley	Bushels	\$8.70	\$11.86	\$8.16	\$10.96	\$7.59	\$8.39	\$10.40
Canola	Bushels	NA	NA	NA	NA	\$0.42	\$0.46	\$0.46
Corn Grain	Bushels	\$9.00	\$12.26	\$8.62	\$11.57	\$9.41	\$10.40	\$11.41
Corn Silage	Tons	\$63.87	\$87.04	\$65.16	\$87.47	\$71.30	\$78.81	\$84.44
Ensilage (green chop)	Tons	\$70.97	\$96.73	\$102.67	\$137.83	\$102.17	\$112.94	\$115.83
Flaxseed	Bushels	\$31.06	\$42.33	\$26.96	\$36.19	\$32.93	\$36.40	\$38.31
Forage (haylage)	Tons	\$153.30	\$208.93	\$132.26	\$177.56	\$146.35	\$161.78	\$182.76
Grain Sorghum (milo)	Bushels	\$7.15	\$9.74	\$7.24	\$9.72	\$8.20	\$9.06	\$9.51
Hay, alfalfa	Tons	\$194.83	\$265.53	\$166.67	\$223.75	\$199.63	\$220.68	\$236.65
Hay, all other	Tons	\$153.30	\$208.93	\$132.26	\$177.56	\$146.35	\$161.78	\$182.76
Millet (proso)	Bushels	\$7.61	\$10.38	\$7.96	\$10.68	\$12.16	\$13.44	\$11.50
Mustard seed	Bushels	NA	NA	NA	NA	NA	NA	NA
Oats	Bushels	\$6.36	\$8.67	\$5.29	\$7.10	\$5.81	\$6.42	\$7.40
Rye	Bushels	\$10.83	\$14.76	\$9.83	\$13.20	\$10.14	\$11.21	\$13.06
Safflower	Bushels	\$0.31	\$0.42	\$0.24	\$0.32	\$0.25	\$0.27	\$0.34
Soybeans	Bushels	\$20.50	\$27.94	\$20.17	\$27.08	\$26.67	\$29.49	\$28.17
Sugar beets	Tons	NA	NA	NA	NA	NA	NA	NA
Sunflower seeds	Bushels	\$0.44	\$0.59	\$0.38	\$0.51	\$0.41	\$0.45	\$0.52
Triticale (grain)	Tons	\$9.12	\$12.43	\$15.51	\$20.82	\$10.93	\$12.08	\$15.11
Winter wheat	Bushels	\$10.62	\$14.47	\$9.61	\$12.90	\$10.91	\$12.06	\$13.14
Wheat, other spring	Bushels	\$14.32	\$19.51	\$12.67	\$17.01	\$12.38	\$13.69	\$16.74

¹ USDA NASS. (2017,2020,2022). *Certified Organic Survey [2016/2019/2021] Summary: Table 13. Certified Organic Field Crops and Hay Harvested and Value of Sales: Organic Survey*. Retrieved April 16, 2024, from https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Organic_Production/index.php

Note: All prices are adjusted to 2023 value for average calculation. Adjusted canola, safflower, & sunflower prices per pound to per bushel based on lbs/bu by crop as reported in: <https://www.rayglen.com/crop-bushel-weights/> (canola - 50 lbs/bu; sunflower - 30 lbs/bu); <https://www.ndsu.edu/agriculture/extension/publications/safflower-production> (safflower - 38 lbs/bu)

Fertilizer Prices¹

Note: Using the 5-year rolling average price column. The year-by-year prices are for reference only AND are not adjusted to 2023 values. The 5-year rolling average uses adjusted 2019-2023 values using the Prices Received Index.

Fertilizer Element	2019 Prices (\$/lb)	2020 Prices (\$/lb)	2021 Prices (\$/lb)	2022 Prices (\$/lb)	2023 Prices (\$/lb)	5-yr Rolling Avg. Price (\$/lb)
Nitrogen	\$0.34	\$0.34	\$0.72	\$0.83	\$0.60	\$0.63
Phosphorous	\$0.34	\$0.39	\$0.62	\$0.75	\$0.67	\$0.61
Potash	\$0.31	\$0.30	\$0.56	\$0.72	\$0.53	\$0.54

¹Iowa State University Extension and Outreach. (January 2020-2024). *Ag Decision Maker: Estimated Costs of Crop Production in Iowa (File A1-20)*. Retrieved on February 6, 2024 from <https://www.extension.iastate.edu/agdm/crops/html/a1-20.html>

Calculated Value (\$/ton) of Reduced Nutrient Loss with Soil Erosion Reduction ^{1,2}			
Fertilizer	lbs/ton of soil ¹	5-yr Rolling Avg. Price (\$/lb) ²	\$/ton
Nitrogen	2.32	\$0.63	\$1.46
Phosphorus	1.00	\$0.61	\$0.61
Total Combined Fertilizer Benefit (\$/ton)			\$2.07
¹ USDA NRCS. (May 24, 2010). <i>Final Benefit-Cost Analysis for the Environmental Quality Incentives Program (EQIP)</i> . Retrieved on February 22, 2022, from https://www.blogs.nrcs.usda.gov/Internet/FSE_DOCUMENTS/16/nrcs143_007976.pdf			
² Iowa State University Extension and outreach. (January 2020-2024). <i>Ag Decision Maker: Estimated Costs of Crop Production in Iowa (File A1-20)</i> . Retrieved on February 6, 2024 from https://www.extension.iastate.edu/agdm/crops/html/a1-20.html			
Note: Following page 23 instructions in the USDA NRCS reference above, we estimate the amount of Nitrogen and Phosphorus per ton of eroded soil. They assume topsoil contains 40 lbs of organic matter of which 23.2 lbs is carbon. With an average carbon-nitrogen ratio of 10 to 1, each ton of soil eroded contains 2.32 lbs of nitrogen. The soil also contains 0.05% phosphorus, or one pound per ton of soil.			

Drying, Storage, and Trucking Cost Per Bushel ¹⁻¹¹					
Crop	Drying	Storage	Trucking	2023 \$/Unit	Source # for Drying/ Storage/ Trucking
Barley	\$0.04	\$0.00	\$0.21	\$/bushel	4/NA/1
Canola	\$0.00	\$0.00	\$0.21	\$/bushel	6/NA/1
Corn Grain	\$0.13	\$0.08	\$0.21	\$/bushel	1/1/1
Corn Silage*	\$0.00	\$0.55	\$4.00	\$/ton	NA/7/2
Ensilage (green chop)*	\$0.00	\$0.55	\$4.00	\$/ton	NA/7/2
Flaxseed	\$0.00	\$0.00	\$0.21	\$/bushel	6/NA/1
Forage (haylage)*	\$0.00	\$1.60	\$3.40	\$/ton	NA/7/2
Grain Sorghum (milo)	\$0.04	\$0.00	\$0.21	\$/bushel	1/1/1
Hay, alfalfa*	\$0.00	\$1.60	\$3.40	\$/ton	NA/7/2
Hay, all other*	\$0.00	\$1.60	\$3.40	\$/ton	NA/7/2
Millet (proso)	\$0.04	\$0.00	\$0.21	\$/bushel	6/NA/1
Mustard seed	\$0.00	\$0.00	\$0.21	\$/bushel	6/NA/1
Oats	\$0.08	\$0.00	\$0.21	\$/bushel	9/NA/1
Rapeseed*	\$0.00	\$0.00	\$0.21	\$/bushel	NA/NA/1
Rye	\$0.04	\$0.00	\$0.21	\$/bushel	1/NA/1
Safflower	\$0.00	\$0.00	\$0.21	\$/bushel	6/NA/1
Soybeans	\$0.00	\$0.05	\$0.21	\$/bushel	1/1/1
Sugar beets	\$0.00	\$0.00	\$5.90	\$/ton	11/11/11
Sunflower	\$0.00	\$0.00	\$0.21	\$/bushel	10/NA/1
Triticale (grain)	\$0.04	\$0.00	\$0.21	\$/bushel	1/1/1
Winter wheat	\$0.04	\$0.00	\$0.21	\$/bushel	1/1/1
Wheat, other spring	\$0.04	\$0.00	\$0.21	\$/bushel	1/1/1
¹ University of Kentucky Department of Agricultural Economics. (March 2024). <i>Corn and Soybean Budgets - 2024</i> . Retrieved on April 14, 2024 from https://agecon.ca.uky.edu/budgets					
² University of Kentucky Department of Agricultural Economics. (October 2023). <i>Wheat Double-Crop Soybean Budget (2023-2024)</i> . Retrieved on April 14, 2024 from https://agecon.ca.uky.edu/budgets					
³ University of Kentucky Department of Agricultural Economics. (March 2022). <i>Custom Machinery Rates Applicable to Kentucky (2022)</i> . Retrieved on April 14, 2024 from https://agecon.ca.uky.edu/files/custom_machinery_rates_applicable_to_kentucky_2022.pdf					
⁴ Ohio State University Extension. (2020). <i>Malting Barley Budget 2021</i> . Retrieved on April 14, 2024 from https://farmoffice.osu.edu/farm-management/enterprise-budgets					

⁵ University of Georgia Department of Agricultural & Applied Economics. (December 2023). *2024 Canola*. Retrieved on April 14, 2024 from <https://agecon.uga.edu/extension/budgets.html>

⁶ North Dakota State University Extension. (February 2024). *Projected 2024 Crop Budgets*. Retrieved on April 14, 2024 from <https://www.ndsu.edu/agriculture/sites/default/files/2024-02/2024%20North%20Central%20ND%20Projected%20Crop%20Budget%20-%20PDF.pdf>

⁷ University of Missouri Extension. (October 2023). *Missouri Forage Budget*. Retrieved on April 14, 2024 from <https://extension.missouri.edu/programs/agricultural-business-and-policy-extension/missouri-crop-and-livestock-enterprise-budgets>

⁸ Iowa State University Extension and Outreach. (2008). *Organic Flax Production in Iowa*. Retrieved on April 14, 2024 from https://www.extension.iastate.edu/search-results?search_broadness=wide&as_q=flax

⁹ Ohio State University Extension. (January 2024). *Organic Oats Production Budget 2024*. Retrieved on April 14, 2024 from <https://farmoffice.osu.edu/farm-management/enterprise-budgets>

¹⁰ Ohio State University Extension. (January 2024). *Organic Sunflower Production Budget 2024*. Retrieved on April 14, 2024 from <https://farmoffice.osu.edu/farm-management/enterprise-budgets>

¹¹ University of Idaho Extension. (2022). *2022 Sugarbeet Enterprise Budget: Southwestern Idaho*. Retrieved on April 14, 2024 from <https://www.uidaho.edu/-/media/uidaho-responsive/files/cals/programs/idaho-agbiz/crop-budgets/southwest/2022-sugarbeet-budget-southwestern-idaho.pdf?la=en&rev=7d4ad1906ef84c7eb6796e9c8d81f1f0>

* No drying cost because crop dried in field or drying not needed

Prices Paid Index (PPI): All Items						
United States: 2011=100						
Month	2018	2019	2020	2021	2022	2023
January	108.6	110.8	111.0	113.4	131	140.3
February	109.5	110.7	110.6	114.8	133.1	140.3
March	109.7	110.9	109.7	116.0	135	140.3
April	109.3	111.4	108.5	117.0	137.6	139.7
May	109.7	110.8	108.6	117.9	137.8	138.9
June	109.4	110.3	108.8	119.2	138.3	138.5
July	109.5	110.4	109.5	120.4	138.7	138.6
August	109.6	109.6	109.8	121.0	139.3	138.7
September	109.5	109.2	110.3	121.3	138.8	138.7
October	110.0	109.9	111.2	122.7	138.6	138.8
November	110.1	110.0	112.0	123.7	138.8	138.3
December	110.3	110.0	112.8	125.2	138.4	137.6
Average Annual PPI	109.6	110.3	110.2	119.4	137.1	139.1
% PPI Change from previous year		1.01	1.00	1.08	1.15	1.01

USDA NASS. (Ongoing). *Prices Paid: Indexes for All Items and Production Items by Month - United States*. Retrieved February 6, 2024 from https://www.nass.usda.gov/Charts_and_Maps/Agricultural_Prices/index.php

Prices Received Index (PRI): Crop Production						
United States: 2011=100						
Month	2018	2019	2020	2021	2022	2023
January	78.4	78	82.2	88.3	105	118
February	86.3	84.3	86.6	97.2	114.6	120.6
March	87.7	87.2	87.4	98.5	120.9	118.7
April	88.4	85.2	86.3	105.1	122.9	126.2
May	88.7	84	86.7	106.1	124.2	120.6
June	89.8	89.5	89.5	107.5	126.9	120.7
July	86.5	88.9	88.4	106.8	125	119.5

August	89.3	89.4	89.9	110.5	128.2	117.7
September	87.8	88.4	93.1	108.8	126.8	112.4
October	80	83	87.8	106.4	121.6	103.9
November	83.9	84.8	91.6	107.5	127	101
December	87.4	86	91.2	106.6	128.7	101.7
Average Annual PPI	86.2	85.7	88.4	104.1	122.7	115.1
% PPI Change from previous year		0.99	1.03	1.18	1.18	0.94
USDA NASS. (Ongoing). <i>Prices Received: Indexes for Ag, Crop, and Livestock Production by Month - United States</i> . Retrieved February 6, 2024, from https://www.nass.usda.gov/Charts_and_Maps/Agricultural_Prices/index.php						