

SYSTEM CONFIGURATION ECONOMIC COMPARISON GUIDE



METRIC CONVERSION TABLE

US TO METRIC	METRIC TO US
1 acre = 0.405 Hectare	1 Hectare = 2.47 Acres
1 ft = 0.305 Meter	1 Meter = 3.28 Feet
1 PSI = 0.069 Bar	1 Bar = 14.5 PSI
1 PSI = 6.89 kPa	1 kPa = 0.145 PSI
1 US Gallon (Gal) = 3.785 Liters	1 Liter = .264 US Gallon (Gal)
1 Hp = 0.746 KW	1 KW = 1.34 Hp
1 Acre-inch = 0.1028 Megaliter	1 Megaliter = 9.728 Acre-Inches (Ac-In)
1 Acre-inch = 102.79 M ³	1 M ³ = 0.00973 Acre-Inch (Ac-In)
1 GPM = 0.063 LPS	
1 GPM = 3.785 LPM	
1 GPM/Acre = 9.35 LPM/Hectare	
\$2.50/gal Diesel = \$0.66/Liter Diesel	



Zimmatic® System Configuration Economic Comparison Guide

As the world's leading producer of automated mechanical move irrigation equipment, the equipment we manufacture offers growers the flexibility to irrigate fields of many sizes. The following comparisons show costs* associated with irrigating fields from 80 acres to 640 acres with center pivots, towable pivot systems, corner systems and lateral move systems.

These comparisons should be used to analyze which system will be the most economical way to irrigate a particular field. In making these comparisons, the following assumptions were made for each field:

Water Requirement	7.0 GPM/Acre
Hours of Operation	1,000 Hours
Cost of Energy	\$2.50 per Gallon (Diesel)
Cost of Money	9.75% 10 Year Lease (.15 factor)
Area Irrigated	With No End Guns
Water Pumping Level	200 Feet
Equipment Cost	Current Market Price

*Comparisons do not include cost of drilling and developing a well.

Once a final design has been developed for a particular field, actual installation and operational costs should be made by a ZIMMATIC dealer.

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Field Size

240 Acres

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Field Size

320 Acres

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Field Size

640 Acres

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40 Acre Agri-Tow on 80 Acres

80 Acre Plot/62.8 Acres Irrigated

660' @ 62.8 Ac @ 7.0 GPM/Acre = 440 GPM x 1000 Hrs/Yr = 15.4" @ \$2.50/Gal Diesel

4 Spans: 1 Span of 157' x 6 5/8", 3 Spans of 157' x 5 9/16", 33' Overhang

System End Pressure	15 PSI
System Pressure Loss	4 PSI
6" Main Line Loss (1320')	7 PSI
Pivot Structure Loss (12')	5 PSI
Well @ 200' Static	87 PSI
118 PSI Total	

Hyd. Hp = 440 GPM x 118 PSI ÷ 1714 ÷ 0.85 eff = 35.6 Hp (Pump)

Gen. Hp = 4 Spans: 3KW x 1.68 = 5.0 Hp (Elec.)

Use 40.6 Total Hp

$$40.6\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{2,030 \text{ Gal}}{\text{Yr}}$$

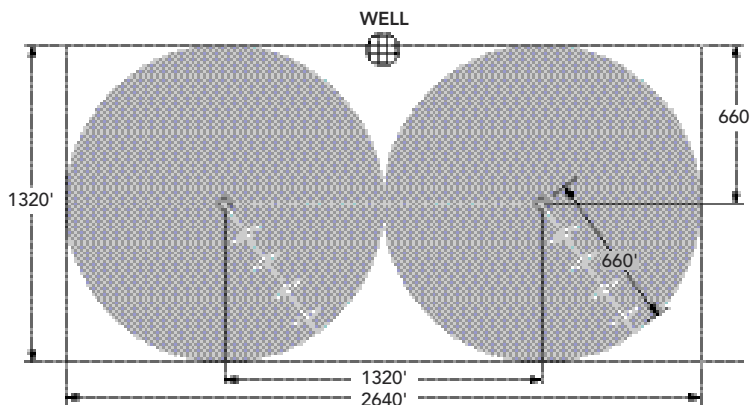
$$\frac{2,030 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$5,075}{\text{Yr}} \text{ Energy Cost}$$

$$= \$5,075 \div 62.8 \text{ Ac} = \$80.81/\text{Ac}$$

$$(\$80.81 \div 15.4" = \$5.25/\text{Ac-In})$$

1 – 660' Agri-Tow	\$53,058
Erection @ \$3.00/Ft.	1,980
Freight (\$1,500/Truck x 1)	1,500
8" PVC (\$3.56/Ft. including trenching)	7,049
Generator, 5KW	2,810
Fitting, Z Pipe	600
Power Unit at Well (J.D. 4045D)	10,200
8" Pump, 80 Hp, Gearhead, Bowls, Column (240')	21,600
TOTAL FIXED COST	\$98,797
ANNUAL FIXED COST (.15)	\$14,820

TOTAL ANNUAL COST	
FIXED	\$14,820
ENERGY	\$5,075
TOTAL	\$19,895
ANNUAL COST/ACRE	
	\$317



One Quarter Section Center Pivot

½ Circle/100 Acre Plot/60.6 Acres Irrigated

1300' @ 60.6 Ac. @ 7.0 GPM/Acre = 424 GPM x 1000 Hr./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Spans of 179' x 6 5/8", 44' Overhang

System End Pressure	15 PSI
System Pressure Loss	3 PSI
Pivot Structure Loss (12')	5 PSI
Well @ 200' Static	87 PSI
110 PSI Total	

Hyd. Hp = 424 GPM x 110 PSI ÷ 1714 ÷ 0.85 eff = 32.0 Hp (Pump)

Gen. Hp = 7 Spans: 5KW x 1.68 = 8.4 Hp (Elec.)

Use 40.4 Total Hp

$$40.4\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{2,020 \text{ Gal}}{\text{Yr}}$$

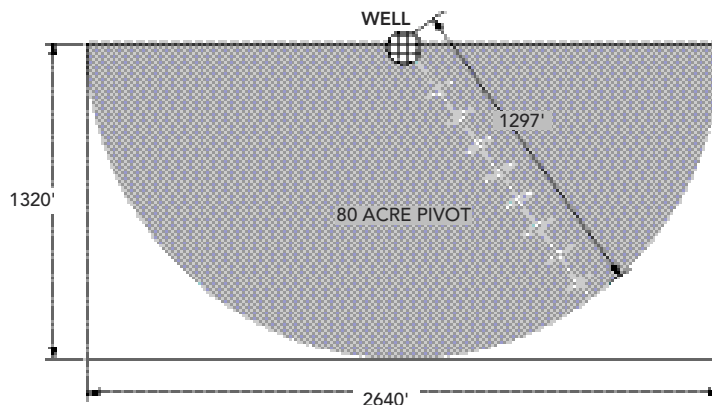
$$\frac{2,020 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$5,050}{\text{Yr}} \text{ Energy Cost}$$

$$= \$5,050 \div 60.6 \text{ Ac} = \$83.33/\text{Ac}$$

$$(\$83.33 \div 15.4" = \$5.41/\text{Ac-In})$$

1 – 1300' Pivot	\$84,381
Erection @ \$3.00/Ft.	3,900
Freight (\$1,500/Truck x 1)	1,500
Generator, 5KW	2,810
Power Unit at Well (J.D. 4045D)	10,200
8" Pump, 40 Hp, Gearhead, Bowls, Column (240')	20,328
TOTAL FIXED COST	\$123,119
ANNUAL FIXED COST (.15)	\$18,468

TOTAL ANNUAL COST	
FIXED	\$18,468
ENERGY	\$5,050
TOTAL	\$23,518
ANNUAL COST/ACRE	
\$388	



Quarter Mile Lateral Hose Pull

80 Acre Plot/78.8 Acres Irrigated

1300' @ 78.8 Ac @ 7.0 GPM/Acre = 522 GPM x 1000 Hr./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Span Lateral Move: 1 Span of 179' x 6 5/8", 6 Spans of 179' x 5 9/16", 44' Overhang

System End Pressure	15 PSI
System Pressure Loss	6 PSI
Pull Tower Loss (12")	5 PSI
6" Hard Hose (400')	9 PSI
8" Main Line (2310')	5 PSI
Well @ 200' Static	87 PSI
127 PSI Total	

Hyd. Hp = 522 GPM x 127 PSI ÷ 1714 ÷ 0.85 eff = 48.1 Hp (Pump)

Gen. Hp = 7 Spans: 8KW x 1.68 = 13.4 Hp (Elec.)

Use 61.5 Total Hp

$$61.5\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{3,075 \text{ Gal}}{\text{Yr}}$$

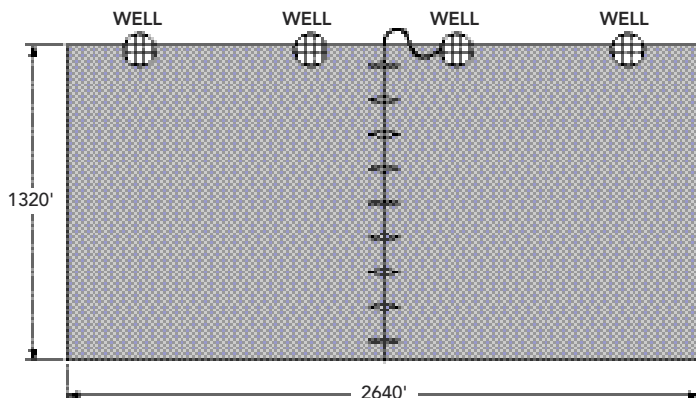
$$\frac{3,075 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$7,687 \text{ Energy Cost}}{\text{Yr}}$$

$$= \$7,687 \div 78.8 \text{ Ac} = \$97.55/\text{Ac}$$

$$(\$97.55 \div 15.4" = \$6.33/\text{Ac-In})$$

1 – 1300' Hose Fed Lateral Move w/ Eng./Gen. Set	\$134,337
Erection @ \$3.00/Ft.	3,900
Freight (\$1,500/Truck x 1)	1,500
8" PVC (\$3.56/Ft. including trenching)	8,224
Fitting, Z-Pipe, 4 Risers	1,200
Power Unit at Well (J.D. 4045D)	10,200
8" Pump, Gearhead, Bowls, Column (240')	20,328
TOTAL FIXED COST	\$179,689
ANNUAL FIXED COST (.15)	\$26,953

TOTAL ANNUAL COST	
FIXED	\$26,953
ENERGY	\$7,687
TOTAL	\$34,640
ANNUAL COST/ACRE	\$440



One Quarter Section Center Pivot

160 Acre Plot/121.3 Acres Irrigated

1300' @ 121.3 Ac. @ 7.0 GPM/Acre = 849 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Spans of 179' x 6 5/8", 44' Overhang

System End Pressure	15 PSI
System Pressure Loss	12 PSI
Pivot Structure Loss	5 PSI
Well @ 200' Static	87 PSI
119 PSI Total	

Hyd. Hp = 849 GPM x 119 PSI ÷ 1714 ÷ 0.85 eff = 69.3 Hp (Pump)

Gen. Hp = 7 Spans: 5KW x 1.68 = 8.4 Hp (Elec.)

Use 77.7 Total Hp

$$77.7\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{3,885 \text{ Gal}}{\text{Yr}}$$

$$\frac{3,885 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$9713}{\text{Yr}} \text{ Energy Cost}$$

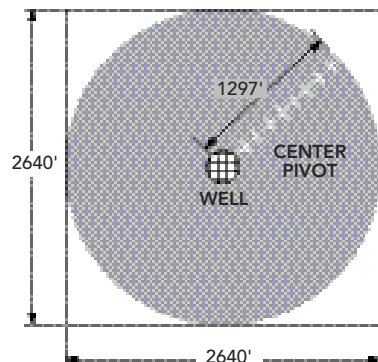
$$= \$9,713 \div 121.3 \text{ Ac} = \$80.07/\text{Ac}$$

$$(\$80.07 \div 15.4" = \$5.20/\text{Ac-In})$$

1 – 1300' Pivot	\$78,661
Erection @ \$3.00/Ft.	3,900
Freight (\$1,500/Truck x 1)	1,500
Generator, 5KW	2,810
Power Unit at Well (J.D. 4045T)	12,958
8" Pump, Gearhead, Bowls, Column (240')	22,959

TOTAL FIXED COST \$122,788
ANNUAL FIXED COST (.15) \$18,418

TOTAL ANNUAL COST	
FIXED	\$18,418
ENERGY	\$9,713
TOTAL	\$28,131
ANNUAL COST/ACRE	
\$232	



Quarter Section Corner Pivot

160 Acre Plot/147 Acres Irrigated

1300' @ 147.0 Ac. @ 7.0 GPM/Acre – 1224 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Spans: 5 Spans of 179' x 6 5/8", 2 Spans of 201' x 6 5/8", w/ 179' Corner, 88'

System End Pressure	20 PSI
System Pressure Loss	30 PSI
Pivot Structure Loss (12')	5 PSI
Well @ 200' Static	87 PSI
142 PSI Total	

Hyd. Hp = 1224 GPM x 142 PSI ÷ 1714 ÷ 0.85 eff = 119.3 Hp (Pump)

Gen. Hp = 7 Spans: 8KW x 1.68 = 13.4 Hp (Elec.)

Use 132.7 Total Hp

$$132.7\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{6,635 \text{ Gal}}{\text{Yr}}$$

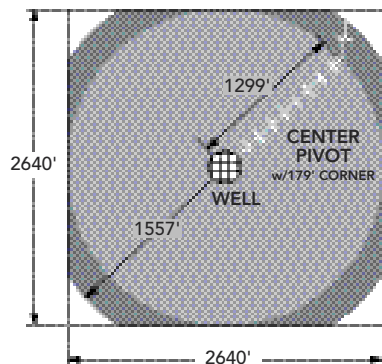
$$\frac{6,635 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$16,588 \text{ Energy Cost}}{\text{Yr}}$$

$$= \$16,588 \div 147 \text{ Ac} = \$112.84/\text{Ac}$$

$$(\$112.84 \div 15.4" = \$7.33/\text{Ac-In})$$

1 – 1300' Corner Pivot	\$136,684
Erection @ \$3.00/Ft.	4,740
Freight (\$1,500/Truck x 1)	1,500
Generator, 10KW	3,660
Fitting, Z-Pipe	600
Power Unit at Well (J.D. 6081T) w/ Clutch	17,024
8" Pump, Gearhead, Bowls, Column (240')	24,905
TOTAL FIXED COST	\$189,113
ANNUAL FIXED COST (.15)	\$28,367

TOTAL ANNUAL COST	
FIXED	\$28,367
ENERGY	\$16,588
TOTAL	\$44,955
ANNUAL COST/ACRE	
	\$306



Quarter Mile Lateral Hose Pull

Pivoting 160 Acre Plot/157 Acres Irrigated

1300' @ 157.6 Ac. @ 7.0 GPM/Acre = 1103 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Spans Lateral Move (Pivoting); 7 Spans of 179' x 6 5/8", 44' Overhang

System End Pressure	15 PSI
System Pressure Loss	10 PSI
Pull Tower Loss (12")	5 PSI
6" Hard Hose (400')	23 PSI
8" Main Line (2310')	17 PSI
Well @ 200' Static	87 PSI
157 PSI Total	

Hyd. Hp = 1103 GPM x 157.6 PSI ÷ 1714 ÷ 0.85 eff. = 119.3 Hp (Pump)

Gen. Hp = 7 Spans: 8KW x 1.68 = 13.4 Hp (Elec.)

Use 132.7 Total Hp

$$132.7\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{6,635 \text{ Gal}}{\text{Yr}}$$

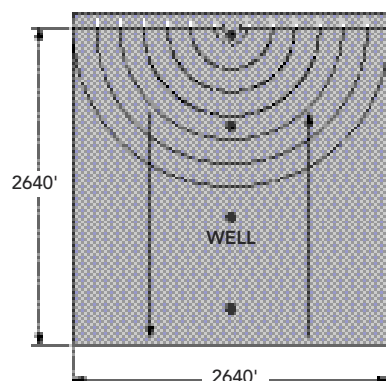
$$\frac{6,635 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$16,588 \text{ Energy Cost}}{\text{Yr}}$$

$$= \$16,588 \div 157 \text{ Ac} = \$105.66/\text{Ac}$$

$$(\$105.66 \div 15.4" = \$6.86/\text{Ac-In})$$

1 – 1300' Hose Fed Lateral Move with Eng./Gen. Set	\$143,817
Erection @ \$3.00/Ft.	3,900
Freight (\$1,500/Truck x 1)	1,500
8" PVC (\$3.56/Ft. including trenching)	8,224
Fittings, Z Pipe, 4 Risers	1,200
Power Unit at Well (J.D. 6068T)	13,957
8" Pump, Gearhead, Bowls, Column (240')	23,833
TOTAL FIXED COST	\$196,431
ANNUAL FIXED COST (.15)	\$29,465

TOTAL ANNUAL COST	
FIXED	\$29,465
ENERGY	\$16,588
TOTAL	\$46,053
ANNUAL COST/ACRE	
	\$293



Corner Pivot (Open Ended)

240 Acre Plot/165.4 Acres Irrigated

1300' @ 165.4 Ac. @ 7.0 GPM/Acre = 1273 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Spans: 5 Spans of 179' x 6 5/8", 2 Spans of 201' x 6 5/8", w/ 201' Corner, 88' Overhang

System End Pressure	20 PSI
System Pressure Loss	33 PSI
Pivot Structure Loss (12')	5 PSI
Well @ 200' Static	87 PSI
145 PSI Total	

Hyd. Hp = 1273 GPM x 145 PSI ÷ 1714 ÷ 0.85 eff = 126.7 Hp (Pump)

Gen. Hp = 9 Spans: 7KW x 1.68 = 11.8 Hp (Elec.)

Use 138.5 Total Hp

$$138.5\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{6,925 \text{ Gal}}{\text{Yr}}$$

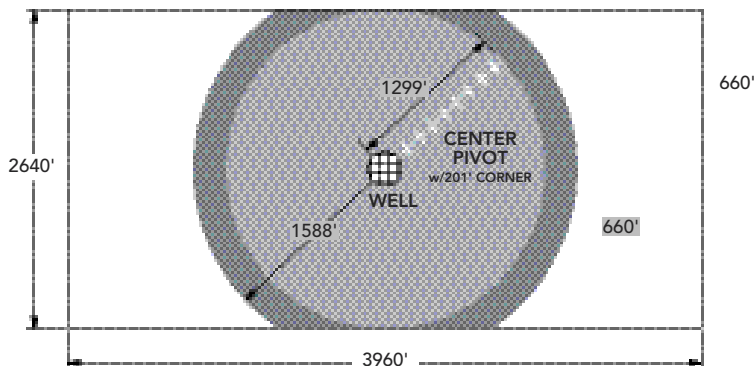
$$\frac{6,925 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$17,313}{\text{Yr}} \text{ Energy Cost}$$

$$= \$17,313 \div 165.4 \text{ Ac} = \$104.67/\text{Ac}$$

$$(\$104.67 \div 15.4" = \$6.80/\text{Ac-In})$$

1 – 1300' Corner Pivot	\$136,684
Erection @ \$3.00/Ft.	4,740
Freight (\$1,500/Truck x 1)	1,500
Generator, 10KW	3,660
Fitting, Z-Pipe	600
Power Unit at Well (J.D. 6081T)	17,024
8" Pump, Gearhead, Bowls, Column (240')	24,905
TOTAL FIXED COST	\$189,113
ANNUAL FIXED COST (.15)	\$28,367
DEVELOPMENT COST/AC	\$574.00

TOTAL ANNUAL COST	
FIXED	\$28,367
ENERGY	\$17,313
TOTAL	\$45,680
ANNUAL COST/ACRE	
	\$276



One Quarter Section Mobile Pivot

320 Acre Plot/244 Acres Irrigated

1300' @ 244.0 Ac. @ 7.0 GPM/Acre = 1300 GPM x 1300 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 7 Spans (Mobile Pivot): of 179' x 6 5/8", with 8 Hp, 5KW Gen. Set, 44' Overhang

System End Pressure	15 PSI
System Pressure Loss @ 1300 GPM	25 PSI
Pivot Structure Loss (12')	5 PSI
8" Main Line Loss @ 1320'	13 PSI
Well @ 200' Static	87 PSI
	145 PSI Total

Hyd. Hp = 1300 GPM x 145 PSI ÷ 1714 ÷ 0.85 eff = 129.4 Hp (Pump)

Gen. Hp = 7 Spans: 5KW x 1.68 = 8.4 Hp (Elec.)

Use 137.8 Total Hp

$$137.8\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1300 \text{ Hrs}}{\text{Yr}} = \frac{8,957 \text{ Gal}}{\text{Yr}}$$

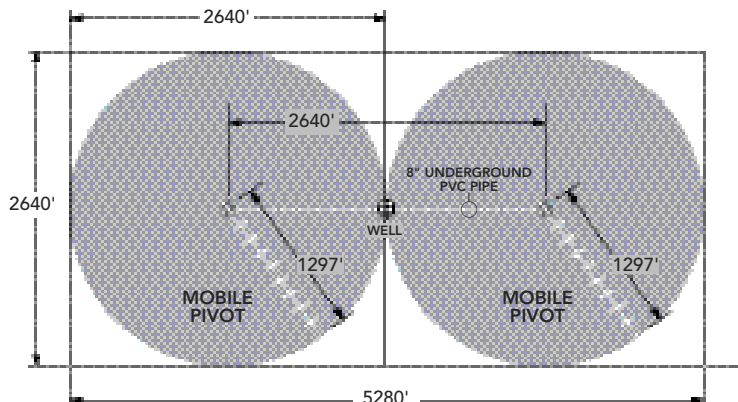
$$\frac{8957 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$22,392 \text{ Energy Cost}}{\text{Yr}}$$

$$= \$22,392 \div 244 \text{ Ac} = \$91.77/\text{Ac}$$

$$(\$91.77 \div 15.4" = \$5.96/\text{Ac-In})$$

1 – 1300' Mobile Pivot	\$87,041
Erection @ \$3.00/Ft.	3,900
Freight (\$1,500/Truck x 1)	1,500
8" PVC (\$3.56/Ft. including trenching)	9,398
Fitting, Z-Pipe	1,200
Power Unit at Well (J.D. 4045T)	12,958
8" Pump, Gearhead, Bowls, Column (240')	22,959
TOTAL FIXED COST	\$138,956
ANNUAL FIXED COST (.15)	\$20,843

TOTAL ANNUAL COST	
FIXED	\$20,843
ENERGY	\$22,392
TOTAL	\$43,235
ANNUAL COST/ACRE	
	\$177



Half Mile Ditch Fed Lateral Move

320 Acre Plot/315 Acres Irrigated

2600' @ 315.0 Ac. @ 7.0 GPM/Acre = 2205 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 16 Span Lateral Move (Ditch): 10 Spans of 135' x 8", 6 Spans of 179' x 6 5/8", 2-88' Overhangs

System End Pressure	15 PSI
System PSI Loss	6 PSI
Suction PSI Loss	11 PSI
32 PSI Total	

$$\text{Hyd. Hp} = 32 \text{ PSI} \times 2.31 = 73.9 \text{ TDH,}$$

$$\frac{2205 \text{ GPM} \times 73.9 \div 3960 \div 0.85 \text{ eff} = 48.4 \text{ Hp}}{\text{Gen. Hp} = 16 \text{ Spans: } 15\text{KW} \times 1.68 = 25.2 \text{ Hp (Elec.)}}$$

Use 73.6 Total Hp

$$76.3\text{Hp} \div \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{3,680 \text{ Gal}}{\text{Yr}}$$

$$\frac{3,680 \text{ Gal}}{\text{Yr}} \div \frac{\$2.50}{\text{Gal}} = \frac{\$9,200}{\text{Yr}} \text{ Energy Cost} = \$9,200 \div 315 \text{ Ac} = \$29.20/\text{Ac}$$

(\$29.20 ÷ 15.4" = \$1.90/Ac-In)

Lift Pump For Ditch

Well 200' Static @ 2,205 GPM
 2,205 GPM x 87 PSI / 1714 / 0.85 = 131.7 Hp

$$131.7\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{6,585 \text{ Gal}}{\text{Yr}}$$

$$\frac{6,585 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$16,463}{\text{Yr}} \text{ Energy Cost}$$

= \$16,463 ÷ 315 Ac = \$52.26/Ac
 (\$51.77 ÷ 15.4" = \$3.39/Ac-In)

TOTAL ENERGY

*Lateral Move = \$9,200

**Lift Pump = \$16,463
 \$25,663
 Total Energy
 Cost/Yr

\$25,663 ÷ 318 Ac = \$80.70/Ac
 (\$80.70 ÷ 15.4" = \$5.24/Ac-In)

1 – 2600' Ditch Fed Lateral Move	\$249,062
Erection @ \$3.00/Ft.	7,800
Freight (\$1,500/Truck x 2)	3,000
Concrete Ditch, 5,280 @ \$10.00/Ft.	78,000
Power Unit at Well (J.D. 6068T)	13,957
8" Pump, Gearhead, Bowls, Column (240')	35,154
TOTAL FIXED COST	\$386,973
ANNUAL FIXED COST (.15)	\$58,046

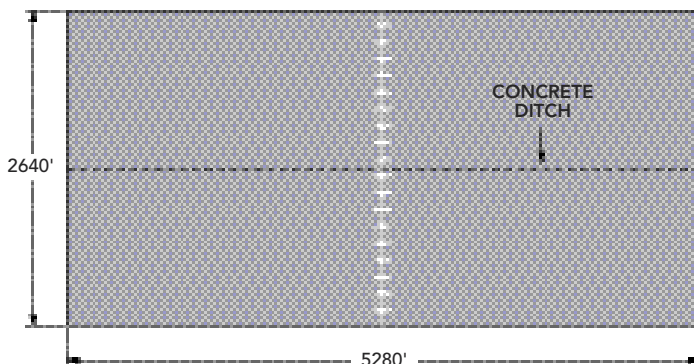
TOTAL ANNUAL COST

FIXED \$58,046

ENERGY \$25,663

TOTAL \$83,709

ANNUAL COST/ACRE \$266



Four Quarter Section Center Pivots

640 Acre Plot/485.2 Acres Irrigated

*(Use Two Quarter Section Pivots Per 1/2 Section with Well at Center)

1300' @ 121.3 Ac. @ 7.0 GPM/Acre = 849 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
7 Spans of 179' x 6 5/8", 44' Overhang

System End Pressure	15 PSI
System Pressure Loss	12 PSI
Pivot Structure Loss (12')	5 PSI
8" Main Line Loss @ 1320'	6 PSI
38 PSI Each System	
Well @ 200' Static	87 PSI
125 PSI Total	

849 GPM x 2 Systems = 1,698 Total GPM at Well

Hyd. Hp = 1698 GPM x 125 PSI ÷ 1714 ÷ 0.85 eff. = 145.6 Hp (Pump)

Gen. Hp = 2 – 7 Span Pivots: 10KW x 1.68 = 16.8 Hp (Elec.)

Use 162.4 Total Hp

$$164.2\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{8,120 \text{ Gal}}{\text{Yr}}$$

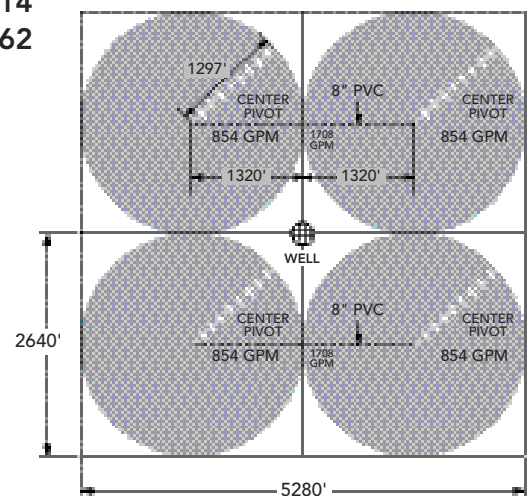
$$\frac{8,120 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$20,300}{\text{Yr}} \text{ Energy Cost} = \$20,300 \div 244 \text{ Ac} = \$83.20/\text{Ac}$$

$$(\$83.20 \div 15.4" = \$5.40/\text{Ac-In})$$

2 – 1300' Pivots	\$157,322
Erection @ \$3.00/Ft.	7,800
Freight (\$1,500/Truck x 2)	3,000
8" PVC (\$3.56/Ft. including trenching)	9,398
Generator, 2 at 10KW	7,320
Fitting, Z-Pipe	2,400
Power Unit at Well (J.D. 4045T)	25,916
8" Pump, Gearhead, Bowls, Column (240')	57,258

TOTAL FIXED COST \$270,414
ANNUAL FIXED COST (.15) \$40,562

TOTAL ANNUAL COST – FULL SECTION	
FIXED	\$40,562
ENERGY	\$20,300
TOTAL	\$60,862
ANNUAL COST/ACRE	
\$124.71	



Full Section Pivot System

640 Acre Plot/490 Acres Irrigated

2606' @ 490.0 Ac. @ 7.0 GPM/Acre = 3430 GPM x 1000 Hrs./Yr. = 15.4" @ \$2.50/Gal Diesel
 18 Spans: 15 Spans of 135' x 10", 2 Spans of 157' x 8", 1 Span 179' x 6 5/8", 88' Overhang

System End Pressure	15 PSI
System Pressure Loss	44 PSI
Pivot Structure Loss (12')	5 PSI
Well @ 200' Static	87 PSI
151 PSI Total	

Hyd. Hp = 3430 GPM x 151 PSI ÷ 1714 ÷ 0.85 eff = 356.0 Hp (Pump)

Gen. Hp = 18 Spans: 11.4KW x 1.68 = 19.0 Hp (Elec.)

Use 375.0 Total Hp

$$375\text{Hp} \times \frac{0.05 \text{ Gal}}{\text{Hp-Hr}} \times \frac{1000 \text{ Hrs}}{\text{Yr}} = \frac{18,750 \text{ Gal}}{\text{Yr}}$$

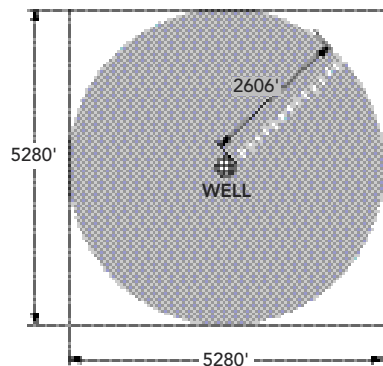
$$\frac{18,750 \text{ Gal}}{\text{Yr}} \times \frac{\$2.50}{\text{Gal}} = \frac{\$46,875 \text{ Energy Cost}}{\text{Yr}}$$

$$= \$46,875 \div 490 \text{ Ac} = \$95.66/\text{Ac}$$

$$(\$95.66 \div 15.4" = \$6.21/\text{Ac-In})$$

1 – 2606' Pivot	\$105,210
Erection @ \$3.00/Ft.	7,818
Freight (\$1,500/Truck x 2)	3,000
Generator, 15KW	4,470
Power Unit at Well (JD 6081T)	17,024
8" Pump, Gearhead, Bowls, Column (240')	52,798
TOTAL FIXED COST	\$190,320
ANNUAL FIXED COST (.15)	\$28,548

TOTAL ANNUAL COST	
FIXED	\$28,548
ENERGY	\$46,875
TOTAL	\$75,423
ANNUAL COST/ACRE	
\$154	





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Lean, Clean and Green. Lindsay Corporation is committed to developing environmental awareness and implementing sustainable practices to reduce the use of and protect energy, water, and all other resources.



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