

***G.R.O.W. Analysis***  
*an exclusive service showing the total cash  
return on your field drainage investment.*



The Most **Advanced** Name in Drainage Systems®



# ADVANCED DRAINAGE SYSTEMS, INC.

## G.R.O.W. Analysis

	Prepared For: <b>1</b> Roger										
<b>3</b>	Purchase Price \$60,000		<b>2</b> Product: Corn								
	<b>Assumptions</b>										
<b>4</b>	Acres Drained: 100										
<b>5</b>	Yield Improvement Bushel: 35										
<b>6</b>	Price Per Bushel: \$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25
<b>7</b>	Disaster Factor Year 3: 2										
<b>8</b>	Percent Tax Bracket: 20%										
		<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>	<b>6th year</b>	<b>7th year</b>	<b>8th year</b>	<b>9th year</b>	<b>10th year</b>
<b>9</b>	<b>Down Payment - Principal</b>	\$ 4,191	\$ 4,516	\$ 4,866	\$ 5,243	\$ 5,649	\$ 6,087	\$ 6,559	\$ 7,067	\$ 7,615	\$ 8,205
	<b>Income Statement</b>										
<b>10</b>	Additional Yield	\$11,375	\$11,375	\$22,750	\$11,375	\$11,375	\$11,375	\$11,375	\$11,375	\$11,375	\$11,375
<b>11</b>	Operating Expenses	10	10	10	10	10	10	10	10	10	10
<b>12</b>	Interest Expense	4,650	4,325	3,975	3,598	3,192	2,754	2,282	1,774	1,226	636
<b>13</b>	Tax Depreciation	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
<b>14</b>	Pretax Income	4,715	5,040	16,765	5,767	6,173	6,611	7,083	7,591	8,139	8,729
<b>15</b>	Less: Income Taxes	943	1,008	3,353	1,153	1,235	1,322	1,417	1,518	1,628	1,746
<b>16</b>	<b>Net Income After Tax</b>	3,772	4,032	13,412	4,614	4,939	5,289	5,666	6,073	6,511	6,983
<b>17</b>	Plus Tax Depreciation	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
<b>18</b>	<b>Cash Flow</b>	5,772	6,032	15,412	6,614	6,939	7,289	7,666	8,073	8,511	8,983
<b>19</b>	<b>Cumulative Cash Flow</b>	\$ 5,772	\$11,804	\$27,216	\$33,829	\$40,768	\$48,057	\$55,723	\$63,796	\$72,307	\$81,290
<b>20</b>	<b>Investment Rate</b>	8%									
	<b>Net Cash Flow</b>										
<b>21</b>	Current Year	\$ 1,581	\$ 1,516	\$10,546	\$ 1,370	\$ 851	\$ 1,202	\$ 1,107	\$ 1,006	\$ 896	\$ 778
<b>22</b>	Plus : Interest Income	0	101	205	893	1,038	1,158	1,309	1,464	1,622	1,783
<b>23</b>	<b>Cumulative</b>	\$ 1,581	\$ 3,198	\$13,948	\$16,211	\$18,100	\$20,460	\$22,877	\$25,347	\$27,865	\$30,426
<b>24</b>	<b>Breakeven Bushels/ Acre</b>	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
<b>25</b>	<b>Total Return on Investment</b>	135%									
<b>26</b>	<b>Break Even Year</b>	8									

### “How quickly will my land drainage investment take to pay itself off?”

- G.R.O.W. Analysis gives you annual and cumulative cash flow, return on investment, payback period and breakeven production per acre, all important criteria for bank loans..
- Based on your fields, your crops and your capital requirements, not national averages.
- Shows how increased yield alone can justify your investment, over and above the many other benefits of drainage.

# G.R.O.W. Analysis Report

*This guide sheet explains how G.R.O.W. Analysis works and what it can tell the user. The process starts with input of data from your operation. The resulting printout gives a detailed explanation of each entry that is shown on this page.*

**1** through **8**. Taken from input form.

**9. Down Payment Principal** - The annual amounts applied to the principal of your loan and, when added up, will equal the Purchase Price (3). The principal amount plus the interest (12) expense make up your total annual loan repayment. The first year includes any down payment plus the first year principal payment.

**10. Additional Yield** – The dollar amount of the increased production resulting from drainage. It can be found by multiplying additional bushels (5) times estimated selling price (6) times number of acres (4). In the third year, the Disaster Factor of two improves the incremental revenue. NOTE: Our sample uses bushels, but you can also use pounds, tons, units, etc.

**11. Operating Expenses** - An annual estimate for such items as keeping outlets open, replacing animal guards and other periodic maintenance costs.

**12. Interest Expense** – Obtained from the Amortization Table on page 2 of the G.R.O.W. Analysis report, which is not shown in this guide.

**13. Tax Depreciation** – Calculated using the 39-year straight line method. (Consult your tax advisor.)

**14. Pretax Income** – The net total of Additional Yield less Operating Expenses, Interest Expense and Tax Depreciation.

**15. Less: Income Taxes** – Pretax Income multiplied by your tax bracket (8).

**16. Net Income After Tax** – Pretax Income less Income Taxes.

**17. Plus Tax Depreciation** – Depreciation was subtracted earlier to compute Pretax Income, but since it is not a cash outflow, it can be added back to Cash Flow.

**18. Cash Flow** – The cash inflow generated by the drainage investment.

**19. Cumulative Cash Flow** – Total accumulated cash inflow after each year it can be used to establish the payback period for the drainage project. In this example, the project cost is fully recovered in the ninth year (see also line 26).

**20. Investment Rate** – The return one could expect on any alternate investment of money.

**21. Net Cash Flow** – Cash Flow (18) minus Down Payment Principal (9). This shows your residual cash flow after the principal payment.

**22. Interest Income** – This is the after-tax interest one can expect to earn on the cumulative net cash flow over the preceding years. In our sample, the interest in the second year equals the Investment Rate of 8% times the prior year's cumulative (\$1,581) times 80% (after income tax).

**23. Cumulative** – Accumulated Net Cash Flow plus Interest Income.

**24. Breakeven Bushels/Acre** – The program calculates the additional bushels per acre needed each year to cover the total annual cash outlay (Principal + Operating Expenses + Interest Expense).

**25. Return on Investment** – This is the 10-year Cumulative Cash Flow (19) divided by the drainage system Purchase Price (3):  $\$81,290 \div \$60,000 = 135\%$ .

**26. Breakeven Year** – The year in which your cumulative cash flow exceeds the purchase price of the drainage project.

# G.R.O.W. Analysis User Input

## Instructions

An example of a completed input form is shown here. The following are areas that may need clarification.

### Estimated Yield

**Improvement:** Experience has shown that subsurface drainage can increase crop production by 25% to 35% on an average 110 bushel-per-acre field. Research at Ohio State University indicates some fields can improve yields by as much as 50%. The example shows 33 bushels per acre (30% or the 110 bushel average). Your estimate may be higher or lower based on local conditions, experience on neighboring farms or opinions from consultants and area contractors.

**Disaster Factor:** Most farmers figure on at least one rain-related crop failure every 10 years. Too much rain will limit growth and delay planting and harvesting, while too little rain will obviously reduce production. Drainage lessens the impact of either event and gives farmers a significant advantage in a bad year.

The "disaster factor" is a way to show this advantage in the G.R.O.W. Analysis report. The factor is calculated by dividing the best average yield by the worst average yield from the acreage. So if the best ever crop was 120 bushels per acre and the worst was 60, the disaster factor would be two.

As mentioned above, the benefits of drainage are especially noticeable in bad-weather years, which means that the estimated average yield increase should be larger during flood or drought. How much more? Simply multiply the projected yield increase by the disaster factor. In this case, 33 bushels times the factor of two means a 66 bushel-per-acre gain in the disaster year (which in the sample on page 2 is assumed to occur in year three).

**Crop Prices:** This is the best estimate and should consider historical trends, government targets, any crop contracts one may have and other factors.

**Contact an ADS sales representative on how to access our G.R.O.W. Analysis and Land Purchase Analysis on our web site - [www.ads-pipe.com](http://www.ads-pipe.com).**

**Advanced Drainage Systems**  
**G.R.O.W. Investment Analysis**

Name: Roger Smith  
Address: 1234 R.R. 2, Celina, IA 68199  
Phone: 538-555-5164  
Sales Representative: Joe White Date: 6/28/10  
Purchase Price of Drainage Product: \$60,000  
Down Payment: 0  
Interest Rate: 7.75%  
Length of Payments in Years: 10  
Number of Acres Drained: 100  
Product: com  
Estimated Yield Improvement: 33 bushel/acre  
Disaster Factor Year: 2  
Percent Tax Bracket: 20%  
List Crop Prices for each year for 10 years:  
1 3.25 6 3.25  
2 3.25 7 3.25  
3 3.25 8 3.25  
4 3.25 9 3.25  
5 3.25 10 3.25



# ADVANCED DRAINAGE SYSTEMS, INC.

## Land Purchase Analysis

		Product: Corn									
Prepared For:	Roger										
Purchase Price	\$350,000										
Assumptions:											
Acres	100										
Expected Avg. Yield	150										
Price Per Bushel	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25	\$ 3.25
Percent Tax Bracket	20%										
		1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
<b>Down Payment and Principle</b>		\$ 13,401	\$ 14,406	\$ 15,486	\$ 16,647	\$ 17,896	\$ 19,238	\$ 20,681	\$ 22,232	\$ 23,900	\$ 25,692
<b>Income Statement</b>											
Total Income	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750	\$ 48,750
Seed	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Fertilizer, Lime	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500
Chemicals	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Machinery	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Crop Insurance	500	500	500	500	500	500	500	500	500	500	500
Interest Expense	26,250	25,245	24,165	23,003	21,755	20,412	18,969	17,418	15,751	13,959	12,091
Property Tax	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Pretax Income	-9,000	-7,995	-6,915	-5,753	-4,505	-3,162	-1,719	-188	1,499	3,291	5,083
Less: Income Taxes	-1,800	-1,599	-1,383	-1,151	-901	-632	-344	-34	300	658	1,116
<b>Net Income After Tax</b>	-7,200	-6,396	-5,532	-4,602	-3,604	-2,530	-1,376	-135	1,199	2,633	3,967
<b>Cumulative Cash Flow</b>	\$ (7,200)	\$ (13,596)	\$ (19,128)	\$ (23,730)	\$ (27,334)	\$ (29,864)	\$ (31,239)	\$ (31,374)	\$ (30,175)	\$ (27,541)	\$ (23,904)
<b>Investment Rate</b>	8%										
<b>Net Cash Flow</b>											
Current Year	\$ (20,601)	\$ (20,802)	\$ (21,018)	\$ (21,250)	\$ (21,500)	\$ (21,768)	\$ (22,057)	\$ (22,367)	\$ (22,700)	\$ (23,059)	\$ (23,443)
Plus: Interest Income	0	-1,318	-2,734	-4,254	-5,886	-7,639	-9,521	-11,542	-13,712	-16,043	-18,566
<b>Cumulative</b>	\$ (20,601)	\$ (42,721)	\$ (66,472)	\$ (91,976)	\$ (119,362)	\$ (148,770)	\$ (180,348)	\$ (214,257)	\$ (250,670)	\$ (289,771)	\$ (331,537)
<b>Breakeven Bu/ Acre</b>	218.9	218.9	218.9	218.9	218.9	218.9	218.9	218.9	218.9	218.9	218.9
<b>Yearly Return on Investment</b>	-2.06%	-1.83%	-1.58%	-1.31%	-1.03%	-0.72%	-0.39%	-0.04%	0.34%	0.75%	1.16%
<b>Total Return on Investment</b>	-7.87%										

### "Should I invest in new land or drain the land I already have?"

This question comes up frequently and the short answer is that draining existing land will almost always be the best business decision.

Above is a computerized analysis showing a 10-year cash flow on the purchase of 100 acres of additional cropland. Even though the numbers are quite liberal, one can see that the low yield on the undrained new acreage, plus the added operational costs of seed, equipment, labor and chemicals, results in a lower return on investment than drainage of existing ground.

We can understand the appeal of expanding the size of a farm, but there's little doubt that installing drainage to improve yields on existing land is a much more productive use of investment capital. We think your banker will agree.





For more information on G.R.O.W. Analysis and the  
Land Purchase Analysis, please contact your ADS  
sales representative or visit [www.ads-pipe.com](http://www.ads-pipe.com)

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