EQUIPMENT TECHNOLOGIES ET

Self-propelled Sprayer R.O.I.

Part II: Performing a Cost of Ownership Calculation

What's Inside

Navigating the purchase of a self-propelled (SP) sprayer can be intimidating. You may be asking yourself such questions as:

- "Can I afford it given the acreage I farm?"
- "I know it is a good investment, but how long will it take to pay for itself?"
- "Is it better for my operation to buy or lease?"
- "Are there tools out there to help me justify the investment to a lender?"
- "What government tax incentives are out there to help defray costs?"

All these questions and more are answered by using our Cost of Ownership tool and it will answer the simplest of all questions stopping you from owning a self-propelled sprayer… ***"Will it make me money?"***

Understanding the inputs and costs

Like all business decisions, you need to understand the costs associated with an investment in order to understand the benefits. Over the years, with the help of our customers and dealers, we have clearly defined the inputs and costs so that an apples-to-apples comparison can be made between your current application method and an SP sprayer. The calculations often include the current ownership of a pull-behind sprayer, the hiring of custom applicators or both. In other words, it's not enough to calculate the cost of owning a SP sprayer, you have to factor all the costs associated with your current application method to make it apples-to-apples. Our cost of ownership tool does this. So let's start looking at the inputs…

Understanding the inputs and costs (cont.)

Acres vs. sprayed acres – application is unique compared to planting and harvesting in the sense that you may go over the field multiple times. Because of this, we calculate acreage not by the planted acre, but by the sprayed acre.

Labor (if custom application) – if you are hiring custom applicators, you no doubt know what they charge by the acre. You also know what they are charging for chemical.

Pull-behind costs – these costs are specifically for the producer that is operating a pull-behind sprayer. Our calculator includes some worksheets to help isolate the costs associated with a pull-behind. In reality, most pull-behind owners also hire custom application, so we will need to account for both costs.

Annual operation costs of a SP sprayer –These costs are simple and include fuel, maintenance, operator's wages and insurance.

Tax benefits and other accounting-related considerations – A self-propelled sprayer is not a minor purchase. Because of this, accelerated or bonus depreciation can be involved. Most importantly, Section 179 depreciation is still on the table.

Resale value (equity in the asset) – over the years you own the sprayer, how well does it hold its value? Without strong resale, return on investment (R.O.I.) will be difficult to achieve.

Understanding the intangible benefits

While this white paper is specifically about calculating the cost benefit of self-propelled sprayer ownership, there are numerous intangible benefits as well. Some, like comfort, are universal, but others like timeliness are specific to your region. For example, what if you were hiring custom applicators to eradicate a late season infestation? Being able to spray promptly on your schedule saves you money. It also adds peace of mind that will not appear on this calculator, but it often has a significant impact on your yields.

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Financing options, tax benefits (in greater detail), valuation of the asset and resale value

Buy or lease? – there are advantages to both. Leasing allows for ownership without the burden of a large, initial cash investment or perhaps lower annual payments. On the other hand, buying the sprayer may have stronger advantages related to R.O.I. particularly because of resale.

Tax benefits (in greater detail) – we have already briefly touched on tax incentives, but now we'll explain Section 179, straight line and bonus deprecation.

For tax year-2012, Section 179 allows you to depreciate up to $139,000 of an equipment purchase in year 1 of operation. Additionally, 50% bonus depreciation is also available which can then be applied to the difference between the purchase price of your sprayer and the $139,000 Section 179 allows for. Lastly, assuming the sprayer is not fully depreciated, you would still follow your regular depreciation schedule that your tax advisor uses for the remaining useful life of the sprayer.

Valuation of the asset and resale value – we are now going to touch on the difference between evaluating the purchase decision pre- and post-tax and the difference between straight and discounted cash flows.

Pre- and post-tax is simple. When you perform the cost of ownership calculation, we are assuming that you paid the taxes at the time of purchase. We all have to pay taxes and it is important to understand the effect of your decision on your tax bill. Simply put it is a cash savings and it contributes greatly to R.O.I.

Straight cash flow and discounted cash flow is also made simple with our calculator. Our R.O.I calculations use either a straight cash flow or discounted cash flow analysis. However, our sample calculation in this white paper uses the discounted cash flow method because it takes into consideration the time value of money. Time value of money recognizes that a dollar in your hand today is worth more than a dollar tomorrow. Therefore, the discounted cash flow method of arriving at R.O.I. calculations is a superior way assessing the value of the decision today.

Performing a sample calculation

Before we can perform a sample calculation for this white paper, we need to create a producer's profile. Below is a producer's profile, John Q. Farmer. It is also important to note that all of the numbers below come from calculations from within our Cost of Ownership tool.

Sprayed acres

John Q. Farmer farms

- 1,500 acres of beans, which he sprays 2 times
- 1,500 acres of corn, which he sprays 2 times
- 800 acres of wheat, which he sprays 3 times
  Therefore, his total application acres are 8,400.

Outsourcing and pull-behind costs

Currently, John runs a pull-behind sprayer and he also typically hires custom applicators to spray when he can't get his pull-behind into the field. Given 2 applications with his pull-behind and 1 custom application per year, John's **annual cost for his current application method is $5.50 per acre or $46,200.**

Depreciation details

- Section 179 (year 1 only) – John will be taking the full $139,000
- 50% bonus (year 1 only) – $30,500
- Straight depreciation – after the Section 179 and 50% have been exhausted, the regular depreciation schedule begins

Financing details:

- Purchase Price $200,000
- Interest rate 3.9%
- Term 4 years
- Down payment $40,000

Self-propelled sprayer operating costs:

John figures the following annual operating costs of his new SP sprayer:

- Fuel $2,660 ($3.80/gal.)
- Maintenance $500
- Operator $2,520 ($15/hour)
- Insurance $1,600 (.8% of the purchase price)
  Total annual operating costs: $7,280

Will the purchase of an SP sprayer make John money?

Yes! Compared to John's current spraying method, owning a self-propelled sprayer will have:

- An R.O.I. of **$10,626** per year compared to his current spraying method
- A savings per sprayed acre compared to a pull-behind and custom application of **$1.26**/sprayed acre
- Cost per application acre of **$2.07**

On the next page, we'll get into the details of this calculation.

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Performing a sample calculation (cont.)

Now, let's look at the details of how we arrived at $10,626 annual R.O.I.

Line		Year 1	Year 2	Year 3	Year 4	Year 5	
1	**Cost of Pull-type operation and Custom Application**	$31,416	$31,416	$31,416	$31,416	$31,416	=Annual cost of pull-behind less what you've written off for taxes ($46,200 x (1-Tax Rate))
2	**Net Present Value of Outsourcing Expenses**	**-$140,252**					
3	**Cost of Owning and Operating The Self-propelled Sprayer**						
4	Operating Costs	$4,950	$4,950	$4,950	$4,950	$4,950	
5	Interest	$6,240	$4,768	$3,239	$1,651		
6	Principle	$37,735	$39,206	$40,735	$42,324		
7	Down Payment	$40,000					
8	**Total Annual Cost**	**$88,925**	**$48,925**	**$48,925**	**$48,925**	**$4,950**	
9	**Cash Savings From Depreciation, Interest and Salvage Value**						
10	Depreciation	$174,075	$7,778	$5,444	$5,081	$5,081	
11	Interest	$6,240	$4,768	$3,239	$1,651		
12	Total	$180,315	$12,546	$8,684	$6,732	$5,081	
13	**Tax Savings**	**$57,701**	**$4,015**	**$2,779**	**$2,154**	**$1,626**	=Line 12 x Tax Rate
14	Salvage Value	$0	$0	$0	$0	$83,005	
15	Net Cash Out	-$31,224	-$44,910	-$46,146	-$46,771	$79,681	=Line 14 - Line 8 + Line 12
16	**Net Present Value of Cash Savings**	**-$87,123**					
17	**R.O.I. with Discounted Cash Flow Valuation Post Tax (Net Present Value)**	**$53,129**					=Line 2 - Line 20
18	**Savings per year**	**$10,626**					=Line 21/5 years
19	**Savings per application acre per year**	**$1.26**					=(Line 2/8400 sprayed acres/5years) - (Line 20/8400 sprayed acres/5 years)
20	**Cost per application acre per year**	**-$2.07**					=Line 20/8400/5 years sprayed acres

Line 1: Here we have our costs for running the pull-type twice and hiring the custom applicator once.

Line 2: The -$140,252 is the net present value, or what the total expense after four years, of running a pull-type and hiring custom applicators is worth in today's dollars.

Lines 3 – 8: These figures represent what it costs to operate the self-propelled sprayer you're thinking about buying.

Lines 9 – 15: Cash savings from depreciation, interest and salvage value are just that… cash savings.

Lines 16: The -$87,123 is the net present value, or what the total cash savings after five years of running your self-propelled sprayer is worth in today's dollars.

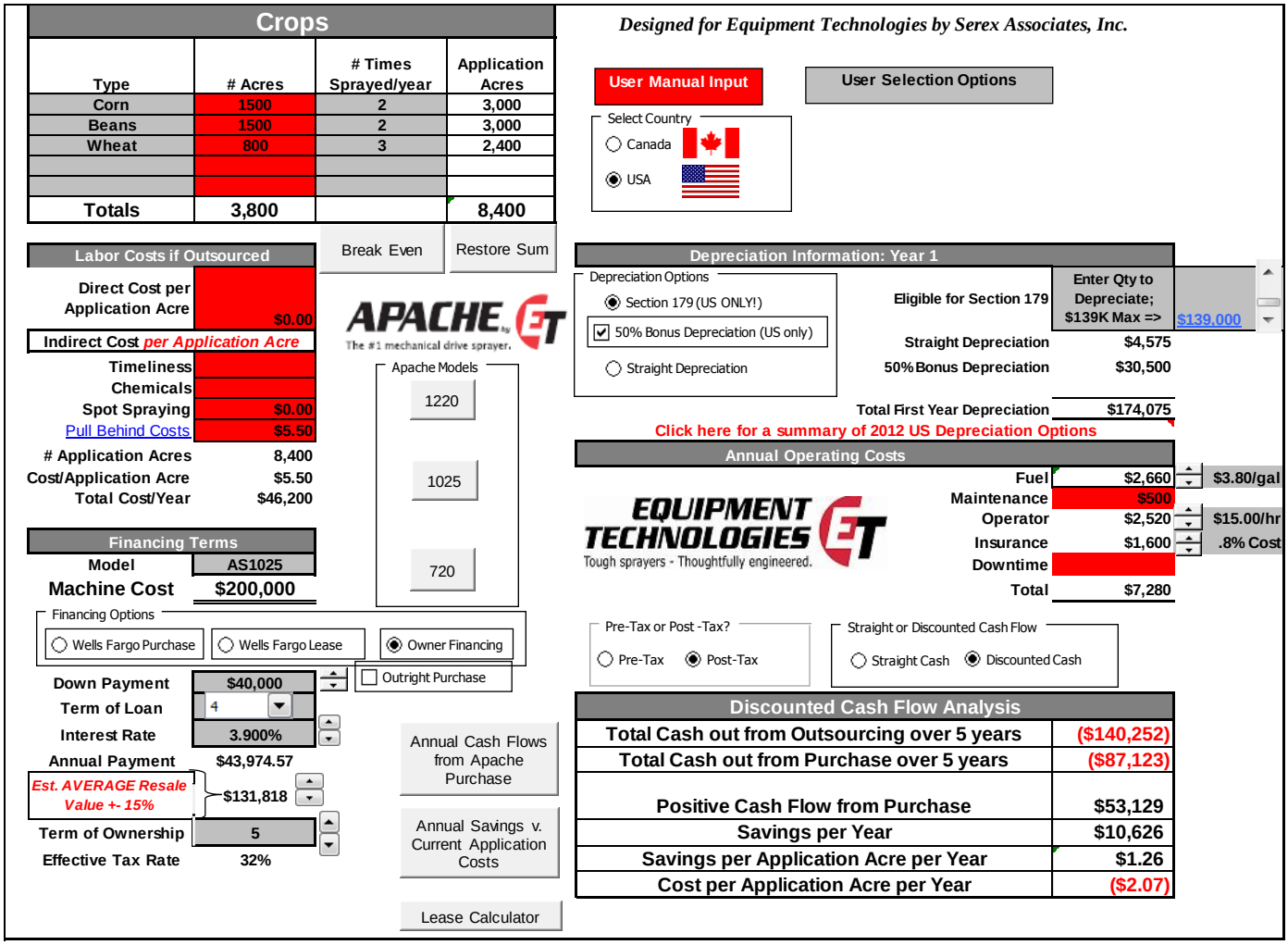
Line 17: This is John's R.O.I. You might be wondering, why is it that two negative numbers are being added up to make a positive number? Well, we are not saying it doesn't cost money to own and operate a self-propelled sprayer. We're saying that it costs significantly less to do so when compared to the current combination of pull-behind and custom application.

More about ET's Cost of Ownership Calculator

You have probably noted that in our sample calculation, there was a lot of math that seems to be happening behind the scenes. ET's Cost of Ownership Calculator performs such calculations as financing options, different depreciation choices automatically. The tool outputs the summary on one page, as seen below, for your tax account or your boss (the Mrs). Guys, we can't factor-in the cost of your wife's new kitchen once you've convinced her that that you're buying a self-propelled sprayer… you are on your own there.

Interested in a self-propelled sprayer cost of ownership analysis?

Contact Nick Smith, Apache sprayer Sales Manager at Equipment Technologies.
(866-463-0452) or nick.smith@etsprayers.com



Est. average resale value of Apache sprayers after five years is 76% based on actual experience calculated by Equipment Technologies. The resale value shown in the above example is 66% after five years to give a more conservative estimate.