

# MachBuildFin

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## INTRODUCTION

MachBuildFin is a Windows based program designed to analyze machine and building financing alternatives. Annual cash flows, net present values, and annuity equivalents are used to determine the total cost of a cash purchase, debt purchase or lease for farm equipment. The analysis takes into account interest, depreciation, tax implications, and can also be compared to custom hiring field operations.

The final analysis is a comparison of net present values. A net present value is the sum of future cash flows discounted in today's dollars. In other words, the net present value gives the total cost of the machine if all annual payments have to be paid when the machine is acquired. The alternative with the lowest net present value cost is the most desirable.

## Installation Instructions

MachFin can be downloaded off the Internet at:

<http://aede.ag.ohio-state.edu/people/moore.301/index.htm>

Go to the bottom of the page and click on "Farm Management Computer Programs" then click on MachBuildFin. This page contains links to these instructions and to the MachFin computer program. To install the program follow the steps below:

1. Click on the MachFin computer program link.
2. A message box will appear asking if you want to run the program or save this program to disk. Select "save this program to disk" and click OK
3. A Save As box will appear asking where you would like to save the installation program. Select where you would like to save the installation program. It can be saved to anywhere on the hard drive of your computer. Click on "Save".
4. The program will begin to download. After download click "Open Folder" (if your browser does not have an open folder button, manually open the folder that you saved the program to).
5. After opening the folder, double click on the MachBuildFinInst file.
6. A self-extracting file window box will appear, select a folder to download the program into. Click on "Unzip" button. A folder named MachBuildFin will be added to the designated folder on your hard drive. The folder will contain three files.
7. Go to the MachBuildFin folder that contains the three downloaded files, double click on setup.exe.

8. Follow the installation instructions. You may be asked to restart your computer during the installation process. If so, restart your computer then start over at step #7.
9. The program is now loaded and can be started by going to the “Start” button (lower left corner of screen) then “Programs” then “MachBuildFin”.

**Explanation of Program by Screen** (screen number in gray box in lower left corner)

### **Opening Screen**

Select either the machinery or building finance option

### **MACHINERY OPTION**

#### **Screen #1 – Finance Data**

Enter Federal, Self-Employment, and State tax rates. Default values have been included for typical tax rates in Ohio.

Enter after-tax discount rate. The discount rate is used to calculate the net present value and is typically the going interest rate.

All data on this screen should be entered as percentages. For example, 10% should be entered as 10.

#### **Screen #2 – Cash Purchase Inputs**

Purchase Price – The purchase price of the machine. If new, the price will be the same as list price. If used the purchase price will likely be less than the list price.

Salvage Value – The value of the machine when it will be sold or the value at the end of its useful life.

Years Machine Held – Number of years that the machine will be in possession of the purchaser. Must be 10 years or less.

Adjusted Basis – Typically the cost of the machine plus any trade in.

Section 179 Expensing – Amount, if any, that purchaser elects to deduct in year of purchase.

Depreciation Method – Choose one of four depreciation methods from the option box.

Disposal Method – Select how the machine will be dealt with at end of ownership of machine

### **Screen #3 – Cash Purchase Analysis**

Cash Payment – The initial outlay of money.

Sect 179/ Depreciation – The annual depreciation for the purchased machine. Sect. 179 deduction is included in year 1.

Depreciation is calculated on the machine even after the owner has disposed it of. New tax laws require that the individual take depreciation on machinery through its life even if it is no longer owned.

Value at Sale – The amount that the machine is eventually sold for when replaced or wears out.

Income Tax Savings – The amount of taxes that will not have to be paid due to depreciation deduction. The value is calculated by multiplying the depreciation amount by the marginal tax rates enter on screen #3. A negative number implies a savings.

Cash Outflow – The actual money that is used to purchase the machine, received from the eventual sale of the machine, and saved due to tax savings.

Net Present Value – The cash outflow adjusted to present dollars.

### **Screen #4 – Debt Purchase Inputs**

This screen is similar to Screen #2 (Cash Input Screen) with the following additions:

Amount of Loan – The dollar value of the loan taken out to buy the machine. Any difference between the purchase price and the loan amount is assumed to be a cash down payment in year 0.

Years of Loan – The number of years required to pay off the loan.

Loan Interest Rate – The interest rate for the loan in percent. For example, an interest rate of 10.5% is entered as 10.5

Repayment Method – The principal payments can either be based on a level total payment or a level principal payment. The level total payment keeps the annual payment the same, which will cause the principal payment to increase over time and the interest payments to decrease over time. The level principal payment will keep principal payments the same over time but the total payment will change annually as interest payments change.

### **Screen #5 – Debt Purchase Analysis**

This screen is similar to Screen #3 (Cash Purchase Analysis) with the following addition:

Interest – The amount of interest paid annually on the loan. The interest is added to the depreciation to calculate tax savings.

Cash Outflow – The cash outflow is equal to the down payment/principal plus interest minus the income tax savings.

### **Screen #6 – Lease Purchase Inputs**

Amount of Annual Lease Payment – The amount paid annually towards the leasing of the machine.

Years of Lease – The number of years for which the lease is negotiated.

Amount of Deposit – The amount, if any, that is deposited upon initiation of the lease.

Buy Out Option – allows machine to be purchased at end of lease

Buy Out Amount – If purchased at end of lease, amount of purchase price

### **Screen #7 – Lease Purchase Analysis**

Deposit/Payment – The initial deposit plus the annual lease payments.

Income Tax Saving – The deposit/payment times the tax rate.

Buyout – buyout amount

Cash Outflow - the deposit/payment less the income tax saving.

Net Present Value – The cash outflow adjusted to present dollars.

\*The following screens calculate the costs of hiring an operation to be performed via custom hiring versus the costs of buying and operating a comparable machine.

### **Screen #8 – Custom Rate and Operating Cost Inputs**

Annual Custom Rate for Machine – total annual cost of custom hire for machine operation

Years in Analysis – number of years machine operation will be custom rented

Annual Operating Expenses for Machine Operation – annual input costs for machine operation (gas, oil, etc...)

### **Screen #9 - Custom Rate Analysis**

Custom Cost – Annual Custom Costs

Income Tax Savings – amount of taxes that will not have to be paid due to custom costs deduction

Cash Flow – custom costs less income tax savings

Net Present Value – net present value of cash flow

### **Screen #10 – Cash Purchase With Operating Costs**

After-Tax Cash Flow from Cash Purchase Analysis (CPA) – The cash outflow from Screen #3 (Cash Purchase Analysis).

After-Tax Operating Costs – The operating costs adjusted for the tax rate.

Cash Flow – Cash flow from CPA plus the after-tax operating costs. A negative number implies an inflow of cash.

Present Value - The cash flow adjusted to present dollars.

### **Screen #11 – Debt Purchase With Operating Costs**

This screen can be analyzed the same as Screen #10.

### **Screen #12 – Custom Hiring Analysis**

Custom Costs – The total yearly custom hiring costs.

Income Tax Saving – The custom costs adjusted for the tax rate.

Present Value – The custom costs minus income tax savings adjusted to present dollars.

### **Screen #13 – Machinery Financing Summary**

This summary lists the net present value for each financing alternative. The first three net present values do not include operating costs because operating costs are identical for these alternatives. Inputs for each of these three alternatives are made in Screens #2, 4, and 6. The alternative with the lowest net present value is the least-cost financing alternative.

The last three alternatives include operating costs because the alternatives have differing operating costs. For example, cash and debt purchases will have fuel, operating, and labor costs while custom hiring will not. Inputs for these alternatives come from the screen #2 and 4 with the additional data input from screen #8. The alternative with the lowest net present value is the least-cost alternative.

### **BUILDING OPTION**

The building and machinery option are similar in analysis, the following highlights the difference between the two analyses.

#### **Screen #2 – Cash Purchase Inputs**

Section 179 Expensing – only available for single purpose buildings

Building Type – select the type of building in analysis, consult Farmers Tax Guide for definitions of each type of building

**No custom rate analysis is done for the building option.**

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Questions or comments concerning MachBuildFin should be addressed to:  
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