

# **User Notes for Small-scale Virginia Commercial Hops Production Enterprise Budgets and Financial Statements**

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## **REVENUE SENSITIVITY ANALYSIS**

Sensitivity analysis is the practice of varying expected yields and market prices which effect affect overall gross revenues. Sensitivity analysis is an important tool for developing contingency plans for any business. Conducting a sensitivity analysis provides information needed to improve decision-making in both tough times and in periods of relatively higher profitability. Based on the data shared in the previous tab, the Revenue Sensitivity Analysis demonstrated the sensitivity of each hop variety to incremental changes in yield and price. Price changes are in \$1.00/lb. increments, while yield changes are in 10 percent increments from the median. The enterprise budgets assume typical yields and prices for mature hops grown in Virginia.

## **COSTS OF PRODUCTION**

Cost of labor used is the [2018 Adverse Effect Wage Rate \(AEWR\) for H-2A workers in Virginia](#). The federal non-immigrant work visa program (H-2A) allows growers to bring agricultural guest workers for seasonal employment. Due to the structure of the H-2A program, which requires firms to search for US workers prior to sourcing H-2A workers, the AEWR is effectively an agricultural minimum wage ([Whittaker 2008](#)). Thus, this wage rate serves as a proxy for the minimum wage rate a grower might pay for agricultural labor. Within the enterprise budget, growers are encourage to adjust the wage rate to reflect local wage rates or the opportunity cost of labor provided by the farm owner. Growers are encouraged to use current interest rates to adjust the cost of capital rate.

Pre-harvest Costs: The [VT Soil Testing Lab routine soil test](#) costs are included and growers may change these numbers to fit grower needs.

Fertilizer costs: Hop fertilizer recommendations taken from [Soil Test Recommendations for Virginia: February 2015](#). Medium soil recommendations used in this budget and converted to tons for pricing purposes. Fertilizer prices sourced from [USDA Economic Research Service Fertilizer Use and Price](#) tables. Grower are encouraged to adjust numbers based on soil test recommendations, soil survey, and local prices.

Other Annual Costs: Marketing costs are blank as most growers sell product through contracts, though direct market growers are encouraged to add in any related costs. However, these columns are there to remind the grower to account for these costs if needed. They are also likely to vary by operation and geographic location.

Depreciation expense is on the balance sheet tab as farm equipment. Depreciation is not a cash expense, but it does reflect a decrease in the value of assets. Depreciation is an expense that maybe written off the operation's taxes.

If the operator or their family work on the hopyard, "Operator labor" is the value of that labor. When estimating the cost of their time, the grower begins by using the salary foregone by choosing to work on the hopyard operation, given their skills and experience. For instance, if hops grower John Hamm is produces hops full time after leaving a welding-job that paid him \$60,000 per year for roughly the same amount of work, his value of operator labor should be \$60,000 per year. If this number results in unprofitable hopyard operation, that means he is taking a pay cut to grow hops. He may still feel that is a worthwhile tradeoff if he loves growing hops much more than welding, but provides perspective on the fair value of his time.

Land rental rates are based on [2018 NASS County-level Cash Rent for Virginia](#). Prices used are from irrigated cropland figure for the state average to reflect water costs. Growers may change this to reflect their rental arrangements, or to reflect what they might otherwise make by renting out the land.

Establishment Costs: All trellis construction costs, with the exception of labor, are drawn from [Requirements and Estimates for Building a ½ Acre Hop Yard](#). Trellis construction labor and all other establishment costs are from [Enterprise Budget - Small-Scale Commercial Hops Production in North Carolina](#). All costs are adjusted based on plot size.

## **BALANCE SHEET**

This historical financial document reflects what the operation owns and what it owes. It is typically an annual snapshot of a particular moment in time. For more information on balance sheets, as well as other financial statements used by agribusinesses, see [Farm Financial Risk Management Series Part II: Introduction of Financial Systems for New and Beginning Farmers](#). The balance sheet is a common financial statement that lenders ask for, so be sure to keep yours around to use when trying to secure a loan. All items in the “value” column reflect the value of assets and liabilities on a specific date. Current assets are what the farm owns of the business, and are convertible to cash or used up within a year (e.g., cash and savings balances). Noncurrent assets typically serve the business for more than a year, such as buildings and equipment, and subject to depreciation over time. Purchase value represents the price originally paid for the item. The useful life is the number of years the item retains value, although the item may still be usable in a practical sense. The salvage value is the minimum value and represents the amount of money it is worth at the end of its useful life. The age column indicates the age of the item at the time the balance sheet is prepared. Growers calculate annual depreciation expense using purchase and salvage values and

years of service. Liabilities are what the farm owes. Current liabilities are due within the year, such as lines of credit or operating loans. Noncurrent liabilities are longer-term loans such as mortgages.

## **ENTERPRISE BUDGETS**

We provide two enterprise budgets based on data linked from previous tabs, which represent Virginia hopyards on a half-acre and a full acre to capture any scale effects. Both include operating loans and interest expenses based on the amount of money needed to cover your costs. Use the drop-down menu to change loan length and interest rates. If you do not need an operating loan, simply change your term to 0 months. Management is a percentage of gross revenues and used to account for a reasonable return to owner management - basically, what the grower spends in his or her time and resources in keeping the hopyard business in operation. This is different from operator labor and reflects the opportunity foregone by choosing to run a hopyard.

## **INVESTMENT ANALYSIS**

These tabs contain returns to the grower over the life of a hopyard, adjusted for the time value of money (due to inflation and other factors, a dollar today is worth more than a dollar tomorrow). Growers can change the useful life of their hop plants based on what is appropriate for their area given management, climate, diseases, and desired yields. Typical annual net cash flows are from the enterprise budget tabs.

Net present values (NPVs) calculations are the value of an investment over its entire life in represented in terms of money today. In other words, after accounting for all costs, how much is this investment worth to you today? The NPV sensitivity analysis table shows the changes in NPVs at different desired rates of return. For a great explanation of NPVs, see [A Refresher on Net Present Value](#).

The internal rate of return (IRR) shows the percent return the investment generates over its useful life. The table shown includes establishment costs (seen in year 0) as well as net returns (net income based on the enterprise budgets) and replanting costs once the hops outlive their useful life. The present value column shows their value in today's money given the desired rate of return. In addition, net returns reflect lower expected yields during establishment. If possible, the desired rate of return should be at least equal to an alternate investment, such as investing startup capital in the stock market, and is typically set at ten percent.

## REFERENCES

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