INSTRUCTIONS FOR PRODUCT COST CALCULATORS

Introduction

These calculators allow you to simulate four common food processing scenarios:

(1) building a small kitchen on your own farm
(NCAT Commercial Kitchen: On Your Farm.xlsx);
(2) short-term periodic leasing of a commercial kitchen
(NCAT Commercial Kitchen: Hourly Rental);
(3) long-term continuous leasing of a commercial kitchen
(NCAT Commercial Kitchen: Long-Term Lease); and
(4) building a new commercial kitchen
(NCAT Commercial Kitchen: Build-Operate).

These scenarios correspond to a typical development process for a value-added operation. You might start small by selling to existing customers, then grow your business by selling to a larger, but still local customer base, mostly direct sales; then you might start selling your products through a distributor to a major retail grocery chain or specialty food store chain that has regional, statewide or even national customer bases.

You'll need basic familiarity with Microsoft Excel and the calculators require detailed input which you will have to compile about your product(s). You can only type in the cells that are shaded green or orange because the rest of the cells are locked. You should feel comfortable using these calculators with as many simulations/scenarios that you think are possible. You cannot break these calculators so don't hold back!

If you're using a full version of Microsoft Excel, you'll need to "enable editing" after opening the files. If you're using Excel Online you'll need to not only view the spreadsheet but click the "OPEN" button to be able to enter data.

NCAT Commercial Kitchen: Build-Operate

This worksheet includes eleven tabs, eight of which require you to enter data. Although you can fill the pages out in any order, you'll probably find it easiest to go through them in the order presented (left to right).

Introduction tab

Please read the Introduction tab before using this spreadsheet.

Plant, Property & Equipment tab

In the green boxes at the top of the page you can fill in any "Grant Funds (no repay)" you may have received and other financial data about any loans you will take to fund your business.

For “Capabilities of Chosen Facility” you’re picking between:

“A” for Baking, Canning, and Drying in the facility
“B” for just Baking
“C” for just Canning
“D” for just Drying (dehydrating)

or any combination of these.

Default estimated values are in this tab for “Cost of Land” and “Engineering/Professional Services Fees”; adjust these for your scenario.

Utilities Estimates tab

Note: These numbers don’t link anywhere – they are for you to test scenarios … then you need to go key in the values you want on the Plant, Property & Equipment tab.

Sample data is provided and you can adjust the numbers in any green cell to be what you think the actual usage would be for your products.

Production Assumptions tab

This tab presents some fixed costs of building a commercial kitchen and running the entire operation yourself.

In the first green block on the left side, “Product Name”, list the names of products you want to analyze. Sample product names are provided and you can change or delete them. There is room for up to 10 products, although you can do as few as one.

In the green box below that, “Annual Production Capacity %”, indicate the percentage of a full year’s production capacity that will be taken up by each product. If the total exceeds 100%, you have exceeded the total capacity of the facility and you’ll get a warning. Fill in the remaining green boxes on the left with your estimated number of Hours of Production per Day that you’re operating the kitchen, your estimated Days of Production per Year, and the number of employees you plan to have, of each type, for Production Staff.

The names of your products will auto-fill into the 10 boxes going out to the right called “*Ingredients & Other Variable Costs.*” Enter the ingredients and other costs for each.

For the green boxes in each product box, estimate how many units of the product you can make per batch, how many batches per day you can make. The next box, “Shrink/Waste/Give-Aways”, is your estimate of what percent of each product will *disappear*, in the sense that it will be made, but not sold for any revenue. This could be for a number of reasons such as: marketing promotions, product spoilage, product returns, etc. We suggest that you use the number of 3%, but you are able to change that number (individually for each value added product) if you wish.

Continuing down the column and filling in green boxes: enter the total packaging costs for one unit of your product. If, for example, you are putting your product into a jar, the costs should include

the jar, the label, the lid and that one unit's share of the cost of the container that might be used to ship one case of the product.

Make your best guess as to the average selling price of your product. **Varying this estimated price may be the principal reason for many of the simulations you will do.** There's also space at the bottom for recording your assumptions and other notes.

Depreciation tab

There's nothing you need to enter on this tab.

Personnel Expenses tab

Here you'll list employees required for operations who are in addition to production staff. Sample data is listed and you should adjust for the scenarios you wish to test.

The first box is "Payroll Information". Here you enter estimates for employer payroll taxes, retirement benefits and health insurance benefits that you plan to pay the management staff of your operation. For the payroll taxes that you, as employer must pay, we estimate that to be about 8.5%. This includes FICA (6.25%), Medicare (1.45%) and Unemployment (.5 to 1.5%) in 2017-2018.

For retirement benefits, this is an employee benefit that may be worth considering in your business cost structure to help you recruit and keep the employees you want. You can indeed input a value of 0% for the row entitled "% of Retirement Tax to Salaries".

The same discussion applies for the next row. Employers of small businesses sometimes do not have to offer any subsidized health insurance to their employees depending on their size. You will need to find out for your situation whether you need to include this. Again, you can input a value of 0% for this cost estimate if that's appropriate for you.

The final row in this box is an estimate of how much you think wages will increase per year just to keep your employees in place. We call this "Wage Inflation". This figure is running about 2% to 3% on a national level. We suggest that you use a small number for this estimate, say 1% or 2%; since wages are probably such a big part of your projected expenses, we think this will give you a better view of the actual costs of your projected operation as you look 5 or 10 years down the road.

Continuing down this tab, you will see a matrix of five rows of green shaded fields and three columns of data entry fields. The purpose of this chart is to calculate the total yearly personnel costs for your operation based on all the decisions you have made previously about wages, taxes, benefits and some new decisions you will make for the first time with this chart. For example, you have previously decided the number of production personnel needed to make the batch schedules described in the boxes called "Production Assumptions". Given that staffing decision, you must now decide how many non-production line staff people are needed to do the remaining managerial, marketing and distribution work.

Starting in the first row, you will enter the title of the first non-production line job type. This could be plant manager or bookkeeper or warehouse person, etc. The order is not important just make sure you list every additional job type needed. In column, “Salary”, you will list the expected salary for that position. Moving across the row filling in green boxes, you will enter the number of workers of each type and then whether you expect them to have any overtime during the year. You probably will not need this many, but we have allowed space for five job types within this chart that are not already included in the production line description on the previous tab.

Remember, these are annual costs for staff who are regularly on-site. If these employees also help during a production run while they are being paid their salary – then you would NOT put in hours for them on a product (back on the Production Assumptions tab) or you will be double-counting their salaries.

However, there is the possibility you could have someone working in your office as a part-time employee and you would put their annual salary here but then they might also fill in on production runs OUTSIDE of their office hours. In this case – you DO need to count their time on the appropriate production run also to accurately capture your total employee costs.

You will see the next-to-the-last row of this chart is the information from the tab, "Production Assumptions".

Adding all these estimates together will develop the last row on the chart called “Total Personnel Costs”, for the first year of operation of your kitchen.

Market Projection tab

This tab only requires you to enter one data point: the percent of kitchen capacity utilization for the first year of this operation. For this scenario, for the first year, you probably will not use all of the kitchen you build. You expect to grow your business and then need more production capacity. Note that we estimate you will operate at 100% of capacity for the next nine years of operation.

This tab will show you the contribution of each individual product you plan to make, by year, for the 10-year planning horizon. This could show you that some products may actually lose money, even if your total operation is showing a profit.

If this tab is showing all zeros you should return to the tab “Production Assumptions” and fill in the mandatory Annual Production Capacity % box making sure the total is 100%.

Borrowing & Debt tab

Here you will only enter in the green cells a dollar amount if you’ll be borrowing your working capital and, if so, key in the interest rate you think you will pay for it.

Expense Projection tab

There are only a few green cells on this tab to adjust with your data and they are clearly labeled. The rest of these values come from previously filled in tabs.

You can adjust the Annual Expense Inflation Rate if desired or leave the default 1% in the cell.

Supplies are not items that you will use in the manufacture of your products. Those items should be included in the per unit cost estimate under the Production Assumptions tab. These supplies would consist of mops, brooms, pest control measures, light bulbs, etc.

Profit & Loss tab

Fill in your expected tax rate. Take into consideration that you're [hopefully] making money with this endeavor and you may fall into a higher tax category.

Return on Investment tab

The Return on Investment (ROI) tab looks at cash flows over the life of the project. It also considers the interest rate, or time-value of the money, which is a measure of what your company could be earning had you invested elsewhere. ROI basically reflects the compounded returns from the project. You should invest in projects with rates of return higher than your required rate of return. The required rate of return should reflect the interest rate paid on capital plus a premium for risk. One method of selecting a required rate of return is to determine the rate you would reasonably expect to receive if you purchased stock in companies with the same risk as your project.

So, for the only green block on this tab, select the Discount Rate for NPV (Net Present Value) to be the minimal rate of return you consider acceptable for a 5-10 year horizon.

PLEASE NOTE: At this point, if you have still not assigned any money to pay yourself for managing this operation, do not consider this number a measure of Net Profit.