



SUSTAINABLE FOOD LAB

North and South Dakota Organic Enterprise Budget Explanation Sheet

Introduction

Provided here is an enterprise budget template specifically designed for organic farmers in North and South Dakota. The budget is tailored to these two states, yet it provides flexibility to choose from a suite of cropping rotations, allows fine-tuning of field operations, and enables the user to adjust expected future crop prices.

Budget Outline

The budget is divided into four primary sections, which are detailed below. With minimal input from the user, it can provide an initial estimate of net returns; when specific elements of the budget are refined, the initial estimates are updated. Therefore, it is possible to explore a wide variety of crop rotation scenarios without needing to dive into the details. Once a rotation has been selected, more effort can be invested into improving the accuracy of the budget forecasts.

Conventional, transition-to-organic, and organic scenarios are presented side-by-side throughout the budget to aid conventional producers in evaluating the financial merit of switching to organic. The primary differences between these scenarios are field operations, applied inputs, and crop prices (transitioning producers are paid organic prices after the 3-year transition period).

Instructions for using the budget and tailoring it to your farm are also provided within the workbook itself.

Overview

The overview tab provides an entry point for using the budget, and is where the basic parameters of the crop rotation are specified.

At a minimum, the user is required to specify their crop rotation for one of three (conventional, transition-to-organic, or organic) scenarios. If you prefer to only explore one of these scenarios, the others may be ignored. The crop budget can accommodate up to six fields on a farm with unique crop rotations. For each field, the crops grown in each year may be modified by clicking on the relevant cell and selecting the crop from the drop-down menu. Additionally, the size of each field (in acres) may be adjusted on the right side of the table for each scenario. Setting a field size to zero indicates that it is not being used. Please note that fallowing fields is only allowed in the conventional scenario.

Once the basic crop rotations and fields have been set, a first glance at the net returns from the rotation may be viewed at the bottom of the overview tab. Five-year net returns are



SUSTAINABLE FOOD LAB

displayed in tabular and graphical form. The net returns are an initial estimate, and are updated when further details on field operations and costs are specified in the crop budget.

Nitrogen Credits and Weed Suppression

Above the section displaying net returns, assumptions are defined for two important agronomic factors that can impact fertility and yields: nitrogen credits (fixation) and weed suppression. Leguminous crops fix nitrogen from the air and eventually deposit that nitrogen in the soil where it may be used by subsequent cash crops. If you choose to “take” these credits and count them towards your fertilization needs, then the values should be set greater than zero. In such a case, the amount that is spent on nitrogen-containing amendments will be automatically reduced by the amount of the credit.

Different crops also have distinct capacities for competing with weeds for space, nutrients, and sunlight. Crops such as lentils are poor competitors, thus there is high potential for weeds to germinate, flower, set seed, and deposit those seeds in the seed bank. Once weeds are common in the seed bank, they can have significant impact on the yields of subsequent crops. These impacts are captured by the “Weed Suppression Factor” used here, where higher percentages indicate that yields are reduced in the cash crop of the following year. You may want to adjust this weed suppression factor downward or upward depending on the amount of weeds currently infesting your fields, the degree to which you will use cultivation to reduce their viability, and the suitability of environmental conditions for them to grow. For the conventional rotation, the impact of weeds on yields is reduced by half to account for the enhanced capability of herbicides to limit weed growth.

Following initiation of the crop rotations and field areas, we recommend entering details specific to the chosen crops in the “Conventional Rotation”, “Transitional Rotation”, and “Organic Rotation” tabs as described below.

Conventional, Transitional, and Organic Rotations

All three of these tabs are set up similarly, however the conventional rotation is different with respect to nutrients, herbicides (or lack thereof), field operations, and price received. At the top of each tab, the selection of possible crops is displayed (Cells C7 to O7), and the column below each crop name contains the specific costs and revenues associated with that crop, calculated on a per-acre basis.

Within each column, the details may be entered and refined to match your operation. For example, if you wish to choose field operations to match the machinery available on your farm, you can select the appropriate choices in the drop-down menu. The selected choices will alter the variable costs of the rotation with respect to operation of machinery and labor required for execution (see the *Costs* tab).



SUSTAINABLE FOOD LAB

Inputs

For the transition-to-organic and organic rotations, two fertilizer input options are allowed – steer manure or poultry litter. Organic producers often apply a wide range of inputs that are difficult to fully capture in an enterprise budget, thus the “Other (input price/acre)” line is where alternative inputs should be specified. Please note that other inputs entered on this line will not factor in nitrogen credits.

Crop Insurance

Crop insurance costs are provided on a per-acre basis, but can vary significantly depending on your specific location (county/state) and desired coverage level. It is highly recommended that crop insurance prices specific to your operation are obtained and entered into the budget.

Equipment Costs

The cost of owning and maintaining equipment can vary depending on the age of machinery, maintenance history, and a variety of other factors. The cost estimates provided in the budget are based on data collected from regional universities/agencies (North Dakota State University, Idaho State University, and Montana Dept. of Ag) and averaged by Dr. Anton Bekkerman, professor of Agricultural Economics at Montana State University. Equipment and other cost details can be found in the *Costs* tab of the spreadsheet.

Land Costs

Land rental prices represent the cost to rent an acre of land or the opportunity cost of land ownership (money invested in land that could be used elsewhere). These costs are highly variable throughout North and South Dakota, and can vary from \$35/acre to over \$100/acre. We recommend updating the rental costs in the budget to accurately reflect these costs.

Yield and Price

Crop yields will vary widely depending on the level of grower experience, weed pressure, soil fertility, and climate. This budget estimates average yields for both conventional and organic production (which are typically lower); you may update these values if yields on your farm are expected to be higher or lower. Prices are similarly based on recent prices received for conventional and organic crops, but they can be adjusted up or down to assess the impact of market conditions on overall net returns.



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Cash Flow

The cash flow tab is where the user can incorporate cash transactions beyond those specified in the rest of the budget spreadsheet. Nonfarm income, capital sales, interest on new purchases, and grants may account for additional inflows of cash. Living expenses, taxes, capital purchases, and principal payments may account for additional outflows of cash. Depreciation of machinery is already factored into the budget within the rotation tabs (as an additional fixed cost of owning equipment), but additional depreciation may be entered here for other equipment such as grain storage bins.

Disclaimer

The agronomic data presented in this enterprise budget represent averages based on multiple growing seasons. The prices used are the best available data from a specific point in time and will inevitably be somewhat different than the prices in any given year. Therefore, before implementing any plan outlined in an enterprise budget, up-to-date agronomic and price data should be entered into the budget wherever possible. This budget can assist in identifying profitable crop rotations and strategies, yet it is ultimately reliant on the quality of input data, the ability of the grower to implement the agronomic plan, environmental considerations such as soil type, and an understanding of all of the costs contained within.