AgBiz Logic™: an Economic, Financial and Environmental Decision Tool for Farmers, Ranchers and Land Managers

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The Problem

Farmers need a transparent way to incorporate climate information into their management decisions.

A Solution

AgBiz Logic (ABL) is a cutting-edge web application for agribusinesses under development in Applied Economics at Oregon State University designed to support farm management decisions. OSU researchers are utilizing this software to assist farmers in understanding the opportunities and challenges that climate change and weather variability pose. Through a unique and innovative collaboration with the NOAA RISA project and the Oregon Climate Change Research Institute, growers in the PNW will soon have the capacity to compare the bottom lines for their specific management operations and possible outcomes associated with future climate and market projections.

This unique application is designed to collect, manage and optimize data from a variety of sources – from balance sheets and weather stations to site-specific zones in the field. The robust data lays the foundation for economic, financial, and environmental decision-support tools, which enable agribusiness professionals to make optimal choices that impact their bottom-line and environmental impacts.

Data is at the heart of *ABL*. The collection of data is performed either through the user interface, or through the highly automated process of telemetry. Telemetry relies on platforms that align data into a normalized format, which can be exchanged between systems. A company that has developed such a platform and is currently in discussion with *ABL* is Centricity (www.centricityglobal.com), which has a product named Binder (www.binder.ag). Binder (with the underlying Centricity API framework) connects the dots between field-level data and systems that perform the needed analysis, such as *ABL*. *ABL* then completes the cycle by delivering real-time actionable data to a decision-support tool.

Whether the user collects data manually or with telemetry, *ABL* is the go-to platform for economic, financial and environmental assessments of their data.

Components of ABL:

AgBizProfit: an application that enables the user to make more effective short-, medium- and long-term capital investment decisions by efficiently measuring the investment's profitability.

AgBizLease: an application that allows the user to establish equitable crop and livestock leases.

AgBizFinance: an application that empowers the user to make sound investment decisions based on 19 whole-farm financial ratios and performance measures.

AgBizClimate: an application that provides near-term climate change projections for average weather conditions relevant to agricultural commodities in a specific region.

AgBizEnvironment: an application that gives the user the ability to account for environmental impacts when analyzing business decisions. It uses existing environmental models and calculators to measure tradeoffs between economic profits and environmental outcomes at the farm level. It has the capacity to measure greenhouse gas emissions, carbon sequestration, soil erosion, pesticide effects, and nitrogen and irrigation use efficiencies, based on input uses and tillage practices.

More about *AgBizClimate*

AgBizClimate allows producers to explore the near-term climate change projections for average weather conditions relevant to commodities (e.g. average precipitation or temperature) in specific areas. Changes in averages weather conditions can raise the risk of extreme weather events (e.g., excess heat or precipitation). *AgBizclimate* allows you to adjust your investments, commodities, and yields based on how you think such changes will affect your production and risk.

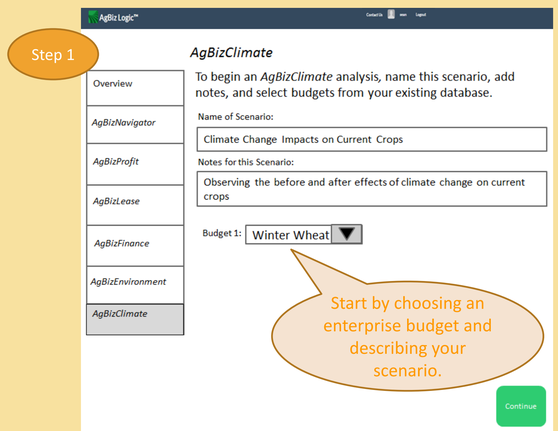
What can you do with AgBizClimate?

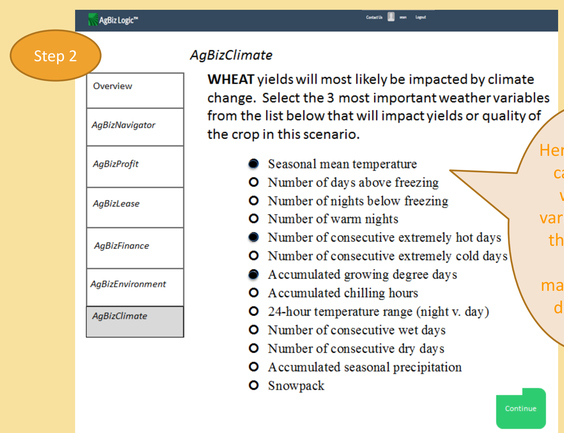
The Earth's climate is warming and will continue to warm throughout the next century. This has the potential to affect agriculture worldwide both positively (e.g., longer growing seasons) and negatively (e.g., increased heat stress) depending on the commodity (e.g. crop, livestock) and location.

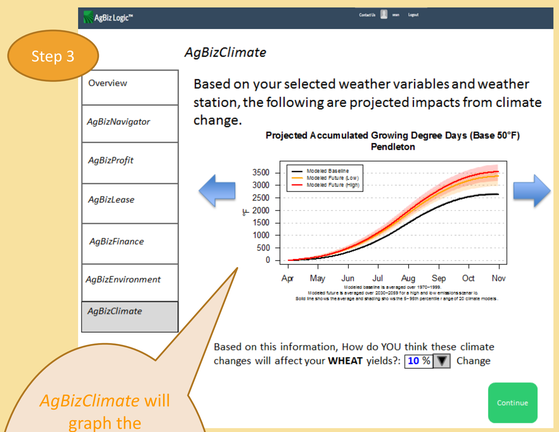
AgBizClimate does not provide weather forecasts for subsequent years. It does, however, allow you to step into the world of 20-30 years from the present and consider how your current enterprises and operations will continue to serve you in the future. Then you can consider if there are any long-range planning decisions you may want to consider in order to maintain profitable operations.

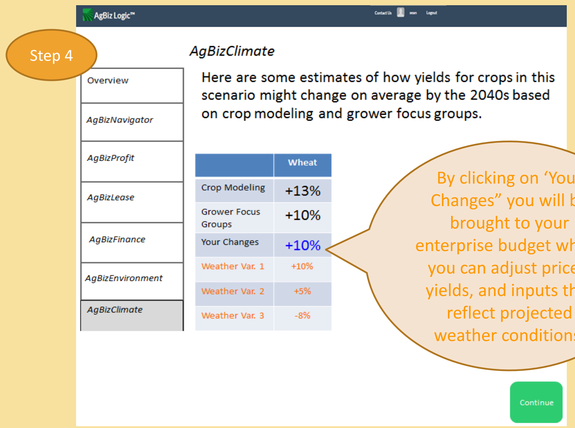
AgBizClimate Example

In this example, a user is observing the before and after effects of climate change on their current crops. They first name the scenario, provide notes to what the scenario consists or is doing and selects up to five enterprise budgets generated from their farm. In step 2 the user selects up to three weather variables that have the highest impact on their crops or livestock enterprises. What weather variables a user selects determines which output is provided for their viewing. In step 3 the output is projected growing degree days. The user in this step can modify yields by a percentage based on this information. Step 4 shows how crop models and industry groups project the yields may change based on this information. The user then has another opportunity to modify their yields. And finally after each crop has gone through a similar process, *AgBizClimate* generates the net returns of before and after estimating climate change on their crops. The user can then access *AgBizProfit* to examine the profitability of adaptation strategies to mitigate the loss of net returns displayed *in AgBizClimate*

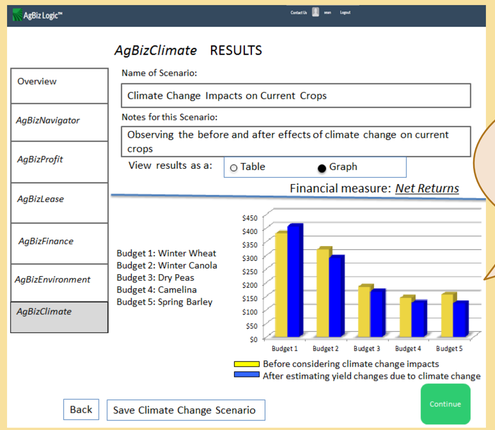








AgBizClimate will graph the projected weather conditions for your region in the future, then expected yields can be changed accordingly.



Once prices, yields, and inputs have been adjusted, *AgBizClimate* will display graphically the net returns under these new conditions. The user can explore multiple scenarios in this manner.

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