

GROWING SEASON

This last 7 months, ranging from early August through November for planting, and February through May for harvesting

- Typical weather in Brazil includes hot temperatures with a humid atmosphere, resembling greenhouse conditions.
- Average temperatures are between 63 to 82 degrees Fahrenheit.
- Average rainfall is between two and 10 inches per month, with December and January being the rainiest months.
- Frost is a rare occurrence.

RECENT HISTORY

Brazil has encountered several regional agricultural challenges in recent years:

- In 2013 and 2014, the effects of El Niño have resulted in drought conditions for most of Brazil.
- In 2013, Brazil declared a state of emergency in the agricultural industry because of a large infestation of the Helicoverpa caterpillar. This infestation led to a rise in production costs for farmers and corn crops were at a high risk for reduced yield.
- The risk of flood has increased significantly in the past decade for the southeastern region of Brazil. Hurricanes and tropical cyclones in the South Atlantic are also a risk to the agricultural industry.
- Brazil's worst corn pest is the Spodoptera frugiperda, also known as the corn leafworm or southern grassworm. Brazil also has a risk of corn rootworm.

CLIMATE CHANGES

Climate change will likely increase water scarcity in Brazil's agrarian northeastern region. Additionally, some areas of Brazil will become drier and experience higher than average temperatures. Combined, there is an increased likelihood of fires; which could make it more difficult to earn a return on investment.

ECONOMICS

In Brazil, commodity prices are important and most farmers choose not to purchase insurance that covers up to 75 percent of your crops. In 2013-2014, corn commodity prices were \$2.36 USD per bushel.



SCENARIO INFORMATION

Brazilian

FARMER

You are a Brazilian farmer facing the realities of tropical agriculture, including pests, less-than-ideal soil conditions and heavy rainfall.

REGION



Brazil

ACREAGE



20,000 Acres

TARGET
AVERAGE YIELD



76.5 Bushels/Acre

BUDGET



\$6.2 Million

TECHNOLOGY MARKETPLACE

	OPTIONS	TECHNOLOGY
PLANTING	SEED CHOICES (One seed option required)	Hybrid
		GMO/Traited
	TREATMENTS	Seed Applied Products
	PRECISION AGRICULTURE	Precision Agriculture Software for GMO Seeds
	NEW PLANTING EQUIPMENT	Planting Equipment - Planter & Tractor
Precision Planting Retrofit		
CROP MANAGEMENT	COVER CROPS	Cover Crops
	IRRIGATION SOLUTION	Center Pivot Irrigation System
	SOIL MANAGEMENT	Microbials
		Synthetic Fertilizer - 50% Formula
		Synthetic Fertilizer - 100% Formula
	CROP PROTECTION	Insecticide (Option to purchase multiple applications)
Herbicide (Option to purchase multiple applications)		
HARVEST	NEW PLANTING EQUIPMENT	Combine/Harvesting Equipment
		Storage Fee (Required purchase)

DESCRIPTION	COSTS	EFFECT ON YIELD %
This hybrid variety can help preserve yield potential in limited water conditions.	23%	
This GMO/traited seed includes the Bt trait, which protects against damage from corn rootworm (prevalent in the U.S. and Brazil). It also provides U.S. farmers with the broadest spectrum of above - and below-ground insects, as well as herbicide tolerance.	32%	
Seed applied products, like fungicides or insecticides, are a technique in which crop protection elements are applied to the outside of the seed. Using seed applied products can help lower the number of pesticide sprays needed, as well as help boost overall yield.	15%	5% yield increase if purchased
These mobile apps provide weather, soil and crop data on a field level basis that can improve planting decisions. Field and weather information is updated in real time enabling you to make farming choices as soon as possible.	5%	10% yield increase if purchased
A planter is necessary to start off the growing season. Purchasing a new planter guarantees working machinery for this growing season. A tractor is required to pull the planter.	30%	
This is an addition for your planter that enables you to plant twice as fast, which will help you beat any weather delays resulting in a late planting. It may also include electronic components, such as a GPS and iPad.	16%	5% yield increase if purchased
Cover crops are plants seeded in agricultural fields, within or outside the regular growing season, with the primary purpose of improving or maintaining ecosystem quality. These crops can include grasses like wheat, or legumes like alfalfa, and can help prevent fertilizer runoff, soil erosion and soil denitrification from heavy rains. Use of cover crops can often reduce the cost of fertilizer.	15%	
Irrigation is a means of bringing in more water to your crops in the event of drought. The cost listed includes buying the irrigation system.	20%	
Microbials are applied to seeds before planting, in-furrow or sprayed on crops. They can help protect crops from pests and diseases and enhance plant productivity and fertility.	10%	5% yield increase if purchased
Synthetic fertilizers are applied to soils or to plant tissues (usually leaves) and supply one or more plant nutrients essential to their growth. Most fertilizers increase nitrogen and can help boost your overall yield.	23%	10% yield increase if purchased
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Insecticide can help prevent insect infestation, as well as manage current infestations. One application can help manage one infestation. Brazilian farmers typically spray three times.	10%	
Herbicides can help prevent weed infestation as well as manage current infestations. Weeds can compete with your crops for nutrients, resulting in a lower yield. One application will help manage one infestation. Brazilian farmers typically spray three times.	10%	
A combine is necessary to finish the growing season and harvest your crops. By purchasing a new one, it guarantees you working machinery for this harvest.	12%	
Once you harvest your crops, you need to store and protect them from insects. This is a required purchase for Brazilian farmers.	2%	